

UTILITIES KINGSTON

CITY OF KINGSTON WASTEWATER MASTER PLAN

CONDITION ASSESSMENT REPORT -
WASTEWATER

JANUARY, 2017



**CITY OF KINGSTON
WASTEWATER MASTER PLAN
CONDITION ASSESSMENT REPORT -
WASTEWATER**

Utilities Kingston

Final Report

Project n°: 151-02944-00
Date : January, 2017

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SIGNATURES

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1 INTRODUCTION

1.1 MASTERPLAN

The City of Kingston retained WSP to undertake a Wastewater Master Plan. The purpose of the Master Plan project is to establish servicing strategies for wastewater infrastructure for the core urban areas and surrounding communities in the City for the next 20 years, per the City's Official Plan.

A key component of the Master Plan is to incorporate the City's Official Plan, as well as the Utilities Kingston Vision, Values and Mission statement into long-term infrastructure planning.

An integral part of the Wastewater master plan was to conduct a condition assessment to give an overview of the state of all Utility Kingston owned and run facilities. This report will outline the process undertaken and then present the results of the Condition Assessment for the Wastewater System.

1.2 SYSTEM OVERVIEW

The City of Kingston wastewater system comprises an area of approximately 8258 ha. It is split between three regions:

1. Kingston West (3953ha, 44,400 POP)
2. Kingston Central (2919ha, 54,600 POP)
3. Kingston East (1386ha, 10,200 POP)

Wastewater flow is collected from Kingston West and conveyed via gravity and pump stations to Cataraqui Bay Wastewater Treatment Plant (WWTP). Wastewater and combined sewer flow is collected from Kingston Central and East and conveyed via gravity and pump stations (PSs) to Ravensview WWTP. Additionally the Cana WWTP, located north of the 401, services the Cana subdivision. Figure 1-1 is a map of the 2015 City of Kingston Wastewater Collection System.

The City of Kingston has many challenging topographical and geotechnical conditions, which make conveying the City's sewage solely by gravity unfeasible at many locations. As a result, pump stations were constructed to overcome these challenges and avoid deep sewers built in rock. There are 30 sewage pump stations in the City of Kingston area, owned and operated by Utilities Kingston (UK). There are additional private pump stations in the City that also contribute to the UK collection system; however, these will not be analyzed in detail as part of this Master Plan. Figure 1-2 and Figure 1-3 demonstrate the pump station network in Kingston West and Central/East respectively.



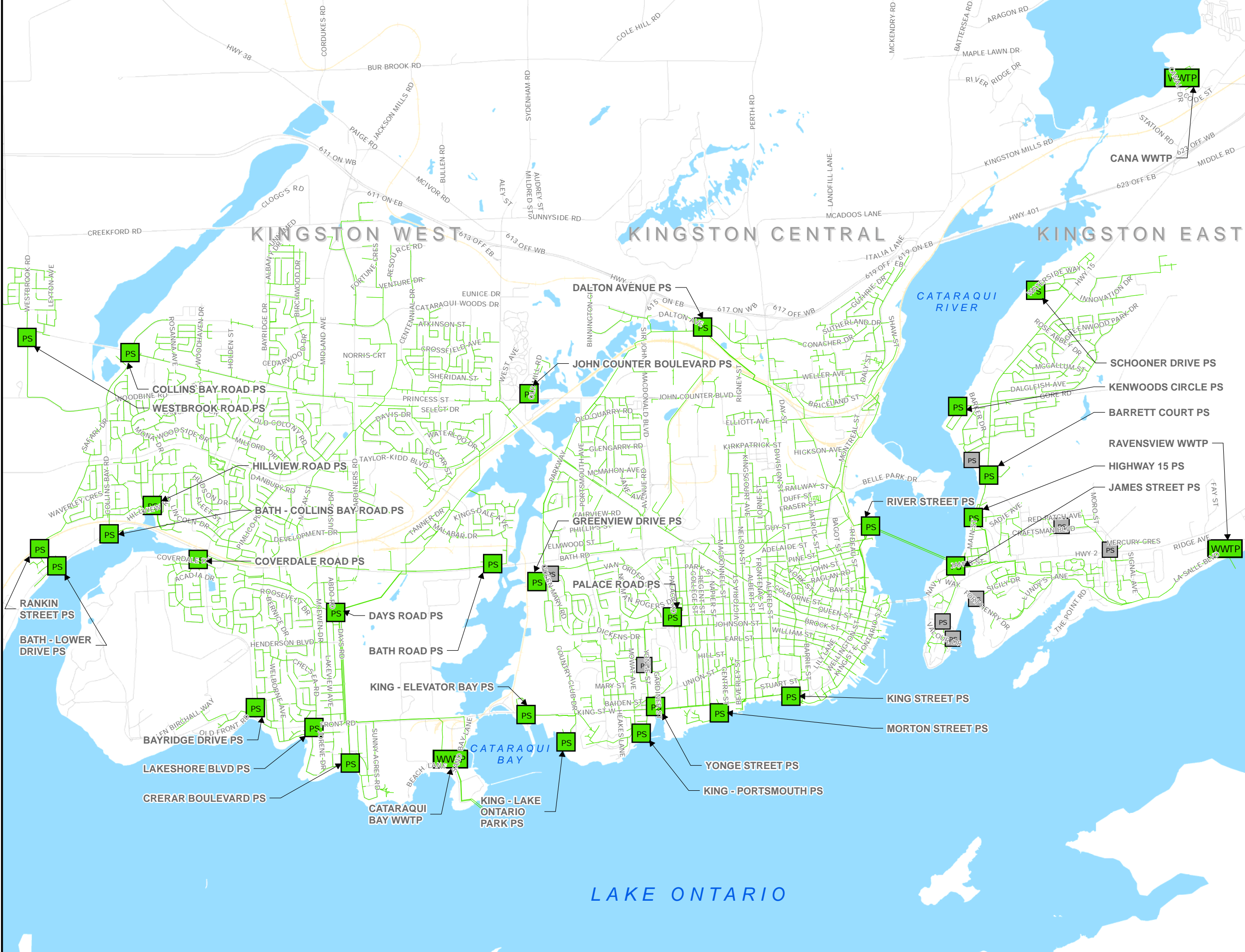
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Legend

- WASTEWATER TREATMENT PLANT
- SANITARY PUMPING STATION
- SANITARY PUMPING STATION (NOT MODELLED)
- EXISTING SANITARY SEWER
- WATERBODY



Data Source: Ontario Base Mapping, Ministry of Natural Resources, August 2013. Water and Waste Water Systems, Utilities Kingston, April 2015, City of Kingston.

Scale:
0 300 600 1,200 Meters
1:47,500



Project:
Water and Wastewater Master Plan Updates
City of Kingston, Ontario

Title:
WASTEWATER FACILITIES

Project No.:	Date:		
151-02944-00	DECEMBER 2016		
Drawn By:	Checked By:	Code:	Figure No.:
CM	MF	CA	1-1

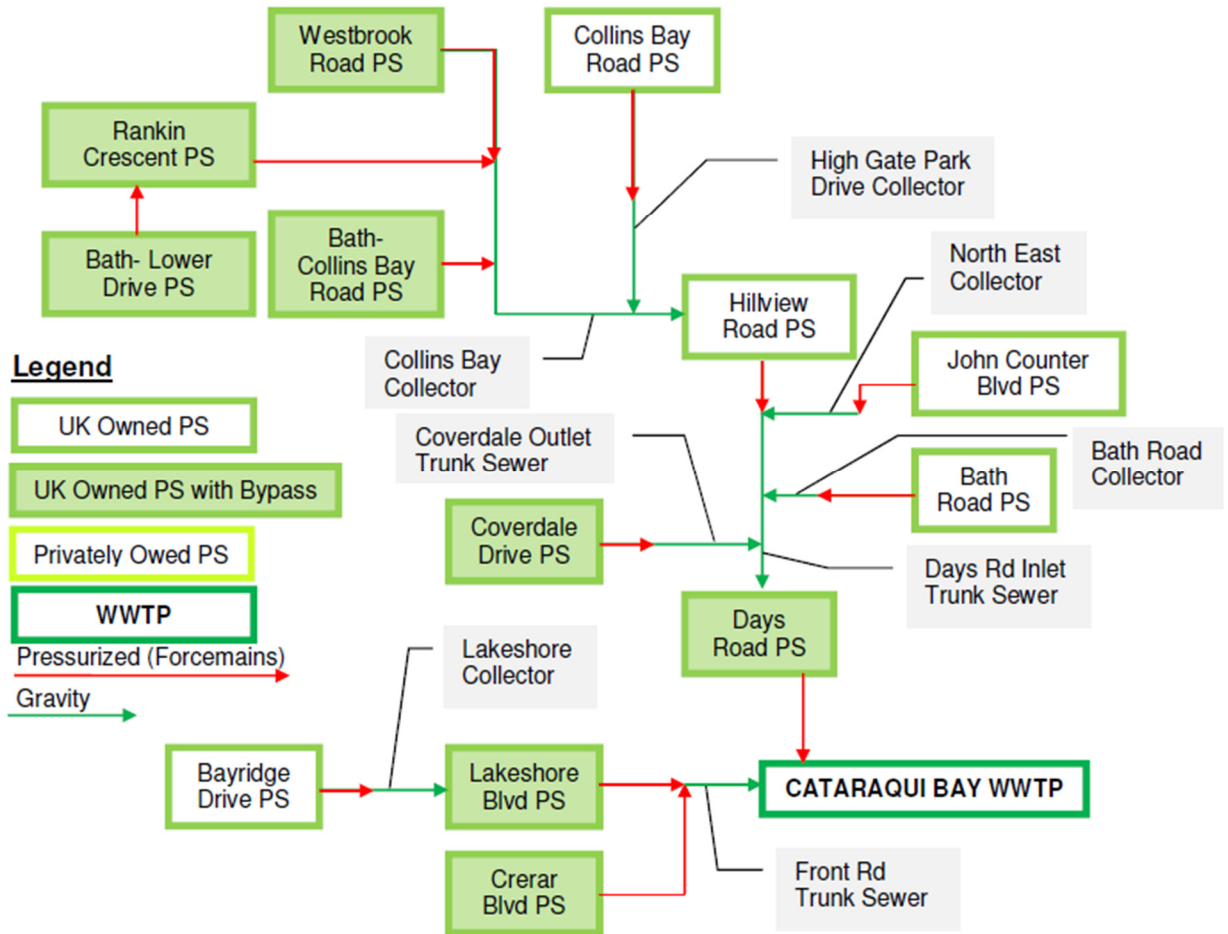


Figure 1-2 Kingston West Pumping Stations

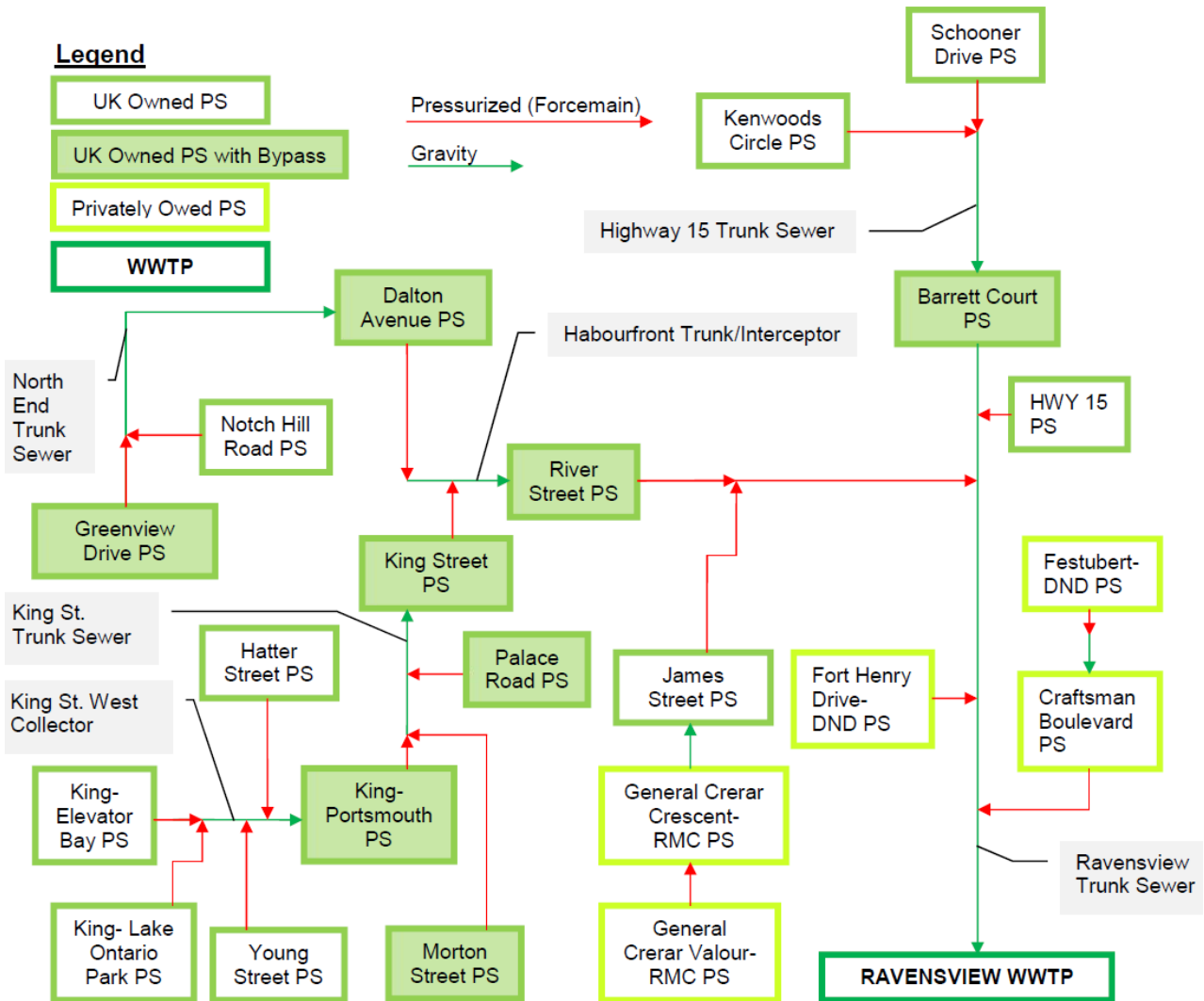


Figure 1-3 Kingston Central/East Pumping Stations

1.3 OBJECTIVE

The objective of the Condition Assessment was to gain an understanding of what facilities form part of the City's vast Wastewater System and evaluate each facility's importance to the system; the condition of the facility and the establishment of a reliability rating for each facility.

The rating of each facility provides an important understanding of the condition and criticality of the different facilities and determines repair, rehabilitation and replacement needs of the facilities to develop a proper strategy for the phasing of expenditures. An understanding of the risk of failure to facility operation will enable prioritization and mitigation actions and optimize capital allocation based on this risk. This aspect will be integrated into the Master Planning process to ensure that condition and criticality are an aspect of the Capital Improvement Plan.

2 SCOPE OF WORK

The scope of work for this report was to assess the condition of all wastewater facilities owned by UK comprising of three wastewater treatment plants and 30 pumping stations (as previously seen in Figure 1-2 and Figure 1-3).

2.1 PUMPING STATIONS

The Condition Assessments comprised of a review of background information, which familiarised the Condition Assessment team with the wastewater system and its facilities, but also allowed the gathering of information to complete a Pumping Facility Summary Sheet for each facility.

Following the review of background information, a high-level visual field inspection was conducted by a multidiscipline WSP team in conjunction with UK operators. Each facility was split up and assessed under the following Asset categories:

- Civil/Site Conditions
- Structural
- Process Piping and Equipment
- Instrumentation
- Process and Building Electrical
- Building Mechanical

During the Condition Assessment of the wastewater facilities, no testing was undertaken.

Additionally, pumping stations on the Department of National Defence (DND) base and Royal Military Collage (RMC) were excluded from the scope. Other facilities not assessed were the combined sewer overflows and bypass chambers.

2.2 WASTEWATER TREATMENT PLANTS (WWTP)

Although the intention was to assess all WWTPs, during the period of review there were upgrades being conducted so assessment was limited to the following:

CANA WWTP

Due to current upgrades (full plant replacement) the facility was not reviewed.

CATARAQUI BAY WWTP

Due to current upgrades the facility was not reviewed in full, but an explanation of the upgrade and rating was established taking the upgrade into account. Part of the treatment plant was reviewed in full:

- The Thickening Building
- The Anaerobic Digesters

RAVENSVIEW WWTP

A review of the whole plant was conducted with a more focused review on systems not upgraded during 2006 upgrades.

3 PUMP STATION FACILITY SUMMARY SHEET

Utilities Kingston provided us with the majority of as-built drawings and SCADA data for the pumping stations. This information was used to generate a Pump Station Facility Summary for each pumping station. This Pump Station Facility Summary compiles all of the relevant information from an operational standpoint and acts as a resource that will be used to ensure accuracy in the Wastewater Model that is being developed for the Master Plan.

Although this sheet was primarily completed from as-built drawings, any data possible was checked or completed during field work. Figure 3-1 shows a completed Pump Station Facility Summary Sheet for Crerar Boulevard Pumping Station and Section 7 contains completed Pump Station Facility Summary Sheets.

Pump Station Facility Summary

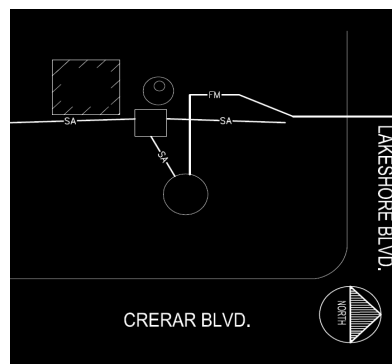


Facility Name:	Crerar Boulevard			Notes:
Facility Address:	Corner of Crerar and Lakeshore BLVD			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	374,718.71E 4,896,564.21N			
Reference Drawing(s):	541-1 & 541-2, Aug 1994			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	5.50	0.38	
Main Pipeline Length & Dia.:	m	570.00	0.20	
Main Discharge Location:	n/a	Crerar Blvd. Collector		
Overflow Pipe Length & D.:	m	N/A	0.30	
Overflow Discharge Loc.:	n/a	Junction MH		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	Yes		

Photo: Exterior



Plan View:



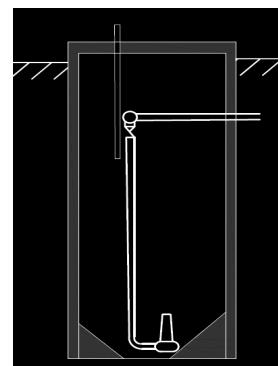
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	541-2		
Base Elevation & Level:	m	71.05	0.00	
Low Alarm Elevation:	m	71.50	0.45	
Minimum Elevation:	m	71.36	0.31	
Initial/Normal Elev. & Level:	m	72.40	1.35	
Maximum Elevation:	n/a	75.11	4.06	
High Alarm Elevation:	m	74.20	3.15	
Ground Elevation:	m	78.25	7.20	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	10.50		
Length & Width (or Diam.):	m	1.83		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Crerar Boulevard	Notes:				
Facility Address:	Corner of Crerar and Lakeshore					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	374,718.71E 4,896,564.21N					
Reference Drawing(s): Include Revision(s) & Date(s)	541-1 & 541-2, Aug 1994					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated.				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3152 20 Hp					
Impeller ID or Size:	No. 492 (210mm)					
Variable-Speed?:	No	No				
Year Installed	1994.00					
Pump Curve ID in Model:	FP 3152 LT 3~ 492					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	57.00				
Peak Capacity	L/s	96.90				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	77.00	77.00			
ECA Rated Head:	m	25.00	25.00			
Elevation On:	m	72.40	72.70			
Elevation Off:	m	71.76	71.76			
Pump (Impeller) Elevation:	m	71.36	71.36			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line ():	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1994):	m	5.34	0.15	CML	1/1/1	CV, GV, 90EL
Pump Station (1994):	m	2.20	0.15	CML		GV, TF
Yard Piping (1994):	m	N/A	0.15/0.2	PVC	2/1	GV, FL
Main Pipeline (1994):	m	5/570	0.2/0.15	PVC	2/1/1/1	40EL, 90EL, GV, C
Exit Elevation:	m	76.99				
Legend: CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral						
Notes: Problem with natural gas L.P. alarm						

4 FIELD ASSESSMENT

4.1 PUMPING STATIONS (APPENDIX A)

Each facility underwent a high level Field Assessment – a site visit by a multidiscipline WSP team with all the findings recorded on the Field Assessment Sheet (Appendix A and Table 4-1).



Each facility was split into the following asset lifecycle categories with all major components which form part of each asset being assessed:

- Civil/Site Conditions
- Structural
- Process piping and Equipment
- Instrumentation
- Process and Building Electrical
- Building Mechanical

The Field Assessment conducted was a high-level visual inspection of these components, and any observations made during station operation (by UK operators) and any input provided by UK staff was recorded.

Each major component was scored on its Risk Level, Effective Life and Condition Rating (Refer to Table 4-1). This scoring was recorded on the Field Assessment Sheet and formed part of the Risk Assessment calculation to give each facility its Reliability Rating (Section 5).

Table 4-1 Excerpt from the Field Assessment Sheet: Bath Road PS – Structural

		City of Kingston - Wastewater Master Plan			
Field Assessment Sheet					
Project No: UK-15-02			Project No: 151-02944-00		
Inspection Site:	Bath Road PS	Inspection By:	RW + JS		
Inspection Location:	4054 Bath Road	Date:	26th May 2015		
Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life Remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		22	1
Roof	Good Condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good Condition	1		22	1
Ladders	Good Condition	1		22	1

4.1.1 COMPONENT RISK LEVEL

The likelihood of asset failure was determined by the WSP engineer taking into account any comments made by UK staff and the overall condition of the component. The risk level is scored between 1 (Unlikely) and 5 (Very likely).

4.1.2 MAINTENANCE PROGRAM

This column is to show which components are deemed by UK to be part of a maintenance program. Any item part of the maintenance program was scored accordingly, taking this work into account.

4.1.3 EFFECTIVE LIFE REMAINING

The effective life (in years) is the life remaining of the component as deemed by the WSP engineer taking into account any comments made by UK staff and the overall condition of the component.

4.1.4 CONDITION RATING

The condition rating of the component as deemed by the WSP engineer taking into account any comments made by UK staff. The Condition Rating will be scored between 1 (Excellent) and 5 (Poor).

The Asset Category Risk Level, Effective Life remaining and Condition Rating of each component will be used to calculate the Overall Asset rating as described in Sections 4.1.5 - 4.1.7.

Table 4-2 Asset Total – Overall Score of Each Asset

PROCESS MECHANICAL	
Overall Risk Level	3.2
Overall Effective Life Remaining	9.8
Overall Condition Rating	3.0

4.1.5 OVERALL RISK LEVEL

The average of the Risk Level for each asset is recorded in the Risk Assessment Sheet (Appendix C and Section 4) where it is used to calculate the Asset Risk Factor. (Table 4-2)

4.1.6 OVERALL EFFECTIVE LIFE REMAINING

The average effective life (in years) remaining of each asset is recorded in the Risk Assessment Sheet where it is used to calculate the Asset Risk Factor. (Table 4-2)



4.1.7 OVERALL CONDITION RATING

The average condition rating of each asset category is recorded in the Risk Assessment Sheet where it is used in calculating the Total Condition of the facility. (Table 4-2)

4.2 WASTEWATER TREATMENT PLANTS (APPENDIX C)

The format for the Wastewater Treatment Plant Field Assessment Sheet was different to that of pumping stations, with the treatment plants being split by process (Table 4-3). Each process was reviewed by a multidiscipline team to give an overall condition assessment of each process with this being recorded on the Field Assessment Sheet. (Appendix C).

Table 4-3 Excerpt from the Field Assessment Sheet: Ravensview WWTP (Continues on Next Page)

		City of Kingston - Wastewater Master Plan			
Field Assessment Sheet					
Project No: UK-15-02			Project No: 151-02944-00		
Inspection Site:		Ravensview WWTP		Inspection By:	
Inspection Location:		936 Highway 2		Date:	
				RW + JS + MV + MM	
				15th July 2015	
System		Condition Assessment			
Head works / Septage Receiving		<p>Bar Screen - 2 older models and 1 new bar screen added during up grade. Old bar screens - Recently retrofitted with support bracing so that screen element does not move out of position and cause a shutdown Experience normal wear and tear with occasional break down.</p> <p>Slurry Pumps get airlocked from time to time.</p> <p>Grit Channels - North conveyor on start -up experiences too much torque causing conveyor to malfunction and due to position is difficult to repair - suggested that drive is changed to soft start/vfd so power/torque is not immediate (cheap solution).</p> <p>Sluice gate valves take a long time to open - add the possibility to use a portable actuator.</p> <p>Operator reports hydrogen sulphide related odours causing rust build up. Verification of ventilation rates and gas detection system should be undertaken.</p>			
Primary Clarifiers		<p>Tank concrete starting to decay - possible action required in the next 10-15 years.</p> <p>Sludge and scum remover - run with plastic sprockets and steel chains once plastic sprocket wears the boards drop below surface meaning they are less effective.</p> <p>Tanks 2 and 7 currently out of commission.</p> <p>Remaining tanks also require upgrade to sprocket/chains - suggested steel sprockets are added instead of plastic and oilers are added to keep chains lubricated.</p> <p>Scum pumps have had to be removed and welded - not currently an issue, but could be required again.</p> <p>Primary sludge pumps experience premature issues with rotors and stator consideration for replacement with centrifugal solid handling pumps.</p> <p>Operator indicated that BAF effluent overflows primary bypass chamber during high flows - Hydraulics should be assessed to determine if bypass chamber wall can be raised to prevent this from happening.</p>			

5 RELIABILITY RATING

The rating will provide an important understanding of the condition and criticality of the different facilities and determine repair, rehabilitation and replacement needs of the facilities to develop a proper strategy for the phasing of expenditures.

An understanding of the risk of failure to facility operation will enable prioritization and mitigation actions and optimize capital allocation based on this risk.

A formula based approach, using background information and data gathered during field work, was used to calculate the Reliability Rating for each facility:

Reliability Rating = Total Facility Risk (A) x Total Equipment Risk (B) x Total Condition Rating (C)

5.1 RISK ASSESSMENT SHEET (APPENDIX D)

The Risk Assessment tabulates the facility Information and the findings from the Field Assessment. This table was used to calculate each Facility's Facility Risk, Equipment Risk, Condition Rating and ultimately the Reliability Rating. The Risk Assessment Sheet can be found in Appendix C.

5.2 FACILITY RISK (A)

The Facility Risk involved a review of each facility – the type of customer the facility services, the quantity of customers and the outcome (if any) a failure could cause to customers health, property and safety and to the environment of the surrounding area.

The evaluation was split into the four categories and was scored as follows (Sections 5.2.1 - 5.2.4). The findings were used to calculate the Facility Risk and recorded in the Risk Assessment Sheet (Appendix C). An excerpt from the Facility Risk section of the Risk Assessment Sheet is shown in Table 5-1 below. Further details are contained in Section 6.1.

Table 5-1 Excerpt of the Facility Risk Section of the Risk Assessment Sheet

Facility Information		Facility Risk								
Current Name	Old Name	Customer type	Score (0.25)	No. of Customers	Score (0.25)	Risk to the Public	Score (0.4)	Environmental Impact	Score (0.1)	Total Facility Risk - A
Sewer Pump Stations										
Barrett Court PS	Butternut Creek PS	Mixed Use	4	Up to 1,000	3	Moderate	3	Moderate	3	3.3
Bath Road PS	Bath Rd (Walmart) PS	Commercial	2	Up to 1,000	3	Moderate	3	Moderate	3	2.8
Bath-Collins Bay PS	Collins Bay PS	Residential	1	Up to 10,000	4	Moderate	3	Moderate	3	2.8
Bath-Lower PS	Highway 33 PS	Residential	1	<100	2	Remote	2	Moderate	3	1.9
Bayridge PS	Smugglers Cove PS	Mixed Use	4	Up to 10,000	4	Remote	2	Remote	2	3.0
Collins Bay PS	Highway 2 PS	Residential	1	Up to 1,000	3	Moderate	3	Moderate	3	2.5
Coverdale PS	Coverdale PS	Residential	1	Up to 1,000	3	Remote	2	Moderate	3	2.1
Crerar Boulevard PS	Crerar Blvd PS	Mixed Use	4	Up to 1,000	3	Remote	2	Moderate	3	2.9

5.2.1 CUSTOMER TYPE

The customer type serviced by the facility was determined, with the following scoring and weighting:

Table 5-2 Customer Type Scoring

CUSTOMER TYPE	SCORE
Residential	1
Commercial	2
Industrial	3
Mixed Use	4
High Risk	5

Weighting = 0.25

The designation “high risk” customers will be used to describe facilities that service:

- Military bases
- Hospitals
- Residential Institutions - Nursing Homes, old age homes, etc.
- Large water users

5.2.2 NUMBER OF CUSTOMERS

The number of customers affected by any disruption was determined, with the following scoring and weighting:

Table 5-3 Customer Number Scoring

CUSTOMER NUMBER	SCORE
N/A	0
<100	2
Up to 1,000	3
Up to 10,000	4
> 10,000	5

Weighting = 0.25

5.2.3 RISK TO PUBLIC

The risk to public health, property and safety by any failure was established. This included aspects such as proximity of the facility to public areas, schools, hospitals etc. The following scoring and weighting was used:

Table 5-4 Risk to the Public Scoring

RISK TO THE PUBLIC	SCORE
Nil	0
Remote	2
Moderate	3
Extreme	5

Weighting = 0.4

5.2.4 ENVIRONMENTAL IMPACT

The environmental impact of failure was determined based on the proximity of the facility to natural features, creeks, rivers, lakes, environmental protected areas etc. The following scoring and weighting was used as shown in Table 5-5:

Table 5-5 Environmental Impact Scoring

ENVIRONMENTAL IMPACT	SCORE
Nil	0
Remote	2
Moderate	3
Extreme	5

Weighting = 0.1

5.2.5 CALCULATING TOTAL FACILITY RISK (A)

Using the weighted score of the four factors above, the Facility Risk Factor was then calculated using the following calculation:

Facility Risk (A) = Customer Type + No. of Customers. + Risk to Public + Environmental Impact

This gave a Total Facility Risk between 0.25 and 5.

5.3 EQUIPMENT RISK (B)

The Equipment Risk is the risk of failure of the equipment at each facility taking into account the Criticality, the Probability of Failure, the Overall Risk, and the Effective Life remaining of each asset as recorded during Field Assessments.

The findings were used to calculate the Equipment Risk and recorded in the Risk Assessment Sheet (Appendix C). Table 5-6 below shows an excerpt from the Equipment Risk section of the Risk Assessment Sheet. Refer to section 6.2 for the entire Equipment Risk section of the Risk Assessment Sheet.

Table 5-6 Excerpt from the Equipment Risk Section of the Risk Assessment Sheet

Facility Information		Equipment Risk												
		Process Mechanical (Pumps, Piping, Valves, etc.)						Process Electrical (Main Breaker , Transformer, etc.)						
Current Name	Old Name	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)		Process Mech. Risk Factor - B3 (0.2)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)		Process Electrical Risk Factor - B5 (0.15)	Total Equipment Risk - B
					Years	Score					Years	Score		
Sewer Pump Stations														
Barrett Court PS	Butternut Creek PS	3	4	2.9	11-15	3	3.2	3	4	1.3	16-20	2	2.6	3.4
Bath Road PS	Bath Rd (Walmart) PS	2	2	1.8	16-20	2	2.0	2	2	1.0	20+	1	1.5	1.7
Bath-Collins Bay PS	Collins Bay PS	3	1	3.8	5-10	4	3.0	3	1	1.0	20+	1	1.5	2.1
Bath-Lower PS	Highway 33 PS	1	1	2.0	11-15	3	1.8	1	1	1.5	11-15	3	1.6	1.7
Bayridge PS	Smugglers Cove PS	3	1	2.0	11-15	3	2.3	3	1	1.0	16-20	2	1.8	2.1
Collins Bay PS	Highway 2 PS	2	3	1.8	11-15	3	2.4	2	3	1.0	20+	1	1.8	2.2

5.3.1 CRITICALITY

Criticality is the consequence of failure and was deemed by the WSP engineer taking into account the criticality of the asset and was scored between 1 (Minor) and 5 (Critical).

5.3.2 PROBABILITY

The probability (likelihood) of failure was deemed by the WSP engineer taking into account the asset being assessed and was be scored between 1 (Unlikely) and 5 (Very likely).

5.3.3 OVERALL RISK FOR EACH ASSET

The overall risk for each asset was established during the Field Assessment with a score between 1 (Unlikely) and 5 (Very likely).

5.3.4 EFFECTIVE LIFE REMAINING

The effective life remaining was established during the Field Assessment and scored using the following ranges:

Table 5-7 Effective Life Remaining Scoring

EFFECTIVE LIFE REMAINING (YEARS)	SCORE
20+	1
15-20	2
10-15	3
5-10	4
1-5	5

5.3.5 CALCULATING ASSET RISK FACTOR (B1–B7)

The Criticality, Probability, Overall Risk and Effective life were all given a weighting of 0.25 and once this weighting was applied the formula used to calculate Asset Risk Factor (B):

$$\mathbf{B1, B2, B3, \text{ etc} = \text{Criticality} + \text{Probability} + \text{Overall Risk} + \text{Effective Life remaining}}$$

This gave an Asset Risk Factor of between 1 and 5.

5.3.6 CALCULATING TOTAL EQUIPMENT RISK

To calculate the Total Equipment Risk, the importance of each asset to the daily operation of the facility was taken into account. Therefore the following weighting was used:

Table 5-8 Asset Weighting

ASSET	WEIGHTING
B1 - Civil/Site	0.1
B2 - Structural	0.2
B3 - Process Mechanical	0.2
B4 - Instrumentation	0.15
B5 - Process Electrical	0.15
B6 - Building Mechanical	0.1
B7 - Building Electrical	0.1

Once the weighting was applied, the Total Equipment Risk was calculated by adding the score obtained for each Asset:

$$\mathbf{\text{Total Equipment Risk (B)} = \text{B1} + \text{B2} + \text{B3} + \text{B4} + \text{B5} + \text{B6} + \text{B7}}$$

5.3.7 PUMPING STATIONS WITHOUT BUILDINGS

The following pumping stations do not have a building to evaluate. This lack of building resulted in B6 (Building Mechanical) and B7 (Building Electrical) being not applicable and therefore having a score of 0 (Zero):

- Bath-Collins Bay
- Bath-Lower
- Bayridge Drive
- Collins Bay Road
- Coverdale
- Hatter Street
- John Counter Boulevard
- Notch Hill
- Schooner Drive
- Westbrook Road
- Yonge Street
- King-Lake Ontario

The weighting was redistributed as follows:

Table 5-9 Asset Weighting - Redistribution

ASSET	WEIGHTING
B1 - Civil/Site	0.15
B2 - Structural	0.25
B3 - Process Mechanical	0.30
B4 - Instrumentation	0.15
B5 - Process Electrical	0.15
B6 - Building Mechanical	0
B7 - Building Electrical	0

Once the weighting was applied, the Total Equipment Risk was calculated by adding the score obtained for each Asset as per the pumping stations with buildings:

$$\text{Total Equipment Risk (B)} = \text{B1} + \text{B2} + \text{B3} + \text{B4} + \text{B5} + \text{B6} + \text{B7}$$

5.4 CONDITION RATING (C)

The Condition Rating was established and recorded for each asset during the Field Assessments. These findings were used to calculate the Total Condition Rating and recorded in the Risk Assessment Sheet (Appendix C). Table 5-10 below shows an excerpt from the Condition Rating section of the Risk Assessment Sheet. The entire Condition Rating section can be seen in section 6.3.

Table 5-10 Excerpt of the Condition Rating Section of the Risk Assessment Sheet

Facility Information		Condition Rating (From Field Assessment)							
Current Name	Old Name	Civil/Structural - C1 (0.1)	Structural - C2 (0.2)	Process Mechanical - C3 (0.2)	Instrumentation/SCADA - C4 (0.15)	Process Electrical - C5 (0.15)	Building Mechanical - C6 (0.1)	Building Electrical - C7 (0.1)	Total Condition Rating - C
Sewer Pump Stations									
Barrett Court PS	Butternut Creek PS	1.7	1.3	2.9	1.8	1.3	2.3	1.0	1.8
Bath Road PS	Bath Rd (Walmart) PS	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.2
Bath-Collins Bay PS	Collins Bay PS	1.0	1.0	3.4	1.3	1.0	0.0	0.0	1.7
Bath-Lower PS	Highway 33 PS	1.0	2.7	3.0	1.8	1.0	0.0	0.0	2.1
Bayridge PS	Smugglers Cove PS	1.0	1.0	2.2	1.8	1.0	0.0	0.0	1.4
Collins Bay PS	Highway 2 PS	1.0	1.3	1.8	1.5	1.0	0.0	0.0	1.4
Coverdale PS	Coverdale PS	1.0	1.0	2.0	1.8	1.0	0.0	0.0	1.4
Crerar Boulevard PS	Crerar Blvd PS	1.0	1.0	2.8	1.3	1.3	1.0	1.0	1.4

5.4.1 CALCULATING TOTAL CONDITION RATING

Once the Condition Rating results were entered into the Risk Assessment Sheet, the following weighting were used as shown in Table 5-11:

Table 5-11 Asset Weighting – Condition Rating

ASSET	WEIGHTING
C1 - Civil/Site	0.1
C2 - Structural	0.2
C3 - Process Mechanical	0.2
C4 - Instrumentation	0.15
C5 - Process Electrical	0.15
C6 - Building Mechanical	0.1
C7 - Building Electrical	0.1

Once the weighting was applied, the Total Condition Rating was calculated by adding the score of all assets together:

$$\text{Total Condition Rating (C)} = \text{C1} + \text{C2} + \text{C3} + \text{C4} + \text{C5} + \text{C6} + \text{C7}$$

5.4.2 PUMPING STATIONS WITHOUT BUILDINGS

The following pumping stations do not have a building to evaluate. This lack of building resulting in B6 (Building Mechanical) and B7 (Building Electrical) being not applicable and therefore having a score of 0 (Zero):

- | | | |
|--------------------|--------------------------|---------------------|
| → Bath-Collins Bay | → Coverdale | → Schooner Drive |
| → Bath-Lower | → Hatter Street | → Westbrooke Road |
| → Bayridge Drive | → John Counter Boulevard | → Yonge Street |
| → Collins Bay Road | → Notch Hill | → King-Lake Ontario |

The weighting was redistributed as follows in Table 5-12:

Table 5-12 Asset Weighting – Condition Rating Redistributed

ASSET	WEIGHTING
C1 - Civil/Site	0.15
C2 - Structural	0.25
C3 - Process Mechanical	0.3
C4 - Instrumentation	0.15
C5 - Process Electrical	0.15
C6 - Building Mechanical	0
C7 - Building Electrical	0

Once the weighting was applied, the Total Equipment Risk was calculated by adding the score obtained for each Asset as per the pumping stations with buildings:

$$\text{Total Condition Rating (C)} = C1 + C2 + C3 + C4 + C5 + C6 + C7$$

5.5 OVERALL RATING

Once all data was recorded in the Risk Assessment Sheet, the Reliability Rating was calculated for all facilities. The Reliability Rating allows all facilities to be compared with the Overall Rating (A, B, C, D, E) established. Table 5-13 below outlines the Overall Rating used to determine the timeframe for any recommended intervention.

Table 5-13 Overall Rating Table

OVERALL RATING	RELIABILITY RATING	DESCRIPTION
A	0 - 5	No action required
B	6 – 10	Minor repairs may be required to non-critical components. Review required, but no work required immediately.
C	11 - 40	Certain assets/equipment may need replacing in the future. Review and plan maintenance.
D	41 – 99	Certain assets/equipment may need replacing in the immediate future and review is required to outline maintenance.
E	100 – 125	Immediate action required to prevent failure and minimise impact to customers.

6 RESULTS – PUMPING STATIONS

This section gives a breakdown of each segment of the Risk Assessment Sheet (Appendix C) for all pumping stations. For WWTPs, see Section 7.2.

6.1 FACILITY RISK

Table 6-1 below shows the importance of each Pumping Station to the Wastewater system. As it can be seen from the table below, low flow PS such as Bath-Lower or Hatter St. score lower as these PS are not as critical. Those that scored high such as Dalton Avenue or Days Road service a larger, more diverse population.

Facility Information					Facility Risk								
Current Name	Old Name	Year of Installation/upgrade	As Builts available	Pump Info Available	Customer type	Score (0.25)	No. of Customers	Score (0.25)	Risk to the Public	Score (0.4)	Environmental Impact	Score (0.1)	Total Facility Risk - A
Barrett Court PS	Butternut Creek PS	1986	Yes	Yes	Mixed Use	4	Up to 1,000	3	Moderate	3	Moderate	3	3.3
Bath Road PS	Bath Rd (Walmart) PS	2012	Yes	Yes	Commercial	2	Up to 1,000	3	Moderate	3	Moderate	3	2.8
Bath-Collins Bay PS	Collins Bay PS	1977	No	Yes	Residential	1	Up to 10,000	4	Moderate	3	Moderate	3	2.8
Bath-Lower PS	Highway 33 PS	1981	No	Yes	Residential	1	<100	2	Remote	2	Moderate	3	1.9
Bayridge PS	Smugglers Cove PS	2000	No	Yes	Mixed Use	4	Up to 10,000	4	Remote	2	Remote	2	3.0
Collins Bay PS	Highway 2 PS	1997	Yes	Yes	Residential	1	Up to 1,000	3	Moderate	3	Moderate	3	2.5
Coverdale PS	Coverdale PS	1994	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Moderate	3	2.1
Crerar Boulevard PS	Crerar Blvd PS	1994	Yes	Yes	Mixed Use	4	Up to 1,000	3	Remote	2	Moderate	3	2.9
Dalton Avenue PS	North End PS	2007	Yes	Yes	Industrial	3	> 10,000	5	Extreme	5	Moderate	3	4.3
Days Road PS	Days Rd PS	1995	Yes	Yes	Mixed Use	4	> 10,000	5	Extreme	5	Extreme	5	4.8
Greenview Drive PS	Greenview Drive PS	1970	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Moderate	3	2.1
Hatter Street PS	Hatter St PS	1975	Yes	Yes	Residential	1	<100	2	Remote	2	Remote	2	1.8
Hillview Road PS	Mona Dr PS	1997	Yes	Yes	Mixed Use	4	Up to 10,000	4	Moderate	3	Moderate	3	3.5
Highway 15	B-40 PS	1995	Yes	Yes	Mixed Use	4	Up to 1,000	3	Remote	2	Moderate	3	2.9
James Street PS	B-64 PS	1994	Yes	Yes	Mixed Use	4	Up to 1,000	3	Moderate	3	Moderate	3	3.3
John Counter Boulevard PS	John Counter Blvd PS	2011	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
Kenwoods Circle PS	Woods Landing PS	1990	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
King Street PS	O'Kill PS	2013	Yes	Yes	High Risk	5	> 10,000	5	Remote	2	Extreme	5	3.8
King-Elevator Bay PS	Commodore's Cove or	1988	No	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
King-Lake Ontario Park PS	Lake Ontario Park PS	1966	No	Yes	Residential	1	<100	2	Remote	2	Remote	2	1.8
King-Portsmouth PS	Portsmouth PS	1999	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
Lakeshore Boulevard PS	Front Rd PS	1995	Yes	Yes	Residential	1	Up to 1,000	3	Moderate	3	Moderate	3	2.5
Morton Street PS	Morton St PS	2005	Yes	Yes	Mixed Use	4	Up to 1,000	3	Remote	2	Remote	2	2.8
Notch Hill Road PS	Notch Hill Rd PS	1970	No	Yes	Residential	1	<100	2	Remote	2	Remote	2	1.8
Palace Road PS	Palace Rd PS	2005	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
Rankin Crescent PS	Rankin Cr PS	1981	Yes	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
River Street PS	River St PS	2006	Yes	Yes	High Risk	5	> 10,000	5	Remote	2	Extreme	5	3.8
Schooner Drive PS	Rivers Edge PS	2002	No	Yes	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
Westbrook PS	Westbrook PS	1997	No	No	Residential	1	Up to 1,000	3	Remote	2	Remote	2	2.0
Yonge Street PS	Yonge St PS	1993	Yes	Yes	Residential	1	<100	2	Remote	2	Moderate	3	1.9

Table 6-1 Risk Assessment Sheet - Facility Risk

6.2 EQUIPMENT RISK

Table 6-2 shows how the Equipment Risk was established and provides a breakdown of which assets impact the Total Equipment Risk. From the table, it can be seen that in the majority of cases the total equipment risk is low and therefore the equipment in the pumping stations are in a good state of repair.

Barrett Court and Days Road stand out as having the worst equipment risk, with scores of 3.4 and 3.9 respectively, due to bad scoring across the board. This would imply that both require an upgrade in the coming years. Section 7.2 gives a full asset summary of what WSP advises to rectify this situation.

Table 6-2 Risk Assessment Sheet - Equipment Risk

Project No: UK-15-02

Project No: 151-02944-00

Facility Information		Equipment Risk																														Total Equipment Risk - B												
		Civil/Site Conditions (Access Roads, Drains, Fencing, etc.)						Structural (Well, Foundations, walls, etc.)						Process Mechanical (Pumps, Piping, Valves, etc.)						Instrumentation and Controls/SCADA (Gauges, Flow meters, etc.)						Process Electrical (Main Breaker, Transformer, etc.)							Building Mechanical (HVAC, Heaters, Thermostats, etc.)						Building Electrical (Interior/Exterior Lighting)					
Current Name	Old Name	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Civil Risk Factor - B1 (0.1)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Structural Risk Factor - B2 (0.2)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Process Mech. Risk Factor - B3 (0.2)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Instrumentation Risk Factor - B4 (0.15)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Process Electrical Risk Factor - B5 (0.15)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Building Mech. Risk Factor - B6 (0.1)	Criticality	Probability	Overall Risk (From Field Assessment)	Effective Life Remaining (Years) (From Field Assessment)	Building Electrical Risk Factor - B7 (0.1)								
Barrett Court PS	Butternut Creek PS	3	4	1.3	11-15	3	2.8	3	4	1.3	16-20	2	2.6	3	4	2.9	11-15	3	3.2	3	4	1.8	11-15	3	3.0	3	4	1.3	16-20	2	2.6	3	4	1.3	11-15	3	2.8	3	4	1.0	16-20	2	2.5	3.4
Bath Road PS	Bath Rd (Walmart) PS	2	2	1.0	16-20	2	1.8	2	2	1.0	20+	1	1.5	2	2	1.8	16-20	2	2.0	2	2	1.0	16-20	2	1.8	2	2	1.0	20+	1	1.5	2	2	1.0	20+	1	1.5	2	2	1.0	16-20	2	1.8	1.7
Bath-Collins Bay PS	Collins Bay PS	3	1	1.0	16-20	2	1.8	3	1	1.0	11-15	3	2.0	3	1	3.8	5-10	4	3.0	3	1	1.3	16-20	2	1.8	3	1	1.0	20+	1	1.5	3	1	0.0	N/A	0	N/A	3	1	0.0	N/A	0	N/A	2.1
Bath-Lower PS	Highway 33 PS	1	1	1.0	11-15	3	1.5	1	1	2.0	11-15	3	1.8	1	1	2.0	11-15	3	1.8	1	1	1.5	11-15	3	1.6	1	1	1.5	11-15	3	1.6	1	1	0.0	N/A	0	N/A	1	1	0.0	N/A	0	N/A	1.7
Bayridge PS	Smugglers Cove PS	3	1	1.0	11-15	3	2.0	3	1	1.0	11-15	3	2.0	3	1	2.0	11-15	3	2.3	3	1	1.5	11-15	3	2.1	3	1	1.0	16-20	2	1.8	3	1	0.0	N/A	0	N/A	3	1	0.0	N/A	0	N/A	2.1
Collins Bay PS	Highway 2 PS	2	3	1.0	11-15	3	2.3	2	3	1.0	11-15	3	2.3	2	3	1.8	11-15	3	2.4	2	3	1.5	11-15	3	2.4	2	3	1.0	20+	1	1.8	2	3	0.0	N/A	0	N/A	2	3	0.0	N/A	0	N/A	2.2
Coverdale PS	Coverdale PS	2	2	1.0	11-15	3	2.0	2	2	1.0	16-20	2	1.8	2	2	2.0	16-20	2	2.0	2	2	1.5	11-15	3	2.1	2	2	1.0	20+	1	1.5	2	2	0.0	N/A	0	N/A	2	2	0.0	N/A	0	N/A	1.9
Crerar Boulevard PS	Crerar Blvd PS	1	2	1.0	16-20	2	1.5	1	2	1.0	20+	1	1.3	1	2	2.0	16-20	2	1.8	1	2	1.3	16-20	2	1.6	1	2	1.2	20+	1	1.3	1	2	1.0	16-20	2	1.5	1	2	1.0	16-20	2	1.5	1.5
Dalton Avenue PS	North End PS	4	2	1.0	16-20	2	2.3	4	2	1.6	16-20	2	2.4	4	2	2.0	16-20	2	2.5	4	2	1.0	16-20	2	2.3	4	2	1.0	20+	1	2.0	4	2	1.3	20+	1	2.1	4	2	1.0	16-20	2	2.3	2.3
Days Road PS	Days Rd PS	5	5	1.0	11-15	3	3.5	5	5	2.3	11-15	3	3.8	5	5	3.5	5-10	4	4.4	5	5	2.4	5-10	4	4.1	5	5	1.8	11-15	2	3.5	5	5	1.6	16-20	2	3.4	5	5	2.3	11-15	3	3.8	3.8
Greenview Drive PS	Greenview Drive PS	PS currently being upgraded - See comments under section 7.3.11 of Condition Assessment Report																																										
Hatter Street PS	Hatter St PS	1	1	1.0	11-15	3	1.5	1	1	2.0	16-20	2	1.5	1	1	2.0	11-15	3	1.8	1	1	1.3	16-20	2	1.3	1	1	1.0	20+	1	1	1	1	0.0	N/A	0	N/A	1	1	0.0	N/A	0	N/A	1.5
Hillview Road PS	Mona Dr PS	4	2	1.0	16-20	2	2.3	4	2	1.1	16-20	2	2.3	4	2	2.0	11-15	3	2.8	4	2	1.3	16-20	2	2.3	4	2	1.0	20+	1	2.0	4	2	1.0	20+	1	2.0	4	2	1.0	16-20	2	2.3	2.3
Highway 15	B-40 PS	2	3	1.0	11-15	3	2.3	2	3	1.1	20+	1	1.8	2	2	2.2	16-20	2	2.0	2	2	2.3	11-15	3	2.3	2	2	1.3	16-20	2	1.8	2	2	1.3	11-15	3	2.1	2	3	1.0	16-20	2	2.0	2.0
James Street PS	B-64 PS	2	2	1.0	16-20	2	1.8	2	2	1.3	16-20	2	1.8	2	2	2.5	16-20	2	2.1	2	2	2.2	16-20	2	2.1	2	2	1.0	20+	1	1.5	2	2	1.0	16-20	2	1.8	2	2	1.0	16-20	2	1.8	1.8
John Counter Boulevard PS	John Counter Blvd PS	2	2	1.0	16-20	2	1.8	2	2	1.0	16-20	2	1.8	2	2	1.0	20+	1	1.5	2	2	1.0	16-20	2	1.8	2	2	1.0	20+	1	1.5	2	2	0.0	N/A	0	N/A	2	2	1.0	20+	1	1.5	1.6
Kenwoods Circle PS	Woods Landing PS	2	2	1.0	16-20	2	1.8	2	2	1.0	20+	1	1.5	2	2	2.6	11-15	3	2.4	2	2	1.8	11-15	3	2.2	2	2	1.0	16-20	2	1.8	2	2	1.0	16-20	2	1.8	2	2	1.0	16-20	2	1.8	1.9
King Street PS	O'Kill PS	4	3	1.0	20+	1	2.3	4	3	1.0	16-20	2	2.5	4	3	1.9	16-20	2	2.7	4	3	1.4	16-20	2	2.6	4	3	1.0	16-20	2	2.5	4	3	1.3	11-15	3	2.8	4	3	1.0	16-20	2	2.5	2.6
King-Elevator Bay PS	Commodore's Cove or	2	2	1.0	16-20	2	1.8	2	2	1.3	16-20	2	1.8	2	2	3.0	11-15	3	2.5	2	2	1.3	16-20	2	1.8	2	2	1.2	20+	1	1.6	2	2	1.3	16-20	2	1.8	2	2	1.0	16-20	2	1.8	1.9
King-Lake Ontario Park PS	Lake Ontario Park PS	1	1	1.0	11-15	3	1.5	1	1	1.3	16-20	2	1.3	1	1	2.0	16-20	2	1.5	1	1	2.0	11-15	3	1.8	1	1	1.0	20+	1	1	1	1	0.0	N/A	0	N/A	1	1	0.0	N/A	0	N/A	1.4
King-Portsmouth PS	Portsmouth PS	2	2	1.0	20+	1	1.5	2	2	1.4	16-20	2	1.9	2	2	2.1	11-15	3	2.3	2	2	2.3	11-15	3	2.3	2	2	1.0	20+	1	1.5	2	2	1.3	16-20	2	1.8	2	2	1.0	16-20	2	1.8	1.9
Lakeshore Boulevard PS	Front Rd PS	2	2	1.0	11-15	3	2.0	2	2	1.0	20+	1	1.5	2	2	2.0	11-15	3	2.3	2	2	2.0	11-15	3	2.3	2	2	1.4	20+	1	1.6	2	2	1.0	20+	1	1.5	2	2	1.0	16-20	2	1.8	1.9
Morton Street PS	Morton St PS	2	1	1.0	20+	1	1.3	2	1	1.1	16-20	2	1.5	2	1	1.8	20+	1	1.5	2	1	1.8	11-15	3	2.0	2	1	1.0	20+	1	1.3	2	1	1.0	20+	1	1.3	2	1	1.0	16-20	2	1.5	1.5
Notch Hill Road PS	Notch Hill Rd PS	1	1	1.0	11-15	3	1.5	1	1	2.0	16-20	2	1.5	1	1	2.0	11-15	3	1.8	1	1	1.5	16-20	2	1.4	1	1	1.0	20+	1	1.0	1	1	0.0	N/A	0	N/A	1	1	0.0	N/A	0	N/A	1.5
Palace Road PS	Palace Rd PS	2	2	1.0	11-15	3	2.0	2	2	1.7	16-20	2	1.9	2	2	2.6	11-15	3	2.4	2	2	1.8	11-15	3	2.2	2	2	1.0	20+	1	1.5	2	2	1.0	16-20	2	1.8	2	2	1.0	16-20	2	1.8	2.0
Rankin Crescent PS	Rankin Cr PS	2	3	1.0	16-20	2	2.0	2	3	1.7	16-20	2	2.2	2	3	3.2	5-10	4	3.1	2	3	1.3	16-20	2	2.1	2	3	1.0	16-20	2	2.0	2	3	1.0	16-20	2	2.0	2	3	1.0	20+	1	1.8	2.2
River Street PS	River St PS	4	1	1.0	20+	1	1.8	4	1	1.1	16-20	2	2.0	4	1	1.6	20+	1	1.9	4	1	1.6	16-20	2	2.2	4	1	1.0	20+	1	1.8	4	1	1.2	20+	1	1.8	4	1	1.0	20+	1	1.8	1.9
Schooner Drive PS	Rivers Edge PS	2	2	1.0	11-15	3	2.0	2	2	1.3	16-20	2	1.8	2	2	1.8	11-15	3	2.2	2	2	1.8	11-15	3	2.2	2	2	1.0	20+	1	1.5	2	2	0.0	N/A	0	N/A	2	2	0.0	N/A	0	N/A	2.0
Westbrook PS	Westbrook PS	2	1	1.0	16-20	2	1.5	2	1	1.0	11-15	3	1.8	2	1	3.5	5-10	4	2.6	2	1	1.5	11-15	3	1.9	2	1	1.0	16-20	2	1.5	2	1	0.0	N/A	0	N/A	2	1	0.0	N/A	0	N/A	1.9
Yonge Street PS	Yonge St PS	1	2	1.5	11-15	3	1.9	1	2	2.0	16-20	2	1.8	1	2	2.0	11-15	3	2.0	1	2	1.5	16-20	2	1.6	1	2	1.0	20+	1	1.3	1	2	0.0	N/A	0	N/A	1	2	0.0	N/A	0	N/A	1.7

6.3 CONDITION RATING

Table 6-3 shows the Condition Rating section of the Risk Assessment Sheet. The low scoring in this section shows that the pumping stations are generally in a good condition, with most scoring well in the civil/structural, structural, electrical (building and process), building mechanical and instrumentation aspects. The main asset which scores poorly is process mechanical and this is due to the corrosion caused by the moisture buildup within.

There are some anomalies as follows:

- Bath-Lower: Structural score is high due to the hinge on the access hatch being broken. Once this is repaired, the condition rating would be approximately 1.0.
- In general the Total Condition Ratings are low, meaning the pumping stations are in good working condition. This is due to good condition of structural, instrumentation and process electrical assets. Process mechanical is generally in a worse state of repair across the board due to corrosion present in a large number of facilities.

Table 6-3: Risk Assessment Sheet - Total Condition Rating

Facility Information	Condition Rating (From Field Assessment)							
	Civil/Structural - C1 (0.1)	Structural - C2 (0.2)	Process Mechanical - C3 (0.2)	Instrumentation/SCADA - C4 (0.15)	Process Electrical - C5 (0.15)	Building Mechanical - C6 (0.1)	Building Electrical - C7 (0.1)	Total Condition Rating - C
Current Name								
Barrett Court PS	1.7	1.3	2.9	1.8	1.3	2.3	1.0	1.8
Bath Road PS	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.2
Bath-Collins Bay PS	1.0	1.0	3.4	1.3	1.0	0.0	0.0	1.7
Bath-Lower PS	1.0	2.7	3.0	1.8	1.0	0.0	0.0	2.1
Bayridge PS	1.0	1.0	2.2	1.8	1.0	0.0	0.0	1.4
Collins Bay PS	1.0	1.3	1.8	1.5	1.0	0.0	0.0	1.4
Coverdale PS	1.0	1.0	2.0	1.8	1.0	0.0	0.0	1.4
Crerar Boulevard PS	1.0	1.0	2.8	1.3	1.3	1.0	1.0	1.4
Dalton Avenue PS	1.0	1.7	2.5	1.0	1.0	1.3	1.0	1.5
Days Road PS	1.7	2.1	3.7	2.4	2.0	2.2	2.3	2.5
Greenview Drive PS	PS currently being upgraded - See comments under section 7.3.11 of Condition Assessment Report							
Hatter Street PS	1.0	2.0	2.0	1.3	1.0	0.0	0.0	1.6
Hillview Road PS	1.0	1.3	2.8	1.3	1.0	1.0	1.0	1.5
Highway 15	1.0	1.1	2.3	2.3	1.3	2.3	1.0	1.7
James Street PS	1.0	1.3	2.5	2.2	1.0	1.8	1.0	1.6
John Counter Boulevard PS	2.5	1.0	1.0	1.0	1.0	0.0	0.0	1.2
Kenwoods Circle PS	1.0	1.0	3.4	2.0	1.0	2.0	1.0	1.7
King Street PS	1.0	1.3	1.9	1.4	1.0	2.7	1.0	1.5
King-Elevator Bay PS	1.0	1.6	3.0	1.3	1.2	1.3	1.0	1.6
King-Lake Ontario Park PS	1.0	1.3	2.0	2.0	1.0	0.0	0.0	1.5
King-Portsmouth PS	1.0	1.4	2.6	2.3	1.0	1.3	1.0	1.6
Lakeshore Boulevard PS	1.0	1.0	2.8	2.3	1.4	1.0	1.0	1.6
Morton Street PS	1.0	1.1	1.4	1.8	1.0	1.0	1.0	1.2
Notch Hill Road PS	2.0	2.0	2.0	1.5	1.0	0.0	0.0	1.8
Palace Road PS	1.0	1.6	3.6	1.8	1.0	1.0	1.0	1.7
Rankin Crescent PS	1.0	1.7	3.0	1.3	1.0	1.0	1.0	1.6
River Street PS	1.0	1.3	1.7	1.6	1.0	1.2	1.0	1.3
Schooner Drive PS	1.7	1.7	2.4	2.0	1.0	0.0	0.0	1.8
Westbrook PS	1.0	1.0	3.3	1.8	1.0	0.0	0.0	1.7
Yonge Street PS	2.0	2.0	2.0	1.5	1.0	0.0	0.0	1.8

6.4 OVERALL RATING

6.4.1 RELIABILITY RATING IN SEQUENCE

The reliability rating was calculated for all pumping stations and the results are shown below (Table 6-4). As previously described in Section 5.5, the Overall Rating correlates with the following description:

- Overall Rating of A - No action required.
- Overall Rating of B - Minor repairs may be required to non-critical components. Review required, but no work required immediately.
- Overall Rating of C - Certain Assets/Equipment may need replacing in the future. Review and plan maintenance.
- Overall Rating of D - Certain Assets/Equipment may need replacing in the immediate future and review is required to outline maintenance.

6.4.2 OVERALL RATING

Table 6-4 Total Facility Risk, Total Equipment Risk, Total Condition Rating and Overall Rating

Pumping Station Name	Total Facility Risk - A	Total Equipment Risk - B	Total Condition Rating - C	Reliability Rating	Overall Rating
King-Lake Ontario Park PS	1.8	1.4	1.5	3.4	A
John Counter Boulevard PS	2.0	1.6	1.2	3.8	A
Hatter Street PS	1.8	1.5	1.6	4.1	A
Notch Hill Road PS	1.8	1.5	1.8	4.6	A
Morton Street PS	2.8	1.5	1.2	5.0	A
Coverdale PS	2.1	1.9	1.4	5.5	B
Bath Road PS	2.8	1.7	1.2	5.5	B
Yonge Street PS	1.9	1.7	1.8	5.8	B
King-Elevator Bay PS	2.0	1.9	1.6	6.1	B
Crerar Boulevard PS	2.9	1.5	1.4	6.1	B
King-Portsmouth PS	2.0	1.9	1.6	6.1	B
Kenwoods Circle PS	2.0	1.9	1.7	6.6	B
Bath-Lower PS	1.9	1.7	2.1	6.6	B
Westbrook PS	2.0	1.9	1.7	6.8	B
Palace Road PS	2.0	2.0	1.7	6.9	B
Rankin Crescent PS	2.0	2.2	1.6	7.0	B
Schooner Drive PS	2.0	2.0	1.8	7.2	B
Lakeshore Boulevard PS	2.5	1.9	1.6	7.4	B
Collins Bay PS	2.5	2.2	1.4	7.7	B
Bayridge PS	3.0	2.1	1.4	8.9	B
Highway 15	2.9	2.0	1.7	7.6	B
River Street PS	3.8	1.9	1.3	9.5	B
James Street PS	3.3	1.8	1.6	9.7	B

Pumping Station Name	Total Facility Risk - A	Total Equipment Risk - B	Total Condition Rating - C	Reliability Rating	Overall Rating
Bath-Collins Bay PS	2.8	2.1	1.7	10.0	B
Hillview Road PS	3.5	2.3	1.5	11.7	C
King Street PS	3.8	2.6	1.5	14.3	C
Dalton Avenue PS	4.3	2.3	1.5	14.3	C
Barrett Court PS	3.3	3.4	1.8	19.6	C
Days Road PS	4.8	3.8	2.5	44.7	D
Greenview Drive PS	2.1	PS currently being upgraded - See comments under section 7.3.11 of Condition Assessment Report			

Legend

Total Facility Risk	1.0 - 2.0	2.1 - 3.5	3.6 - 5.0
Total Equipment Risk	1.0 - 2.0	2.1 - 3.5	3.6 - 5.0
Total Condition Rating	1.0 - 2.0	2.1 - 3.5	3.6 - 5.0
Overall Rating	A	B / C	D / E

7 ASSET SUMMARY

7.1 GENERAL

The wastewater pumping stations as a whole are in a good condition due to the operators and maintenance crews working to maintain the vast network of pumping stations that make up the Wastewater System. This section of the report will focus on general issues that would help the operators and maintenance crew to complete their jobs in a safer or easier manor. Additionally, this section will discuss general issues that affect more than a handful of pumping stations. A detailed breakdown of each asset then follows below (Section 7.2)

7.1.1 SAFETY GRATING

Palace Road Pumping Station has safety grating fitted to it's well hatches. This would be a valuable addition to other wells in terms of safety. During times when hatches are opened for inspection, the grating would serve as an extra preventative measure to stop staff or members of the public from falling into wells (Figure 7-1).



Figure 7-1 Palace Road PS – Safety Grate (Photograph)

7.1.2 FENCING/GATES

The fencing and gates are only present at a third (ten) of the pumping stations; however, all locations have lockable hatches/panels/buildings and therefore fencing is not necessarily a requirement but has been added to provide more security, or a boundary, for these locations. It is suggested that the security of the facilities is reviewed to determine if further improves to the general safety of the operators and public can be made.

7.1.3 PUMPS

The Condition Assessment was conducted as a high-level visual field inspection therefore the pumps in the wet wells were not visible. This being said, the operators were forthcoming with information regarding the state of the pumps and any recent issues or repairs conducted. From this information provided by operators while conducting the condition assessment, it can be said that the pumps are generally in good working order and are maintained at regular intervals. A further study, with testing, is required to provide a full assessment of the pumps.

7.1.4 VALVE MAINTENANCE

In most cases, valves do not appear to be maintained until there is a repair required. Turning the valves on, on a regular basis, to keep the valve in a good state of repair will allow operators to operate these valves without difficulty.



Figure 7-2 Kenwoods Circle PS – Isolation Valves (Two Photographs)

7.1.5 NETWORK PANEL

The network panel is an integral part of the majority of pumping stations and appear to be identical in all locations, which lead to the assumption that the network panels were all replaced/upgraded around the same time. Due to advances in technology and the need to keep the pumping station data available at all times it is assumed that the system will need upgraded in the next 10-15 years; with a total cost of approximately \$2000 per pumping station; approximately \$60,000 in total.

7.1.6 ROOFS

Although the type of roof varies between locations (flat/pitched) they appear, from visual inspection, to be relatively new in most cases. WSP's opinion is that all roofs will need replacing with in a 10-25 year period and a review of the roofs should be completed separately to outline which roofs should be replaced at what time. This review will allow UK to prioritise work, efficiently budget, as well as obtained reasonable pricing from contractors by combining the work into a bigger contract then proceeding to upgrade the roof of each facility as required.

7.2 WASTEWATER TREATMENT PLANTS

The following section will summarize the findings of our Field Assessment but for the more detailed report see Appendix B.

7.2.1 CANA WWTP

Due to current upgrades (full plant replacement) the facility was not reviewed, the process flow schematic Figure 7-3 shows the liquid flow of the liquid treatment train.

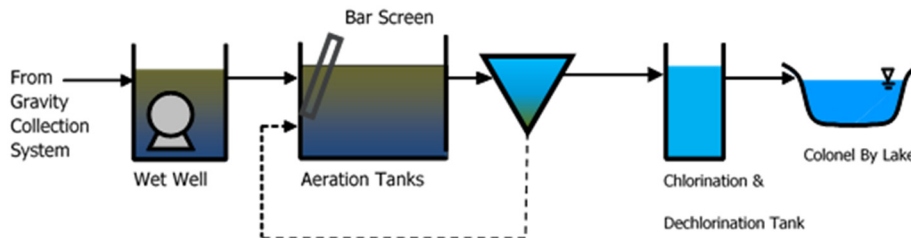


Figure 7-3 Cana WWTP Process

7.2.2 CATARAQUI BAY WWTP

Due to current upgrades the facility was not reviewed in full. The following parts of the treatment plant were reviewed and the following observations were made:

- Biosolids Dewatering (thickening) building: In a good state of repair, no work required.
- The Anaerobic Digesters:
 - Heat Exchanger
 - Currently the newer of the two heat exchangers is out of commission, leaving an aging heat exchanger as the sole form of heat exchanging.
- Motor Control Centre (MCC):
 - Beyond design life.

It is suggested that both these pieces of equipment are reviewed more thoroughly.

Although the flare was not listed for our review, it was noted that the flare is not enclosed and therefore not to code. This issue should also be addressed during the upgrade.

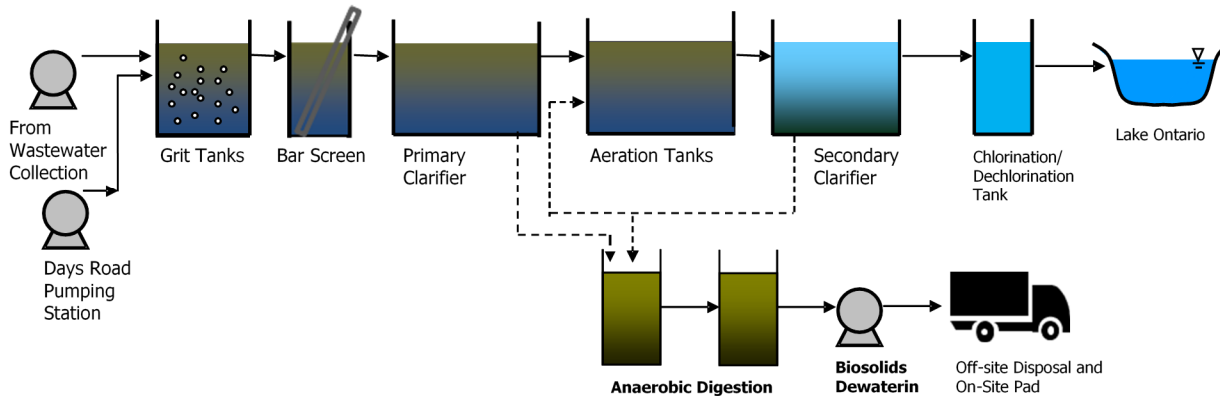


Figure 7-4 Cataraqi Bay WWTP Process

7.2.3 RAVENSVIEW WWTP

A review of the whole plant was conducted with a more focused review on systems not upgraded during 2006 upgrades.

Generally, the plant as a whole was found to be in satisfactory condition and the sections that were upgraded to be in excellent condition. A process flow schematic of the plant is shown below (Figure 7-5).

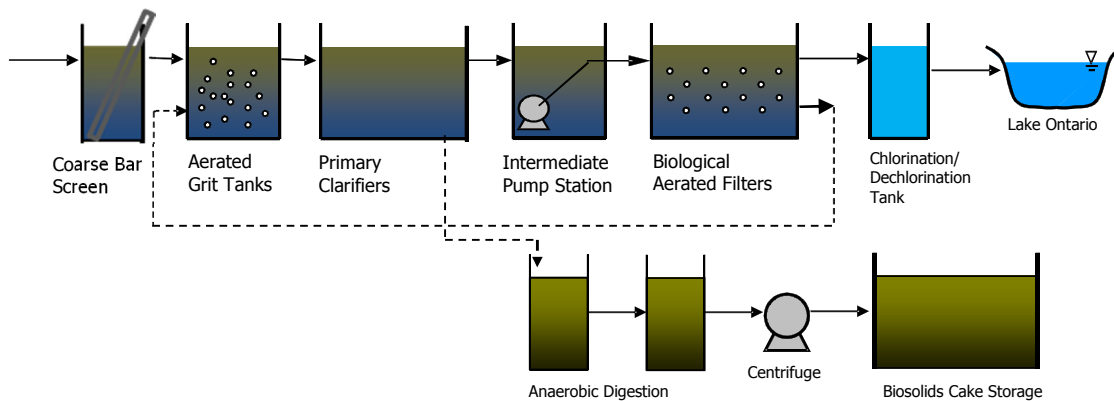


Figure 7-5 Ravensview WWTP Process

There are areas of the plant that require some attention over the coming years and although the majority of the plant is new, there have been some issues with sections of the plant. The following table (Table 7-1) is a breakdown of issues that should be investigated over the coming years with an advised timeline of when the upgrade or review of the area should be completed. The table also includes the criticality of these items to maintain or improve the current condition of the plant going forward.

The Criticality is scored accordingly - 1 (Non-Critical) to 5 (Critical).

Cost is scored accordingly – 1 (Inexpensive) to 5 (Very Expensive).

Table 7-1 Ravensview WWTP Summary with Suggested Upgrades

SYSTEM	ISSUE	UPGRADE/REVIEW REQUIRED	TIMELINE (YEARS)	CRITICALITY (1-5)	COST
Grit Channel – North Conveyor	On start-up experiences too much torque causing conveyor to malfunction and due to position is difficult to repair.	Drive is changed to soft start/vfd so power/torque is not immediate.	1-5	1	2
Head Works	Sluice Gate valve takes a long time to open.	Provide portable actuator.	1-5	1	2
Head Works	Possible Hydrogen sulphide related odours causing rust build up.	Verification of ventilation rates and gas detection system should be undertaken.	1-5	3	1
Primary Clarifiers – Sludge/ Scum remover	Currently run with plastic sprockets and steel chains once plastic sprocket wears the boards drop below surface meaning they are less effective. (Tanks 2 and 7 out of commission during visit due to this issue.)	Steel sprockets are added instead of plastic and oilers are added to keep chains lubricated.	1-5	4	3
Primary Clarifiers – Primary bypass chamber	Operator indicated that BAF effluent overflows primary bypass chamber during high flows	Hydraulics should be assessed to determine if bypass chamber wall can be raised to prevent this from happening.	1-5	5	1
Anaerobic Digesters	Damage to roof on 3 of the Anaerobic Digesters	Replace roofs	1-5	5	5
BAF tanks	Tarps that were installed above BAF tanks prevent operators from taking measurements of bead depth along the centreline of the tank	Install fabric hatches at locations along the centreline will assist with this task.	1-5	3	1
BAF online analyzers. (DO, pH, ammonia)	Not reliable, there could be an issue related to probe placement	Further investigation required – discuss with manufacturer of analyzer/probe	1-5	2	1
General	Bray Valves/Operators seem not operate as well as other valves in the plant.	Further investigation required – possible to request other manufacturers during any further upgrades.	1-5	2	1
Cogeneration	Heat Exchanger suffers from severe corrosion	Consider upgrade of equipment	5-10	4	3
Effluent Water System	Vertical Turbine pump out of service – posing issue with redundancy.	Consider changing pump type to submersible pump. Further evaluation required.	5-10	4	3

SYSTEM	ISSUE	UPGRADE/REVIEW REQUIRED	TIMELINE (YEARS)	CRITICALITY (1-5)	COST
Primary Clarifiers – Tanks and Tunnels	Concrete starting to decay and leaks present in tunnels under primary clarifiers.	Conduct a more in-depth structural review. (Results from review may mean full replacement).	10-15	4	3
Pipe work	Sections of pipe work, predominantly in the tunnels under the Primary Tanks have corrosion issues, due to present of moisture.	Consider changing out	15-20	3	4

Table 7-2 below contains the total estimated upgrade/repair costs for each five year period from the upgrades described above in Table 7-1.

Table 7-2 Ravensview Estimated Cost of Repairs/Upgrades in the Next 1-20 Years

REPAIR / UPGRADE AND COST							
0-5 YEARS		5-10 YEARS		10-15 YEARS		15-20 YEARS	
Upgrade 1	\$1.2 M	Upgrade 2	\$300 K	Upgrade 3	\$30 K	Upgrade 4	\$250 K

Note: Where investigation or review is suggested, cost has been estimated for the review/investigation only and does not include any work that may result from that investigation.

7.3.1 Barrett Court PS

Reliability Rating	19.6	Overall Rating	C
Total Facility Risk	3.3 /5	Total Equipment Risk	3.4 /5
		Condition rating	1.8 /5

Condition Assessment:

Civil / Site: **Good Condition - Gravel access and compound with fence.**

Structural: **Dry Well showing evidence of water damage on walls.**

Proc. Mech.: **Aging Pumps evidence of leakage and corrosion. Some corrosion present on pipe, flanges and Check Valve.**

Instrument: **Aging Pump Control, Sensors and Transmitters.**

Proc. Elec.: **Pump Starters recently replaced. Aging Diesel back-up generator.**

Build. Mech.: **Aging Systems, Diesel Tank banded**

Build. Elec.: **Good Condition**

Priority Work:

1) Sump Pump to be reviewed and repaired/replaced (\$ 200)

Work required 5-25 Years:

Repair/Upgrade & Cost			
5-10 Years	10-15 Years	15-20 Years	20-25 Years
	Upgrade 1 \$ 415,000	Upgrade 2 \$ 150,000	

Upgrade 1:

- 1) Replace - Pumps, Pump Control Panel, Sensors and Transmitters, Instrument Panel, Transformer, Distribution Panel, Main Breaker, Generator and Diesel Tank.
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

Upgrade 2:

- 1) Replace Pipework, Valves and Instrumentation; HVAC & Heaters

Pump Station Facility Summary

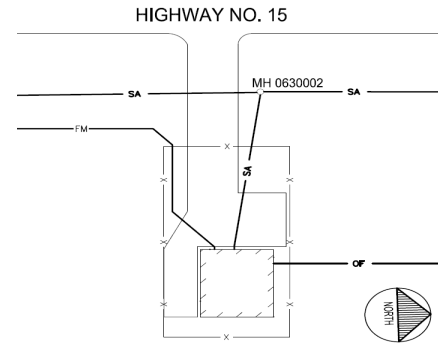


Facility Name:	Barrett Ct PS			Notes:
Facility Address:	Corner Barrett Ct and Hwy 15			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	383,404.60E 4,900,474.30N			
Reference Drawing(s):	146-4-13 & 146-4-14, 1975			
Include Revision(s) & Date(s)	Construction, 1975			
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m		0.45	
Main Pipeline Length & Dia.:	m	608.00	0.30	
Main Discharge Location.	n/a	Ravensview Trunk Sewer		
Overflow Pipe Length & D.:	m	7.00	0.30	
Overflow Discharge Loc.:	n/a	Creek to North of PS (PCP#74)		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	Yes		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



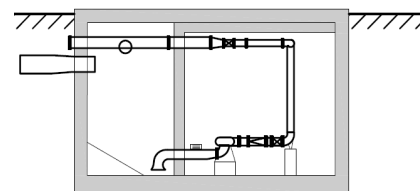
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	146-4-14, 1975		
Base Elevation & Level:	m	81.74	0.00	
Low Alarm Elevation:	m	82.81	1.07	
Minimum Elevation:	m	81.88	0.15	
Initial/Normal Elev. & Level:	m	83.70	1.96	
Maximum Elevation:	n/a	85.04	3.30	
High Alarm Elevation:	m	84.84	3.10	
Ground Elevation:	m	86.56	4.82	
Physical Data:	Units			
Section (circular, oval, etc....)	n/a	Rectangle		
Average Cross-Section Area:	sq.m	14.80		
Length & Width (or Diam.):	m	6.09	2.44	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Barrett Ct PS	Notes:					
Facility Address:	Corner Barrett Ct and Hwy 15						
Community/Service Area:	Ravensview WWTP						
Coordinates (Lat./Long.):	383,404.60E 4,900,474.30N						
Reference Drawing(s):	146-4-13 & 146-4-14, 1975						
Include Revision(s) & Date(s)	Construction, 1975						
Page No.	Page 2 of 2						
Pump Details							
Number of Pumps	3	Notes: Firm & Peak Capacity from UK reported Capacities					
SCADA Flow?	Yes						
SCADA Level?	Yes						
Pump Type	Lead	Lag 1	Lag 2				
Make(s):	Fairbanks Morse						
Model ID or Rating:	5x8 B5444, 50 Hp						
Impeller ID or Size:							
Variable-Speed Pump?:	No	No	No				
Year Installed							
Pump Curve(s) in Model:	P_CRERAR_FP3(5)LT3-210mm						
Flow and Level Set Points	Units	Lead	Lag 1	Lag 2			
Firm Capacity	L/s	188.00					
Peak Capacity	L/s	277.00					
Tested Flow (e.g.: Drawdown):	L/s	103.00	107.00	n/a			
Rated Flow:	L/s	84.20	84.20	n/a			
Rated Head:	m	n/a	n/a	n/a			
Elevation On:	m	84.19	84.44	87.34			
Elevation Off:	m	83.44	83.59	85.59			
Pump (Impeller) Elevation:	m	82.15					
Piping Details					Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type	
Suction Line (1975):	m	0.90	0.25/0.2		2/1/1	90EL, GV, E	
Discharge Line (1975):	m	3.50	0.20		1/1/1/1	E, CV, 90EL, 45EL, LAT	
Pump Station (1975):	m	6/3.5	0.2/0.3		1/1/1/1	90EL, MF, GV, E	
Yard Piping (1975):	m	15	0.30		3	45EL	
Main Pipeline (1975):	m	597/447	0.3/0.4				
Exit Elevation:	m	277.83					
Legend:							
CML = Cement Lined DI, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral							
Note:							

7.3.2 Bath Road PS

Reliability Rating 5.5 Overall Rating B

Total Facility Risk 2.8 /5 Total Equipment Risk 1.7 /5 Condition rating 1.2 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Good Condition**

Proc. Mech.: **Corrosion present on Piping and Manual Valves.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years	10-15 Years	15-20 Years	20-25 Years
		Upgrade	\$ 250,000

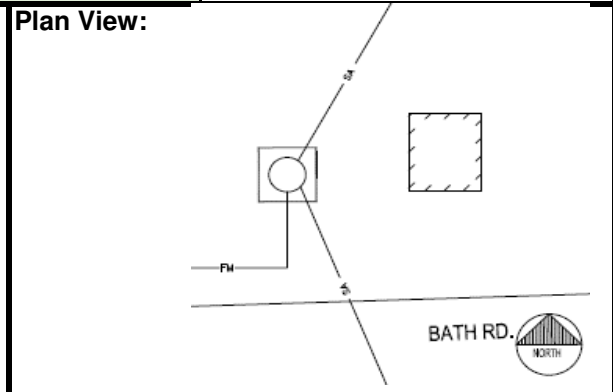
Upgrade 1:

- 1) Upgrade – Replace Pipework, Valves and Instrumentation

Pump Station Facility Summary

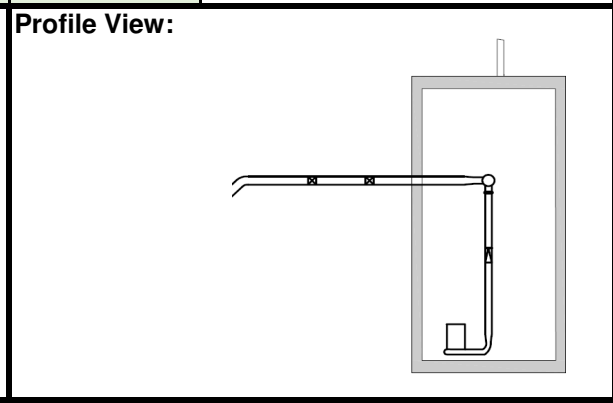


Facility Name:	Bath Road PS	Notes:
Facility Address:	Corner Bath Rd and Armstrong Rd	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	376,656.30E 4,899,272.57N	
Reference Drawing(s):	60159486-P01, rev 2, Feb 2012	
Include Revision(s) & Date(s)	60159486-G01, rev 2, Feb 2012	
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 0.25/0.3	
Main Pipeline Length & Dia.:	m 558 0.20	
Main Discharge Location:	n/a Bath Rd Collector	
Overflow Pipe Length & D.:	m N/A N/A	
Overflow Discharge Loc.:	n/a N/A	
Backup Power?:	n/a Yes	
Site Fencing?:	n/a No	
CofA/ECA?:	n/a Yes	



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	60159486-P01, rev 2, Feb		
Base Elevation & Level:	m	71.54	0.00	
Low Alarm Elevation:	m	71.84	0.30	
Minimum Elevation:	m	72.00	0.46	
Initial/Normal Elev. & Level:	m	72.62	1.08	
Maximum Elevation:	n/a	78.00	6.46	
High Alarm Elevation:	m	73.64	2.10	
Ground Elevation:	m	78.00	6.46	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	7.06		
Length & Width (or Diam.):	m	3.00		



Pump Station Facility Summary



Facility Name:	Bath Road PS			Notes:		
Facility Address:	Corner Bath Rd and Armstrong Rd					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	376,656.30E 4,899,272.57N					
Reference Drawing(s):	60159486-P01, rev 2, Feb 2012					
Include Revision(s) & Date(s)	60159486-G01, rev 2, Feb 2012					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2			Notes: Firm capacity based on ECA, Peak capacity estimated based on minor		
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3152 20Hp					
Impeller ID or Size:	495					
Variable-Speed?:	no	no				
Year Installed	2012					
Pump Curve ID in Model:	P_BathRd_FP3152HT3-					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	51.40				
Peak Capacity		87.40				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	51.40	51.40			
ECA Rated Head:	m	16.40	16.40			
Elevation On:	m	73.10	73.30			
Elevation Off:	m	72.00	72.00			
Pump (Impeller) Elevation:	m	71.84	71.84			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (n/a):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (2012):	m	4	0.15	CML	1/1/1/1	90EL, CV, MF, E
Pump Station (2012):	m	2	0.20	CML	1	E
Yard Piping (2012):	m	8	0.20	CML	2/2/1	GV, 45EL, 90EL
Main Pipeline (2012):	m	558	0.20	AC		
Exit Elevation:	m	75.78				
Legend:						
CML = Cement Lined DI, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes:						

7.3.3 Bath-Collins Bay PS

Reliability Rating 9.9 Overall Rating B

Total Facility Risk 2.8 /5 Total Equipment Risk 2.1 /5 Condition rating 1.7 /5

Condition Assessment:

Civil / Site: **Good Condition - Gravel Parking Lot used fo access**

Structural: **Good Condition**

Proc. Mech.: **Piping and valves heavily corroded - Valves may be corroded in place making difficult to operate.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 50,000	Upgrade 2	\$ 60,000				

Upgrade 1:

- 1) Replace Pipework and Valves due to corrosion build up.
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

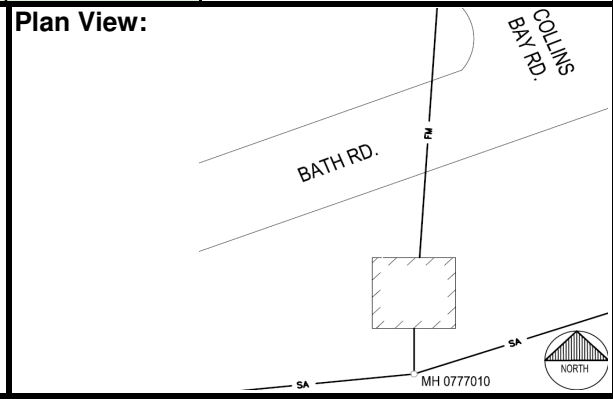
Upgrade 2:

- 1) Replace Instrument Panel and Sensors/Transmitters

Pump Station Facility Summary

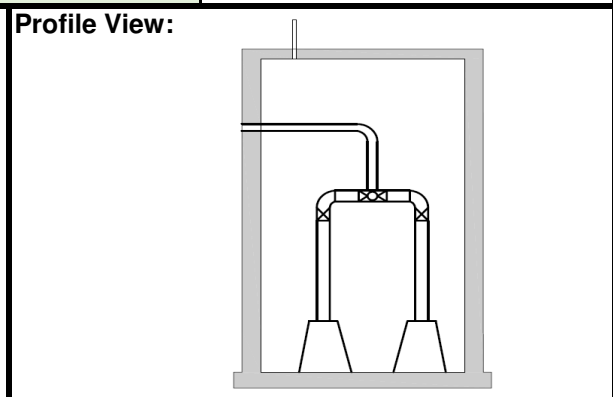


Facility Name:	Bath-Collins Bay	Notes:
Facility Address:	Corner of Bath and Collins Bay road	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	371,438.61E 4,899,677.78N	
Reference Drawing(s):	N/A	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 0.20	
Main Pipeline Length & Dia.:	m 171 0.15	
Main Discharge Location:	n/a Collins Bay Collector	
Overflow Pipe Length & D.:	m 35 250	
Overflow Discharge Loc.:	n/a Lake Ontario (PCP#61)	
Backup Power?:	n/a No	
Site Fencing?:	n/a No	
Coffer/ECA?:	n/a N/A	



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	71.42	0.00	
Low Alarm Elevation:	m	72.12	0.70	
Minimum Elevation:	m			
Initial/Normal Elev. & Level:	m	72.46	1.04	
Maximum Elevation:	n/a			
High Alarm Elevation:	m			
Ground Elevation:	m	79.61	8.19	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	6.60		
Length & Width (or Diam.):	m	2.90		



Pump Station Facility Summary



Facility Name:	Bath-Collins Bay	Notes:
Facility Address:	Corner of Bath and Collins Bay road	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	371,438.61E 4,899,677.78N	
Reference Drawing(s): Include Revision(s) & Date(s)	N/A	
Page No.	Page 2 of 2	

Pump Details			
Number of Pumps	2	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses	
SCADA Flow?	No Data		
SCADA Level?	No Data		
Pump Type	Lead	Lag 1	
Make:	Flygt		
Model ID or Rating:	CP-3102, 5Hp		
Impeller ID or Size:			
Variable-Speed?:	No	No	
Year Installed	1997	1997	
Pump Curve ID in Model:	FP 3152 LT 3~ 492		
Flow and Level Set Points	Units	Lead	Lag 1
Firm Capacity	L/s	16.00	
Peak Capacity		32.00	
Tested Flow (e.g.: Drawdown):	L/s	19.60	16.00
ECA Rated Flow:	L/s		
ECA Rated Head:	m		
Elevation On:	m	1.35	1.40
Elevation Off:	m	0.90	0.90
Pump (Impeller) Elevation:	m		

Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (n/a):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (n/a):	m	3.00	0.10	DI	2/2	GV/90EL
Pump Station (n/a):	m	2.00	0.1/0.15	DI	1/1/2/1/1	GV/CV/90EL/ E/CV
Yard Piping (n/a):	m	N/A	0.15	DI	N/A	N/A
Main Pipeline (n/a):	m	270.00	0.15	PVC		
Exit Elevation:	m	80.88				

Legend:
 CML = Cement Lined DI, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion

Notes:
 Assumed piping details from field survey

7.3.4 Bath-Lower PS

Reliability Rating 6.6 Overall Rating B

Total Facility Risk 1.9 /5 Total Equipment Risk 1.7 /5 Condition rating 2.1 /5

Condition Assessment:

Civil / Site: Construction currently occurring adjacent to PS making access difficult - access issue will be resolved once construction is completed.

Structural: Well in good condition. One Access way hatch is currently inoperable. Ladder starting to show corrosion.

Proc. Mech.: Piping and Flanges heavily corroded. No Isolation Valves or Check valves observed, possibly in same condition.

Instrument: Pump Control panel - Aging but in Ok condition

Proc. Elec.: Main Breaker - Ok Condition. Currently no back-up power source - only utilised by 10 houses.

Build. Mech.: N/A

Build. Elec.: N/A

Priority Work:

Repair Well hatch (\$ 1,000)

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 100,000	Upgrade 2	\$ 100,000				

Upgrade 1:

- 1) Replace Pump Control Panel, Main Breaker and Sensors/Transmitters.
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

Upgrade 2:

- 1) Replace Pipe work (add Isolation valves if not present) and Instrument Panel.
- 2) Consider replacing access ladder. (Price not included)

Pump Station Facility Summary

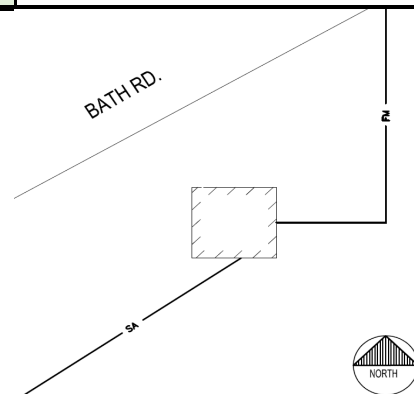


Facility Name:	Bath-Lower Drive PS	Notes:
Facility Address:	4170 Bath Road	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	370,727.61 E 4,899,241.97 W	
Reference Drawing(s):	1981	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 17.00 0.20	
Main Pipeline Length & Dia.:	m 98.00 0.10	
Main Discharge Location:	n/a Rankin St. PS	
Overflow Pipe Length & D.:	m 0.20 N/A	
Overflow Discharge Loc.:	n/a Lake Ontario	
Backup Power?:	n/a No	
Site Fencing?:	n/a No	
CofA/ECA?:	n/a Yes	

Photo: Exterior



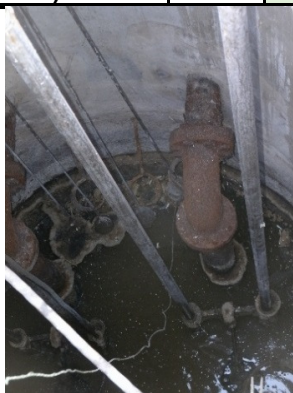
Plan View:



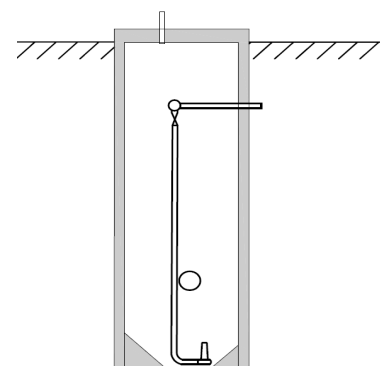
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	n/a		
Base Elevation & Level:	m	71.42	0.00	
Low Alarm Elevation:	m			
Minimum Elevation:	m			
Initial/Normal Elev. & Level:	m			
Maximum Elevation:	n/a		5m Assumed	
High Alarm Elevation:	m			
Ground Elevation:	m		5m Assumed	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	3.60		
Length & Width (or Diam.):	m	2.14		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Bath-Lower Drive PS	Notes:
Facility Address:	4170 Bath Road	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	370,727.61 E 4,899,241.97 W	
Reference Drawing(s):	1981	
Include Revision(s) & Date(s)		
Page No.	Page 2 of 2	

Pump Details			
Number of Pumps	2	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses	
SCADA Flow?	No Data		
SCADA Level?	No Data		
Pump Type	Lead	Lag 1	
Make:	Barnes		
Model ID or Rating:	DCP-2512 4SE-151, 7.4HP		
Impeller ID or Size:	No		
Variable-Speed?:	No		
Year Installed	1981		
Pump Curve ID in Model:	P_BathLower_SV15Xx1.5M		
Flow and Level Set Points	Units	Lead	Lag 1
Firm Capacity	L/s	6.00	
Peak Capacity	L/s	11.60	
Tested Flow (e.g.: Drawdown):	L/s	8.00	9.00
ECA Rated Flow:	L/s	15.10	15.10
ECA Rated Head:	m	13.40	13.40
Elevation On:	m	0.80	72.42
Elevation Off:	m	0.45	0.48
Pump (Impeller) Elevation:	m	N/A	N/A

Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (n/a):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1981):	m	N/A	0.10	CML	N/A	N/A
Pump Station (1981):	m	N/A	0.10	CML	1/1	90EL/CV
Yard Piping (1981):	m	N/A	NA	N/A	N/A	N/A
Main Pipeline (1981):	m	97.00	0.10	DI	1	90EL
Exit Elevation:	m	87.45				

Legend:
 CML = Cement Lined DI, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion

Note:
 Assumed piping details from field survey

7.3.5 Bayridge PS

Reliability Rating 8.9 Overall Rating B

Total Facility Risk 3.0 /5 Total Equipment Risk 2.1 /5 Condition rating 1.4 /5

Condition Assessment:

Civil / Site: **Good Access and Gravel Compound**

Structural: **Good Condition**

Proc. Mech.: **New Discharge header, but pump discharge lines show some corrosion.
Valves in good condition, starting to show some corrosion.**

Instrument: **Agging Pump Control Panel - Ok Condition.**

Proc. Elec.: **Good Condition**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 95,000			Upgrade 2	\$ 175,000		

Upgrade 1:

- 1) Replace Pipe supports and Pump Control Panel

Upgrade 2:

- 1) Replace pump discharge pipework and valves; Instrument Panel and Sensors/Transmitters.

Pump Station Facility Summary

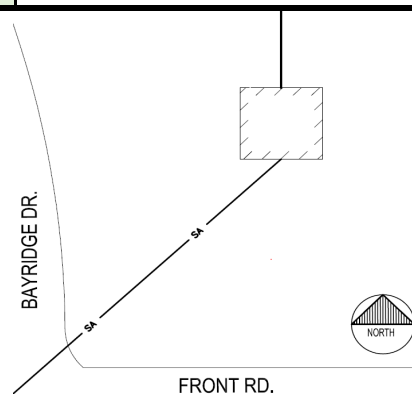


Facility Name:	Bayridge PS	Notes:
Facility Address:	157 Bayridge Drive	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	373,428.18E 4,897,316.39N	
Reference Drawing(s):	N/A	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 113.00 0.30	
Main Pipeline Length & Dia.:	m 79.00 0.15	
Main Discharge Location:	n/a Lakeshore Collector	
Overflow Pipe Length & D.:	m N/A N/A	
Overflow Discharge Loc.:	n/a N/A	
Backup Power?:	n/a N/A	
Site Fencing?:	n/a Yes	
CofA/ECA?:	n/a N/A	

Photo: Exterior



Plan View:



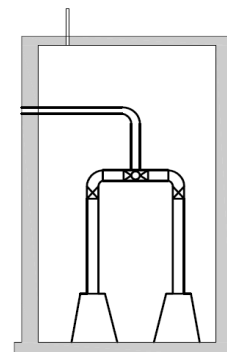
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	73.50	0.00	
Low Alarm Elevation:	m			
Minimum Elevation:	m			
Initial/Normal Elev. & Level:	m	74.42	0.924	
Maximum Elevation:	n/a		5m Assumed	
High Alarm Elevation:	m			
Ground Elevation:	m			
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	39.10		
Length & Width (or Diam.):	m	6.25	6.25	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Bayridge PS	Notes:				
Facility Address:	157 Bayridge Drive					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	373,428.18E 4,897,316.39N					
Reference Drawing(s): Include Revision(s) & Date(s)	N/A					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity based on Stantec Report, Peak capacity estimated				
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3102					
Impeller ID or Size:	432					
Variable-Speed?:	No					
Year Installed	N/A					
Pump Curve ID in Model:	P_Bayridge_CP3102MT3-					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	19.00				
Peak Capacity	L/s	36.90				
Tested Flow (e.g.: Drawdown):	L/s	19.00	22.00			
ECA Rated Flow:	L/s	23.00	23.00			
ECA Rated Head:	m	9.60	9.60			
Elevation On:	m	1.4 above	1.8 above			
Elevation Off:	m	0.75 above base	0.75 above base			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (n/a):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (n/a):	m	N/A	0.10	CML	2/2	GV/90EL
Pump Station (n/a):	m	4.34	0.1/0.15	CML	1/1	CV/E
Yard Piping (n/a):	m	N/A	0.15	CML	N/A	N/A
Main Pipeline (n/a):	m	80.00	0.15	PVC	1	45EL
Exit Elevation:	m	80.33				
Legend: DI = Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow						
Notes: Water level gets to be 1 ft above inlet. Water level gets to be 1 ft above inlet. Assumed piping details from field survey						

7.3.6 Collins Bay PS

Reliability Rating	7.7	Overall Rating	B
Total Facility Risk	2.5 /5	Total Equipment Risk	2.2 /5
		Condition rating	1.4 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Good Condition**

Proc. Mech.: **Piping starting to show signs of corrosion. Valves corrosion present.**

Instrument: **Aging Pump Control Panel - Ok Condition.**

Proc. Elec.: **Good Condition. Portable Back up Generator used.**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
		Upgrade 1	\$ 150,000			Upgrade 2	\$ 5,000

Upgrade 1:

- 1) Replace pipework and valves; Pump Control Panel; Instrument Panel and Sensors/Transmitters.
- 2) **Consider replacing Flowmeter (Not included in price)**

Upgrade 2:

- 1) Main Breaker

Pump Station Facility Summary

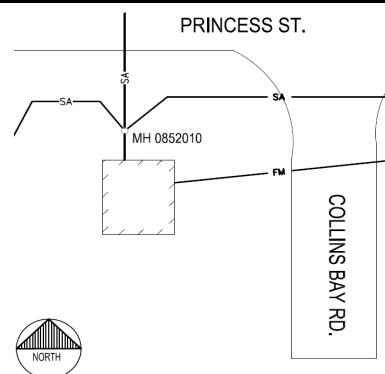


Facility Name:	Collins Bay PS	Notes:
Facility Address:	Corner of Collins Bay Rd and Hwy 2	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	371,722.92E 4,902,138.18N	
Reference Drawing(s):	590-14, Oct 1997	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 5.00 0.45	
Main Pipeline Length & Dia.:	m 819.00 0.15	
Main Discharge Location:	n/a High Gate Park Drive Collector	
Overflow Pipe Length & D.:	m N/A N/A	
Overflow Discharge Loc.:	n/a N/A	
Backup Power?:	n/a N/A	
Site Fencing?:	n/a No	
CofA/ECA?:	n/a N/A	

Photo: Exterior



Plan View:



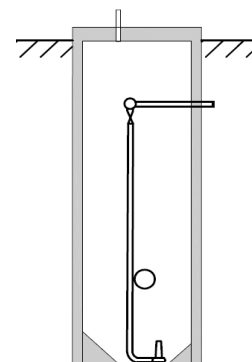
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	590-14		
Base Elevation & Level:	m	87.91	0.00	
Low Alarm Elevation:	m	88.21	0.30	
Minimum Elevation:	m			
Initial/Normal Elev. & Level:	m	89.25	1.34	
Maximum Elevation:	n/a	97.15	9.24	
High Alarm Elevation:	m	88.52	0.60	
Ground Elevation:	m	94.92	7.01	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	6.60		
Length & Width (or Diam.):	m	1.45		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Collins Bay PS			Notes:		
Facility Address:	Corner of Collins Bay Rd and Hwy 2					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	371,722.92E 4,902,138.18N					
Reference Drawing(s): Include Revision(s) & Date(s)	590-14, Oct 1997					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2			Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses		
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3127 10Hp					
Impeller ID or Size:	483					
Variable-Speed?:	No					
Year Installed	1998					
Pump Curve ID in Model:	P_COLLINSBAY_CP3127L					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	20.00				
Peak Capacity	L/s	23.80				
Tested Flow (e.g.: Drawdown):	L/s	8.00	20.00			
ECA Rated Flow:	L/s	22.00	22.00			
ECA Rated Head:	m	18.30	18.30			
Elevation On:	m	1.50	1.70			
Elevation Off:	m	0.50	0.50			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1998):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1998):	m	N/A	0.10	DI	1/1	CV, 90EL
Pump Station (1998):	m	1.63	0.10	DI	1/1/1	GV, TEE
Yard Piping (n/a):	m	N/A	0.1/0.15	DI	1	E
Main Pipeline (1998):	m	818.00	0.15	PVC	2	45EL
Exit Elevation:	m	89.13				
Legend: DI = Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve, E = Expansion						
Notes:						

7.3.7 Coverdale PS

Reliability Rating 5.5 Overall Rating B

Total Facility Risk 2.1 /5 Total Equipment Risk 1.9 /5 Condition rating 1.4 /5

Condition Assessment:

Civil / Site: **Construction currently occurring adjacent to PS making access difficult - access issue will be resolved once construction is completed.**

Structural: **Good Condition**

Proc. Mech.: **Check Valves in good condition. Manual Valves and Piping show sign of corrosion**

Instrument: **Aging Pump Control Panel - Ok Condition.**

Proc. Elec.: **Good Condition. Portable Back up Generator used.**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 60,000	Upgrade 2	\$ 40,000	Upgrade 3	\$ 85,000		

Upgrade 1:

- 1) Replace Pump Control Panel

Upgrade 2:

- 1) Replace Instrument Panels and Sensors/Transmitters

Upgrade 3:

- 1) Pipework and Valves to be replaced.
- 2) Consider an electrical upgrade (Price not included)

Pump Station Facility Summary

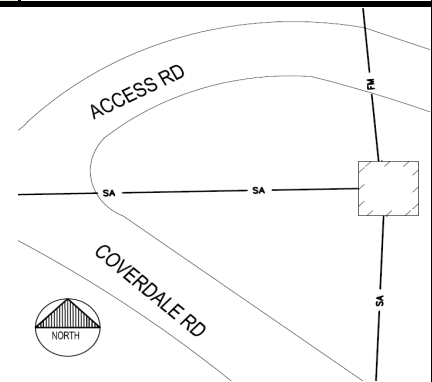


Facility Name:	Coverdale PS	Notes:
Facility Address:	Coverdale Drive nr Bayridge Dr	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	372,649.71E 4,899,329.28N	
Reference Drawing(s):	442-18 & 442-19, July 1994	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 14.00 0.38	
Main Pipeline Length & Dia.:	m 732.00 0.20	
Main Discharge Location.	n/a Coverdale Outlet Trunk Sewer	
Overflow Pipe Length & D.:	m 40.00 0.38	
Overflow Discharge Loc.:	n/a Creek	
Backup Power?:	n/a N/A	
Site Fencing?:	n/a Yes	
CofA/ECA?:	n/a Yes	

Photo: Exterior



Plan View:



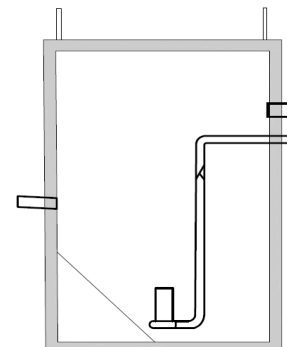
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	442-18		
Base Elevation & Level:	m	70.20	0.00	
Low Alarm Elevation:	m	71.27	1.07	
Minimum Elevation:	m	70.46	0.26	
Initial/Normal Elev. & Level:	m	71.32	1.12	
Maximum Elevation:	n/a	76.50	6.30	
High Alarm Elevation:	m	72.12	1.92	
Ground Elevation:	m	78.30	8.10	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	30.25		
Length & Width (or Diam.):	m	5.50	5.50	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Coverdale PS	Notes:				
Facility Address:	Coverdale Drive nr Bayridge Dr					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	372,649.71E 4,899,329.28N					
Reference Drawing(s): Include Revision(s) & Date(s)	442-18 & 442-19, July 1994					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2.00	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Myers					
Model ID or Rating:	14.00 0.38					
Impeller ID or Size:	305mm					
Variable-Speed?:	No					
Year Installed	1994.00					
Pump Curve ID in Model:	P_Coverdale_4RC-4CRX-					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	78.00				
Peak Capacity	L/s	132.60				
Tested Flow (e.g.: Drawdown):	L/s	71.00	75.00			
ECA Rated Flow:	L/s	52.60	52.60			
ECA Rated Head:	m	19.90	19.90			
Elevation On:	m	1.49	1.62			
Elevation Off:	m	1.07	1.07			
Pump (Impeller) Elevation:	m	70.46	70.46			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (n/a):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1994):	m	5.50	0.20	DI	1/1/1	CV, 90EL, GV
Pump Station (1994):	m	1.90	0.20	DI	1.00	90EL
Yard Piping (1994):	m	N/A	0.20	DI	N/A	N/A
Main Pipeline (1994):	m	732.00	0.20	DI	2	45EL
Exit Elevation:	m	75.95				
Legend: Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow						
Notes: No Reported Issues						

7.3.8 Crerar Boulevard PS

Reliability Rating 6.1 Overall Rating B

Total Facility Risk 2.9 /5 Total Equipment Risk 1.5 /5 Condition rating 1.4 /5

Condition Assessment:

Civil / Site: **Good Condition. Fence surrounding Gas Generator.**

Structural: **Good Condition.**

Proc. Mech.: **Piping and Valves - Corrosion present. Overflows to Manhole infrequently. Gas Piping not to CSA B149.1.**

Instrument: **Good Condition**

Proc. Elec.: **Gas Generator - Low pressure alarm for Natural gas supply occurs frequently. Can take a long time to start.**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

Gas Piping not to CSA B149.1 – entire piping system above ground should be painted yellow

(\$500)



Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
				Upgrade 1	\$ 100,000		

Upgrade 1:

- 1) Replace Pump Control Panel, Instrument Panels and Sensors/Transmitters.
- 2) Consider replacing Pipework and Valves and electrical upgrade (Price not included).

Pump Station Facility Summary

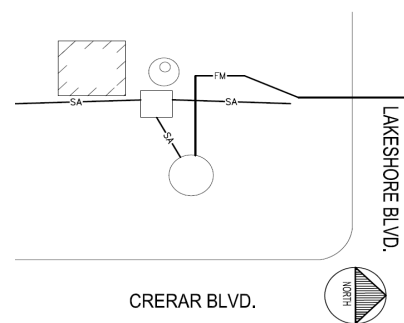


Facility Name:	Crerar Boulevard			Notes:
Facility Address:	Corner of Crerar and Lakeshore BLVD			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	374,718.71E 4,896,564.21N			
Reference Drawing(s):	541-1 & 541-2, Aug 1994			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	5.50	0.38	
Main Pipeline Length & Dia.:	m	570.00	0.20	
Main Discharge Location.	n/a	Crerar Blvd. Collector		
Overflow Pipe Length & D.:	m	N/A	0.30	
Overflow Discharge Loc.:	n/a	Junction MH		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	Yes		

Photo: Exterior



Plan View:



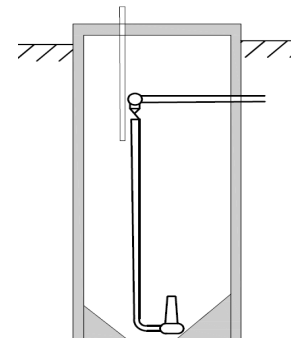
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	541-2		
Base Elevation & Level:	m	71.05	0.00	
Low Alarm Elevation:	m	71.50	0.45	
Minimum Elevation:	m	71.36	0.31	
Initial/Normal Elev. & Level:	m	72.40	1.35	
Maximum Elevation:	n/a	75.11	4.06	
High Alarm Elevation:	m	74.20	3.15	
Ground Elevation:	m	78.25	7.20	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	10.50		
Length & Width (or Diam.):	m	1.83		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Crerar Boulevard	Notes:				
Facility Address:	Corner of Crerar and Lakeshore					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	374,718.71E 4,896,564.21N					
Reference Drawing(s): Include Revision(s) & Date(s)	541-1 & 541-2, Aug 1994					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated.				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3152 20 Hp					
Impeller ID or Size:	No. 492 (210mm)					
Variable-Speed?:	No	No				
Year Installed	1994.00					
Pump Curve ID in Model:	FP 3152 LT 3~ 492					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	57.00				
Peak Capacity	L/s	96.90				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	77.00	77.00			
ECA Rated Head:	m	25.00	25.00			
Elevation On:	m	72.40	72.70			
Elevation Off:	m	71.76	71.76			
Pump (Impeller) Elevation:	m	71.36	71.36			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line ():	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1994):	m	5.34	0.15	CML	1/1/1	CV, GV, 90EL
Pump Station (1994):	m	2.20	0.15	CML		GV, TF
Yard Piping (1994):	m	N/A	0.15/0.2	PVC	2/1	GV, FL
Main Pipeline (1994):	m	5/570	0.2/0.15	PVC	2/1/1/1	40EL, 90EL, GV, C
Exit Elevation:	m	76.99				
Legend:						
CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral						
Notes:						
Problem with natural gas L.P. alarm						

7.3.9 Dalton Avenue PS

Reliability Rating	14.3	Overall Rating	C
Total Facility Risk	4.3 /5	Total Equipment Risk	2.3 /5
		Condition rating	1.5 /5

Condition Assessment:

Civil / Site: **Good Condition - Asphalt compound, wooden fence and chain-link fence.**

Structural: **Good Capacity and Condition. Some evidence of water damage to dry well walls on exterior walls.**

Proc. Mech.: **Pump No.4 out for repair due to Cavitation. Corrosion present on pump suction lines. Overflow to creek seldom used.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

Consider Insulation of pipework (\$10,000)

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Review	\$ 4,000			Upgrade 1	\$ 400,000		

Review:

1) Structural review required - Evidence of water ingress in Dry well

Upgrade 1:

1) Pipework, Valves and Instrumentation.

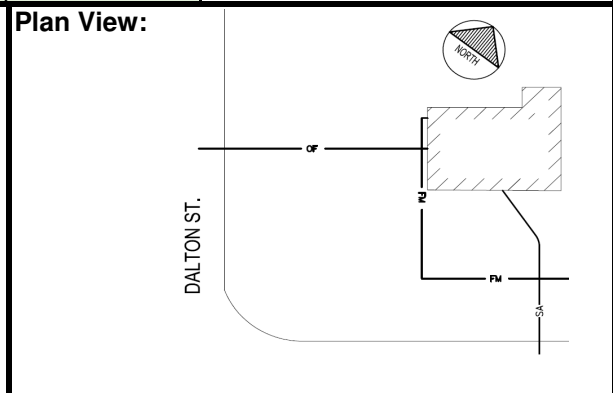
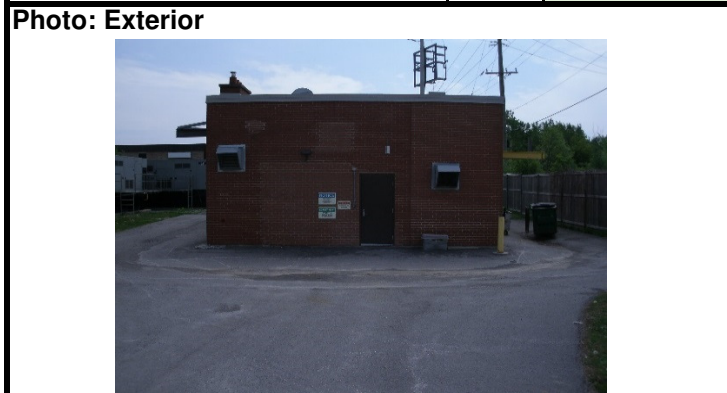
Other Comments:

1) Screen is currently awaiting repair. If repair is not possible – then replacement will be required.
 2) Pump currently out for repair due to Cavitation issue – if problem persists then a review of pumps should be conducted.

Pump Station Facility Summary

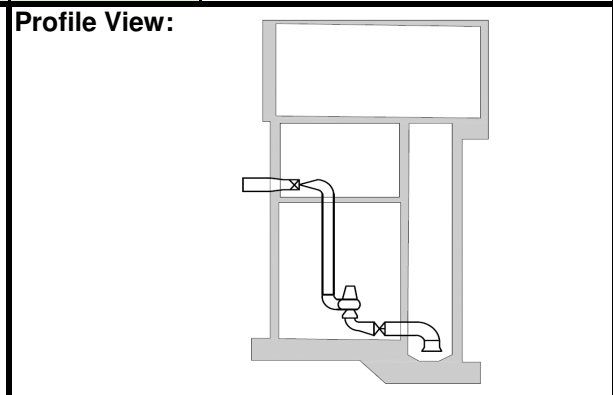


Facility Name:	Dalton Ave PS			Notes:
Facility Address:	St. Remy Pl and Dalton Ave Int			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	379,512.64E 4,902,484.40N			
Reference Drawing(s):	267-24-D-15301-G1 & 267-24-D-15306-			
Include Revision(s) & Date(s)	M2, March 1976			
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	14.00	1.20	
Main Pipeline Length & Dia.:	m	934/'1550	0.45/0.60	
Main Discharge Location:	n/a	North End Outlet Trunk Sewer		
Overflow Pipe Length & D.:	m	N/A	0.60	
Overflow Discharge Loc.:	n/a	Creek		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	Yes		
CofA/ECA?:	n/a	N/A		



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	M2		
Base Elevation & Level:	m	69.19	0.00	
Low Alarm Elevation:	m			
Minimum Elevation:	m	70.10	0.91	
Initial/Normal Elev. & Level:	m	73.44	4.25	
Maximum Elevation:	n/a	80.09	10.90	
High Alarm Elevation:	m	79.19	10.00	
Ground Elevation:	m	80.09	10.90	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangular		
Average Cross-Section Area:	sq.m	22 constant shape used		
Length & Width (or Diam.):	m			



Pump Station Facility Summary



Facility Name:	Dalton Ave PS		Notes:			
Facility Address:	St. Remy Pl and Dalton Ave Int					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	379,512.64E 4,902,484.40N					
Reference Drawing(s): Include Revision(s) & Date(s)	267-24-D-15301-G1 & 267-24-D-15306-M2, March 1976					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	4.00		Notes:			
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1	Lag 2	Lag 3		
Make:	Flygt					
Model ID or Rating:	C3312		835			
Impeller ID or Size:	No. 492 (210mm)		630			
Variable-Speed?:	Yes		No			
Year Installed	2007		2007			
Pump Curve ID in Model:	P_DALTON_CP3312-515					
Flow and Level Set Points	Units	Lead	Lag 1	Lag 2	Lag 3	
Firm Capacity	L/s	990.00				
Peak Capacity		1225.00				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A	N/A	N/A	
ECA Rated Flow:	L/s	386.00	386.00	364.00	364.00	
ECA Rated Head:	m	43.00	43.00	43.50	43.50	
Elevation On:	m	3.60	4.00	4.30	4.50	
Elevation Off:	m	3.50	3.80	4.00	4.20	
Pump (Impeller) Elevation:	m	N/A	N/A	N/A	N/A	
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1995):	m	N/A	0.6/0.45	CML	1/1/1/1	90EL/GV/E/9 OEL
Discharge Line (1970):	m	N/A	0.45	CML	2/1/1/1	90EL/CV/GV/ E
Pump Station (1970):	m	25.00	0.60	CML	2	90EL
Yard Piping (1970):	m	N/A	0.60	CMI		
Main Pipeline (1970):	m	985/1028	0.45/0.6	PVC		
Exit Elevation:	m	97.03				
Legend:						
CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes:						
Wet Well too small for pump. Lag (fixed) pumps draw too fast during high flow). Pumps have to be shut off manually.						

7.3.10 Days Road PS

Reliability Rating 44.7 Overall Rating D

Total Facility Risk 4.8 /5 Total Equipment Risk 3.8 /5 Condition rating 2.5 /5

Condition Assessment:

Civil / Site: **Good Condition - some weeds growing through gravel of compound.**

Structural: **Dry/Wet Well structurally sound. Lack of capacity - well gets overwhelmed. Bypass blockage causes water level to get extremely high.**

Proc. Mech.: **Aging Pumps. Pump discharge lines corroded, valve bodies heavily corroded. Check valve manual override handle bent. Some insulation needs replacing.**

Instrument: **Aged Equipment**

Proc. Elec.: **Aged Equipment. Two sources of back up power and generator.**

Build. Mech.: **Aging Equipment - Good Condition**

Build. Elec.: **Sections of wet well lighting not working during condition assessment.**

Priority Work:

- 1) Sump Pump in Dry well to be reviewed and replaced if required (\$ 200)
- 2) Overflow currently blocked at outlet to creek – should be unblocked. (\$ 200)
- 3) Missing Insulation in dry well to be replaced to prohib corrode. (\$ 5,000)



Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Review	4000						
Major Upgrade	\$3,000,000						

Review:

- 1) Review - Although during visual inspection well and building structure appears to be in good condition a review should be conducted.

Major Upgrade:

- 1) Upgrade all Process Mechanical, Instrumentation, Process Electrical, change overflow layout.

Pump Station Facility Summary



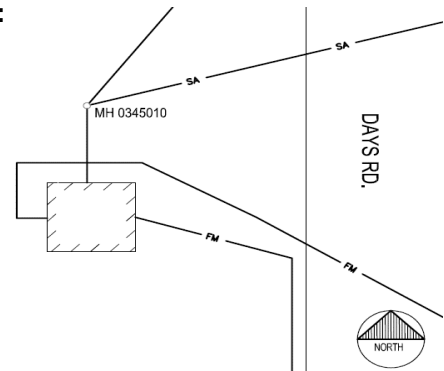
Facility Name:	Days Rd PS	Notes:	
Facility Address:	415 Days Road		
Community/Service Area:	Cataraqui Bay WWTP		
Coordinates (Lat./Long.):	374,520.63E 4,898,609.95W		
Reference Drawing(s):	M3, M4 & I6 95-07-06		
Include Revision(s) & Date(s)			
Page No.	Page 1 of 2		
Inflow and Outflow Types	Units	Length	Diameter
Inflow Pipe Length & Dia.:	m	13.00	0.90
Main Pipeline Length & Dia.:	m	1524.00	0.60
Main Discharge Location.	n/a	Cataraqui Bay WWTP	
Overflow Pipe Length & D.:	m	18.00	0.60
Overflow Discharge Loc.:	n/a	Creek North of PS (PCP#73)	
Backup Power?:	n/a	No	
Site Fencing?:	n/a	Yes	
CofA/ECA?:	n/a	Yes	

Diesel Back-up Pump in Station

Photo: Exterior



Plan View:



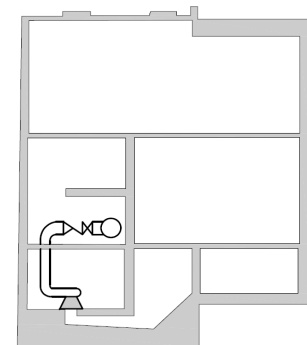
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	M3, M4 & I6 95-07-06		
Base Elevation & Level:	m	69.30	0.00	
Low Alarm Elevation:	m	71.23	1.88	
Minimum Elevation:	m	70.18	0.88	
Initial/Normal Elev. & Level:	m	71.52	2.22	
Maximum Elevation:	n/a	73.31	3.13	
High Alarm Elevation:	m	73.50	4.20	
Ground Elevation:	m	78.64	9.34	
Wet Well Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangular, Wet Well/Dry		
	sq.m	23.40		
	m	N/A	N/A	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Address:	415 Days Road					
Community/Service Area:	Catarauqui Bay WWTP					
Coordinates (Lat./Long.):	374,520.63E 4,898,609.95W					
Reference Drawing(s):	M3, M4 & I6 95-07-06					
Include Revision(s) & Date(s)						
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	4.00					Notes: Firm & Peak Capacity obtained from AECOM Capacity Assessment, 2016
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type		Pump1	Pump2	Pump3	Pump4	
Make:		Worthington, Ingersol Dresser				
Model ID or Rating:						
Impeller ID or Size:						
Variable-Speed?:		Yes	No	No	Yes	
Year Installed						
Pump Curve ID in Model:		P-	P-DAYS P2	P-DAYS P3	P-	
Flow and Level Set Points						
Firm Capacity	L/s	900.00				
Peak Capacity	L/s	1100.00				
Tested Flow (e.g.: Drawdown)	L/s	226.00	336.00	748.00	226.00	
ECA Rated Flow:	L/s	336.00	336.00	748.00	336.00	
ECA Rated Head:	m	23.00	23.00	23.00	23.00	
Elevation On:	m	71.75	72.10	72.35	72.70	
Elevation Off:	m	71.23	71.60	71.82	72.20	
Pump (Impeller) Elevation:	m	70.18±				
Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1995):	m	7.00	0.50		1.00	EL
Discharge Line (1970):	m	2/3.5/3.5	0.35/0.45/0.60		2/1/1	REL/CV/GV
Pump Station (1970):	m	14.00	0.60			
Yard Piping (1970):	m	10.00	0.75	concrete	1.00	EL
Main Pipeline (1970):	m	1500/3800	0.9/0.6		1.00	EL
Exit Elevation:	m	74.07				
Legend:						
EL - Elbow, REL - Reducing Elbow, CV = Check Valve, GV = Gate Valve, E = Expansion						
Notes:						
Lengths indicated are approximate						

7.3.11 Greenview Drive PS

Reliability Rating 0.0 Overall Rating 0

Total Facility Risk 2.1 /5 Total Equipment Risk 0.0 /5 Condition rating 0.0 /5

Condition Assessment:

A major upgrade is expected to start in the coming months at Greenview Drive; which will include:

- o Pump and Process Mechanical replacement
- o Full Electrical upgrade
- o Full Building Mechanical Upgrade
- o Some structural changes

This will considerably improve the standard of the pumping station. Once completed there should be no requirement for upgrade in the next 20 years, but a review is suggested in 10 years to re-evaluate.

Priority Work:

The current Upgrade.



Work required 5-25 Years:

Repair/Upgrade & Cost			
5-10 Years	10-15 Years	15-20 Years	20-25 Years
	Review	\$ 4,000	

Review:

- 1) Condition Review.

Pump Station Facility Summary

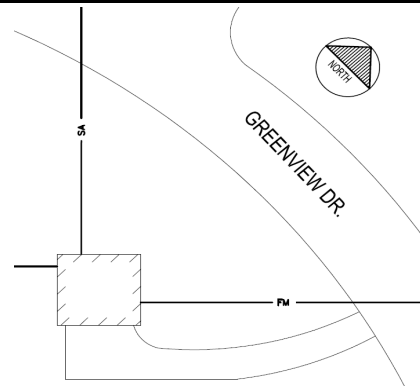


Facility Name:	Greenview Drive Ps			Notes:
Facility Address:	Corner Greenview Dr and Bayswater Pl			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	377,257.85E 4,899,028.41N			
Reference Drawing(s):	C-71 and C71-2, Jan 1970.			
Include Revision(s) & Date(s)	Piping, Aug 1970			
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	32.00	0.25	
Main Pipeline Length & Dia.:	m	61.00	0.25	
Main Discharge Location.	n/a	North End Trunk Sewer		
Overflow Pipe Length & D.:	m	18.00	0.30	
Overflow Discharge Loc.:	n/a	Catarauqui Creek		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



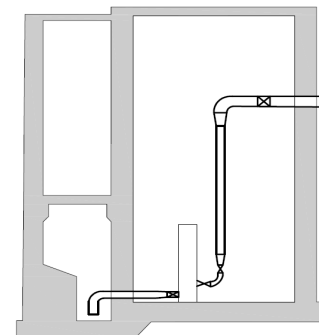
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	Piping		
Base Elevation & Level:	m	69.95	0.00	
Low Alarm Elevation:	m	N/A	N/A	
Minimum Elevation:	m	70.03	0.58	
Initial/Normal Elev. & Level:	m	71.95	2.00	
Maximum Elevation:	n/a	75.84	5.89	
High Alarm Elevation:	m	72.70	2.75	
Ground Elevation:	m	77.11	7.16	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangle		
Average Cross-Section Area:	sq.m	5.95		
Length & Width (or Diam.):	m	4.88	1.22	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Greenview Drive Ps	Notes:				
Facility Address:	Corner Greenview Dr and Bayswater Pl					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	377,257.85E 4,899,028.41N					
Reference Drawing(s):	C-71 and C71-2, Jan 1970.					
Include Revision(s) & Date(s)	Piping, Aug 1970					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type		Lead	Lag 1			
Make:		Chicago Pumps				
Model ID or Rating:		2-B-SO-61-08509-2A				
Impeller ID or Size:		260mm				
Variable-Speed?:		No				
Year Installed		1970				
Pump Curve ID in Model:		P_Greenview_2235				
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	47.30				
Peak Capacity	L/s	85.10				
Tested Flow (e.g.: Drawdown):	L/s	39.00	54.00			
ECA Rated Flow:	L/s	47.30	47.30			
ECA Rated Head:	m	9.10	9.10			
Elevation On:	m	72.45	72.55			
Elevation Off:	m	72.05	72.15			
Pump (Impeller) Elevation:	m	71.20	71.20			
Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1970):	m	1.58 / 0.61	0.2 / 0.15	CML	1/1/1	90EL, E, GV
Discharge Line (P1) (1970):	m	1.00/1.00	0.15	CML	2/2/2/1	CV/90EL/GV/ 45EL
Pump Station (1970):	m	N/A	0.15/0.25	CML	1/1/1	E/90EL/GV
Yard Piping (1970):	m	N/A	0.25	PVC	N/A	N/A
Main Pipeline (1970):	m	60.49	250.00	PVC	1.00	90EL
Exit Elevation:	m	76.59				
Legend:						
CML = Cement lined DI, 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral						
Notes:						
Assumed piping details from field survey						

7.3.12 Hatter Street PS

Reliability Rating 4.1 Overall Rating A

Total Facility Risk 1.8 /5 Total Equipment Risk 1.5 /5 Condition rating 1.6 /5

Condition Assessment:

Civil / Site: **Parking available on quiet road.**

Structural: **Access wasn't available to well during condition assessment, Operator stated that there is no issues and PS has a low flow.**

Proc. Mech.: **N/A - No access**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition. Portable back up**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Review	\$ 4,000			Upgrade 1	\$ 35,000		

Comments:

- 1) Low Flow Pumping Station. Access to well not available at time of review.
- 2) Operator suggested PS may be removed from service in next 1-5 years

Review:

- 1) It is suggested a more thorough review is completed before upgrade

Upgrade 1:

- 1) Pump Control Panel and Sensors/Transmitters.

Pump Station Facility Summary

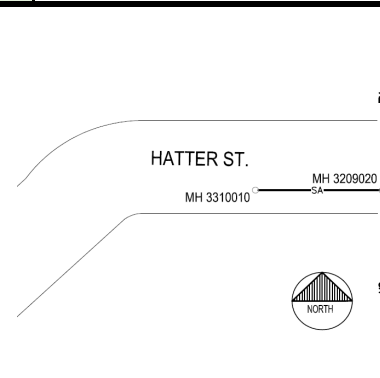


Facility Name:	Hatter Street Ps			Notes:
Facility Address:	Corner Hatter St and Yonge St			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	378,718.96N 4,897,897.82E			
Reference Drawing(s):	A-120-E, May 1960.			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	32.00	0.20	
Main Pipeline Length & Dia.:	m	32.00	0.20	
Main Discharge Location.	n/a	Yonge St. North Collector		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



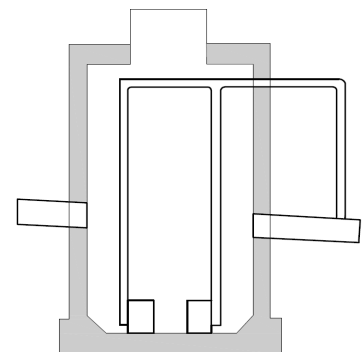
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Not Modelled
Reference Drawing Number:	n/a	A-120-E, May 1960.		
Base Elevation & Level:	m	83.21	0.00	
Low Alarm Elevation:	m	N/A	N/A	
Minimum Elevation:	m	83.29	0.08	
Initial/Normal Elev. & Level:	m	84.51	1.30	
Maximum Elevation:	n/a	84.39	1.18	
High Alarm Elevation:	m	83.72	0.51	
Ground Elevation:	m	86.50	3.29	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circle		
Average Cross-Section Area:	sq.m	7.34		
Length & Width (or Diam.):	m	1.54		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Hatter Street Ps			Notes:		
Facility Address:	Corner Hatter St and Yonge St					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	378,718.96N 4,897,897.82E					
Reference Drawing(s): Include Revision(s) & Date(s)	A-120-E, May 1960.					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2			Notes: Not Modelled		
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Units	Lead	Lag 1			
Make:		Myers				
Model ID or Rating:		SRM4P-1, 0.4HP				
Impeller ID or Size:		N/A				
Variable-Speed?:		No				
Year Installed		1960				
Pump Curve ID in Model:		P_Hatter.ST_25EV-L				
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	N/A				
Peak Capacity	L/s	N/A				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	N/A	N/A			
ECA Rated Head:	m	N/A	N/A			
Elevation On:	m	84.12	84.28			
Elevation Off:	m	83.61	83.61			
Pump (Impeller) Elevation:	m	83.30	83.30			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1960):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1960):	m	1.06	0.08	N/A	1	CV
Pump Station (1970):	m	1.50	0.08	N/A	0	N/A
Yard Piping (1970):	m	N/A	0.08	N/A	1 / 1	45EL, 90EL
Main Pipeline (1970):	m	24.71	0.20	N/A	N/A	
Exit Elevation:	m	85.50				
Legend: 90EL = 90 DEG Elbow, CV = Check Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral						
Notes: Assumed piping details from field survey						

7.3.13 Hillview Road PS

Reliability Rating 11.7 Overall Rating C

Total Facility Risk 3.5 /5 Total Equipment Risk 2.3 /5 Condition rating 1.5 /5

Condition Assessment:

- Civil / Site: **Good Condition**
- Structural: **Good Condition. Large Access way hatches have no handles.**
- Proc. Mech.: **Piping and Valving corroded.**
- Instrument: **Good Condition. System not fully calibrated.**
- Proc. Elec.: **Good Condition. Deisel Generator - in good working order**
- Build. Mech.: **Good Condition. Diesel Tank banded**
- Build. Elec.: **Good Condition.**

Priority Work:

Hatches for access to Wet well are large and cumbersome – require handles to protect employees from being injured. (\$500)

Work required 5-25 Years:

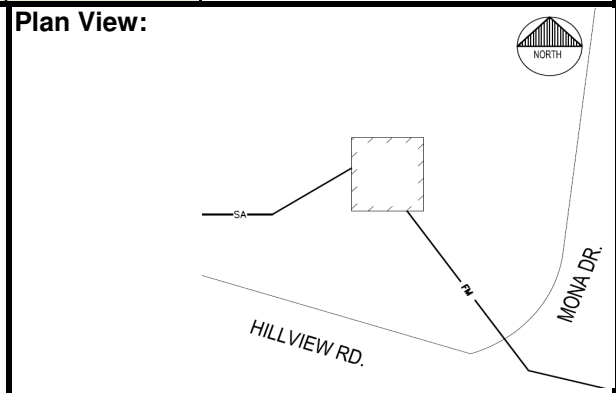
Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
		Upgrade 1	\$ 250,000				

Upgrade 1:
 Replace Pipework, Valves, Sensors/Transmitters and Instrument panel.

Pump Station Facility Summary

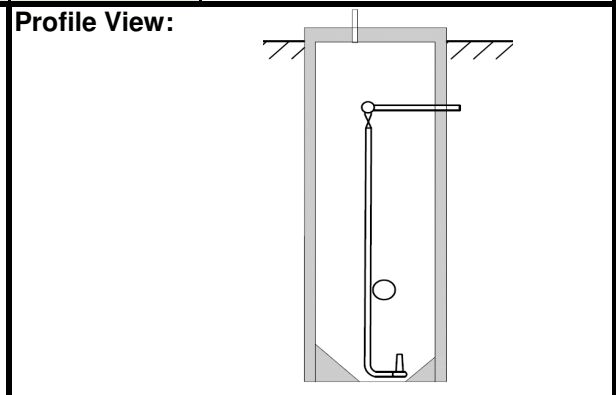


Facility Name:	Hillview Rd			Notes:
Facility Address:	Corner Hillview Rd and Mona Dr			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	372,025.14E 4,900,062.33W			
Reference Drawing(s):	600-1, 600-2 and 600-3 Sept 1997			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	35.00	0.60	
Main Pipeline Length & Dia.:	m	577.00	0.35	
Main Discharge Location.	n/a	Days Rd Inlet Trunk Sewer		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	Yes		
CofA/ECA?:	n/a	N/A		



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	600-2		
Base Elevation & Level:	m	68.95	0.00	
Low Alarm Elevation:	m	69.70	0.75	
Minimum Elevation:	m	69.40	0.45	
Initial/Normal Elev. & Level:	m	71.17	2.22	
Maximum Elevation:	n/a	77.59	8.64	
High Alarm Elevation:	m	N/A	N/A	
Ground Elevation:	m	77.00	8.05	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	30.25		
Length & Width (or Diam.):	m	5.50	5.50	



Pump Station Facility Summary



Facility Name:	Hillview Rd	Notes:				
Facility Address:	Corner Hillview Rd and Mona Dr					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	372,025.14E 4,900,062.33W					
Reference Drawing(s): Include Revision(s) & Date(s)	600-1, 600-2 and 600-3 Sept 1997					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity based on Stantec Report, Peak capacity estimated.				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3231 110 Hp					
Impeller ID or Size:	655					
Variable-Speed?:	No					
Year Installed	1997					
Pump Curve ID in Model:	P_Hillview_CP3231-					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	141.00				
Peak Capacity	L/s	239.70				
Tested Flow (e.g.: Drawdown):	L/s	141.00	142.00			
ECA Rated Flow:	L/s	192.00	192.00			
ECA Rated Head:	m	26.00	26.00			
Elevation On:	m	71.18	71.48			
Elevation Off:	m	70.45	70.45			
Pump (Impeller) Elevation:	m	69.45	69.45			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1997):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1997):	m	5.30	0.20	CML	1/1/1	CV, 90EL, GV
Pump Station (1997):	m	4.50	0.20	CML	N/A	N/A
Yard Piping (1997):	m	10.00	0.20	CML	1.00	MF
Main Pipeline (1997):	m	579.84	0.25	N/A	2	90EL
Exit Elevation:	m	75.00				
Legend: CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow						
Notes: 'High Alarm Elevation: Level' may not be correct as normal level to be 2.22						

7.3.14 Highway 15

Reliability Rating 9.5 Overall Rating B

Total Facility Risk 2.9 /5 Total Equipment Risk 2.0 /5 Condition rating 1.7 /5

Condition Assessment:

- Civil / Site: **Good Condition - Gravel access and compound with fence.**
- Structural: **Wet Well not assessed. Dry well/building/access ways in good Condition.**
- Proc. Mech.: **Valves - starting to show corrosion. Aging Pumps - Good Condition.**
- Instrument: **Pump Control Panel beyond design life capacity - should be replaced.**
- Proc. Elec.: **Good Condition. Aging diesel back-up generator**
- Build. Mech.: **Aging equipment. Bunded Tank**
- Build. Elec.: **Good Condition**

Priority Work:

Replace Pump Control Panel as it is beyond Life expectancy (\$ 40,000)

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
				Upgrade 1	\$ 800,000		

Upgrade 1:

1) Replace Pumps, Pipework, Valves, Instrumentation, Transformer, Generator, Diesel Tank, Process Electrical and Building Mechanical.

Pump Station Facility Summary

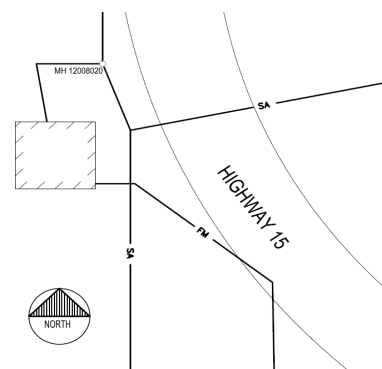


Facility Name:	HWY 15	Notes:
Facility Address:	676, Highway 15	
Community/Service Area:	Ravensview WWTP	
Coordinates (Lat./Long.):	383,195.77E 4,899,898.24N	
Reference Drawing(s):	K-B35-9305160-404 94/06/24	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 9.00 0.45	
Main Pipeline Length & Dia.:	m 505.00 0.30	
Main Discharge Location.	n/a Hwy 15 / Ravensview Trunk	
Overflow Pipe Length & D.:	m N/A 1.20	
Overflow Discharge Loc.:	n/a Cataraqui River	
Backup Power?:	n/a Yes	
Site Fencing?:	n/a Yes	
CofA/ECA?:	n/a N/A	

Photo: Exterior



Plan View:



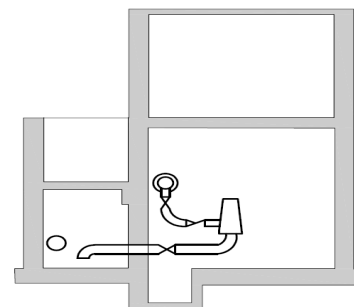
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	86.40	0.00	
Low Alarm Elevation:	m	N/A	N/A	
Minimum Elevation:	m	N/A	N/A	
Initial/Normal Elev. & Level:	m	87.00	0.60	
Maximum Elevation:	n/a	89.98	3.581 Assumed	
High Alarm Elevation:	m	N/A	N/A	
Ground Elevation:	m	N/A	N/A	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	14.9 m Assumed		
Length & Width (or Diam.):	m	N/A	N/A	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	HWY 15	Notes:			
Facility Address:	676, Highway 15				
Community/Service Area:	Ravensview WWTP				
Coordinates (Lat./Long.):	383,195.77E 4,899,898.24N				
Reference Drawing(s): Include Revision(s) & Date(s)	K-B35-9305160-404 94/06/24				
Page No.	Page 2 of 2				
Pump Details					
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated			
SCADA Flow?	Yes				
SCADA Level?	Yes				
Pump Type		Lead	Lag 1		
Make:		Flygt			
Model ID or Rating:		CT-3170 30Hp			
Impeller ID or Size:		443.00			
Variable-Speed?:		No			
Year Installed		N/A			
Pump Curve ID in Model:		P_HWY15_NS3171MT3-256mm			
Flow and Level Set Points	Units	Lead	Lag 1		
Firm Capacity	L/s	86.50			
Peak Capacity	L/s	147.10			
Tested Flow (e.g.: Drawdown):	L/s	54.00	55.00		
ECA Rated Flow:	L/s	73.00	73.00		
ECA Rated Head:	m	N/A	N/A		
Elevation On:	m	87.89	88.05		
Elevation Off:	m	87.00	87.15		
Pump (Impeller) Elevation:	m	87.39	87.39		
Piping Details					Minor Losses
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty. Type
Suction Line (1970):	m	0.84	0.20	CML	2/1 90EL/CV
Discharge Line (1970):	m	1.73	0.15	CML	1/1/1 90EL/CV/BV
Pump Station (1970):	m	3.73	0.20	CML	N/A N/A
Yard Piping (1970):	m	N/A	0.30	CML	N/A N/A
Main Pipeline (1970):	m	505.00	0.30	N/A	1 90EL
Exit Elevation:	m	88.37			
Legend: CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, BV = Ball Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral					
Notes: Assumed piping details from field survey					

7.3.15 James Street PS

Reliability Rating 9.7 Overall Rating B

Total Facility Risk 3.3 /5 Total Equipment Risk 1.8 /5 Condition rating 1.6 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Wet Well not assessed. Dry well shows signs of water damage.**

Proc. Mech.: **Aging Pumps - evidence of leakage and corrosion. Piping and Valves starting to show signs of corrosion.**

Instrument: **Pump Control Panel beyond design life capacity - should be replaced. Pump Starters recently installed.**

Proc. Elec.: **Good Condition. Currently no back-up power on site, but will share new generator at James Street Booster Station once complete.**

Build. Mech.: **Aging - Good Condition.**

Build. Elec.: **Good Condition.**

Priority Work:

Replace Pump Control Panel as it is beyond Life expectancy (\$ 40,000)

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years	10-15 Years	15-20 Years	20-25 Years
	Upgrade 1	\$ 600,000	

Upgrade 1:

- 1) Replace Pumps, Sensors/Transmitters, Instrument panel and Building Mechanical.
- 2) Consider replacing Pipework and Valves (Not included in costing).

Pump Station Facility Summary

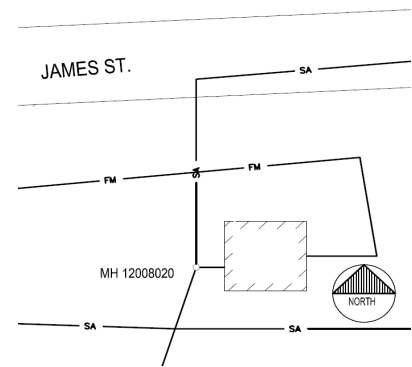


Facility Name:	James St. PS			Notes:
Facility Address:	107, James Street			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	382,956.02E 4,899,241.41N			
Reference Drawing(s):	K-B35-9305/60-403			
Include Revision(s) & Date(s)	June 24, 1994			
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	N/A	0.20	
Main Pipeline Length & Dia.:	m	71.00	0.20	
Main Discharge Location.	n/a	River St. FM		
Overflow Pipe Length & D.:	m	N/A	1.20	
Overflow Discharge Loc.:	n/a	Catarauqui River		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



Storage Well & Pump Suction Details

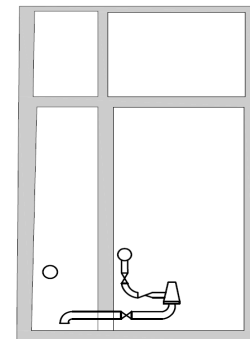
Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	71.78	0.00	
Low Alarm Elevation:	m	N/A	N/A	
Minimum Elevation:	m	72.24	0.46	
Initial/Normal Elev. & Level:	m	72.71	0.93	
Maximum Elevation:	n/a	73.91	2.13	
High Alarm Elevation:	m	N/A	N/A	
Ground Elevation:	m	79.25	7.47	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangular		
Average Cross-Section Area:	sq.m	9.3 Constant Shape Assumed		
Length & Width (or Diam.):	m			

Assumed piping details from field survey

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	James St. PS	Notes:				
Facility Address:	107, James Street					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	382,956.02E 4,899,241.41N					
Reference Drawing(s): Include Revision(s) & Date(s)	K-B35-9305/60-403 June 24, 1994					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1	Lag			
Make:	Flygt					
Model ID or Rating:	CT-3201 47HP					
Impeller ID or Size:	452.00					
Variable-Speed?:	No					
Year Installed	1997.00					
Pump Curve ID in Model:	P-JAMES.ST_CP3201HT3-330.5MM					
Flow and Level Set Points	Units	Lead	Lag 1	Lag		
Firm Capacity	L/s	67.00				
Peak Capacity	L/s	115.20				
Tested Flow (e.g.: Drawdown):	L/s	30.00	44.00			
ECA Rated Flow:	L/s	43.00	43.00			
ECA Rated Head:	m	36.60	36.60			
Elevation On:	m	74.04	74.38			
Elevation Off:	m	72.63	72.63			
Pump (Impeller) Elevation:	m	72.85	72.85			
Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1997):	m	0.86	0.20	CML	2/1	90EL/CV
Discharge Line (1997):	m	1.47	0.15	CML	1/1	90EL/CV
Pump Station (1997):	m	5.18	0.20	PVC	3/1	MF/CV
Yard Piping (1997):	m	N/A	N/A	N/A	N/A	N/A
Main Pipeline (1997):	m	71.00	0.20	N/A	N/A	N/A
Exit Elevation:	m	75.00				
Legend:						
CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes:						
Assumed piping details from field survey						

7.3.16 John Counter Boulevard PS

Reliability Rating	3.8	Overall Rating	A
Total Facility Risk	2.0 /5	Total Equipment Risk	1.6 /5
Condition rating		1.2 /5	

Condition Assessment:

Civil / Site: **New facility. Repair required to paving.**

Structural: **Good Condition**

Proc. Mech.: **Good Condition**

Instrument: **Good Condition**


Proc. Elec.: **Good Condition. Back up gas generator onsite**

Build. Mech.: **N/A**

Build. Elec.: **Exterior Lighting in good Condition.**

Priority Work:

Damaged Paving to be repaired (\$ 3,000)



Work required 5-25 Years:

Repair/Upgrade & Cost			
5-10 Years	10-15 Years	15-20 Years	20-25 Years
			Upgrade 1 \$ 100,000

Upgrade 1:

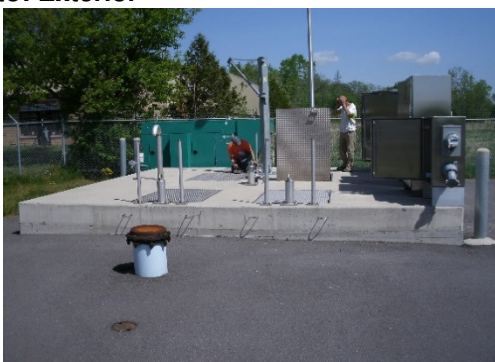
1) Replace Instrumentation

Pump Station Facility Summary

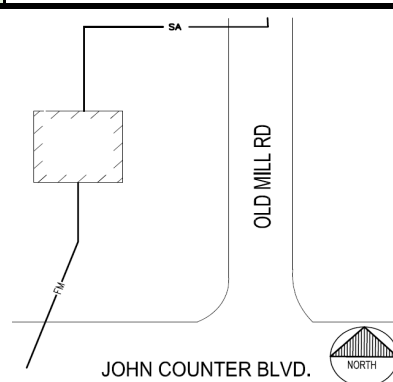


Facility Name:	John Counter Blvd PS			Notes:
Facility Address:	Crn of John Counter Blvd & Old Mill			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	377,150.19E 4,901,579.66N			
Reference Drawing(s):	288PS PP04 & 288PS PP06, July 2011			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	135.00	0.525	
Main Pipeline Length & Dia.:	m	331.00	0.20	
Main Discharge Location.	n/a	North East Collector		
Overflow Pipe Length & D.:	m	N/A	0.10	
Overflow Discharge Loc.:	n/a	Cataraqi Creek		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	Yes		
CofA/ECA?:	n/a	Yes		

Photo: Exterior



Plan View:



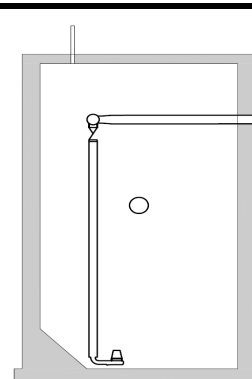
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	288PS PP06		
Base Elevation & Level:	m	68.20	0.00	
Low Alarm Elevation:	m	68.56	0.36	
Minimum Elevation:	m	68.40	0.20	
Initial/Normal Elev. & Level:	m	71.02	2.82	
Maximum Elevation:	n/a	74.00	5.80	
High Alarm Elevation:	m	70.06	1.86	
Ground Elevation:	m	77.90	9.70	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	30.25		
Length & Width (or Diam.):	m	5.50	5.50	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	John Counter Blvd PS	Notes:
Facility Address:	Crn of John Counter Blvd & Old Mill	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	377,150.19E 4,901,579.66N	
Reference Drawing(s): Include Revision(s) & Date(s)	288PS PP04 & 288PS PP06, July 2011	
Page No.	Page 2 of 2	

Pump Details						
Number of Pumps	2	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1	Lag 1			
Make:	Flygt					
Model ID or Rating:	NP3153.181MT					
Impeller ID or Size:	413					
Variable-Speed?:	No					
Year Installed	2011					
Pump Curve ID in Model:	P_JohnCounter_MP3153LT3-217mm					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	50.60				
Peak Capacity	L/s	86.00				
Tested Flow (e.g.: Drawdown):	L/s	50.60	50.60			
ECA Rated Flow:	L/s	50.60	50.60			
ECA Rated Head:	m	9.60	9.60			
Elevation On:	m	69.16	69.46			
Elevation Off:	m	68.86	68.86			
Pump (Impeller) Elevation:	m	68.40	68.40			

Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (2011):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (2011):	m	7.90	0.20	PVC	1/1/1	CV, 90EL, GV
Pump Station (2011):	m	4.07	0.20	PVC	1	E
Yard Piping (2011):	m	N/A	0.20	PVC	1	Metering with by-pass
Main Pipeline (2011):	m	331.50	0.20	PVC	N/A	N/A
Exit Elevation:	m	76.40				

Legend:
 CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral

Notes:

7.3.17 Kenwoods Circle PS

Reliability Rating 6.6 Overall Rating B

Total Facility Risk 2.0 /5 Total Equipment Risk 1.9 /5 Condition rating 1.7 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Good Condition**

Proc. Mech.: **Piping and valves heavily corroded. Valves may be corroded in place making difficult to operate.**

Instrument: **Aging Pump Control Panel - Ok Condition**

Proc. Elec.: **Good Condition. No back-up power due to high capacity and low flow.**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	150,000	Upgrade 2	\$ 400,000	Upgrade 3	\$ 100,000		

Upgrade 1:

- 1) Replace pipework and valves

Upgrade 2:

- 1) Replace Pump Control Panel, Instrument Panel, Sensors/Transmitters, Transformer.
- 2) Consider upgrade 3 during this work. (See Upgrade 3 Price)

Upgrade 3:

- 1) Replace all Process Electrical and Building Mechanical

Pump Station Facility Summary

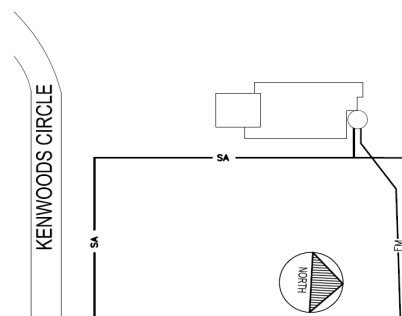


Facility Name:	Kenwoods Circle PS			Notes:
Facility Address:	Kenwoods Circle			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	382,983.51E 4,901,406.47N			
Reference Drawing(s):	10048-AS1 & 10048-C1, Apr 1990			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	41.00	0.20	
Main Pipeline Length & Dia.:	m	457.00	0.20	
Main Discharge Location.	n/a	Hwy 15		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



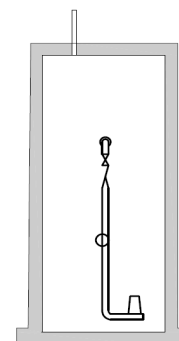
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	10048-C1, Apr 1990		
Base Elevation & Level:	m	72.90	0.00	
Low Alarm Elevation:	m	73.50	73.50	
Minimum Elevation:	m	73.20	0.30	
Initial/Normal Elev. & Level:	m	73.67	0.77	
Maximum Elevation:	n/a	80.20	7.30	
High Alarm Elevation:	m	75.00	2.10	
Ground Elevation:	m	79.90	7.00	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	7.07		
Length & Width (or Diam.):	m	3.00		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Kenwoods Circle PS	Notes:				
Facility Address:	Kenwoods Circle					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	382,983.51E 4,901,406.47N					
Reference Drawing(s): Include Revision(s) & Date(s)	10048-AS1 & 10048-C1, Apr 1990					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated				
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3152 20 Hp					
Impeller ID or Size:	496					
Variable-Speed?:	No					
Year Installed	1993					
Pump Curve ID in Model:	P_Kenwood_FP3151HT3_215mm					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	48.00				
Peak Capacity	L/s	95.40				
Tested Flow (e.g.: Drawdown):	L/s	44.00	20.00			
ECA Rated Flow:	L/s	38.00	38.00			
ECA Rated Head:	m	28.00	28.00			
Elevation On:	m	74.50	74.70			
Elevation Off:	m	73.70	73.70			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1993):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1993):	m	4.36	0.15	CML	1/1/1	CV, GV, 90EL
Pump Station (1993):	m	2.24	0.15	CML	N/A	N/A
Yard Piping (1993):	m	8.31	0.15 / .2	PVC	1/1	E, 45EL
Main Pipeline (1993):	m	451.50	0.20	PVC	1.00	45EL
Exit Elevation:	m	77.80				
Legend: CML = Cement Lined DI, 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes: Assumed piping details from field survey						

7.3.18 King Street PS

Reliability Rating 14.3 Overall Rating C

Total Facility Risk 3.8 /5 Total Equipment Risk 2.6 /5 Condition rating 1.5 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Wet Well not assessed. Dry well shows signs of water damage on areas around pump suction - has been repaired using Polyurethane Injection. New Tin roof.**

Proc. Mech.: **Piping in good Condition. Valves starting to show signs of corrosion. George Street CSO used to control flow levels. Grider recently repaired.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition. Gas Generator Back-up**

Build. Mech.: **Old furnace and thermostat needs replacing**

Build. Elec.: **Good Condition**

Priority Work:

Replace Furnace as it is beyond Life expectancy (\$ 7,000)

Work required 5-25 Years:

Repair/Upgrade & Cost			
5-10 Years	10-15 Years	15-20 Years	20-25 Years
	Upgrade 1	\$ 160,000	Upgrade 2 \$ 600,000

Upgrade 1:

- 1) Replace Instrument Panel and Sensors/Transmitters.
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

Upgrade 2:

- 1) Replace Pump Control Panel, Process Electrical (Excluding generator) and Building Mechanical.
- 2) Review Pumps and piping.

Pump Station Facility Summary

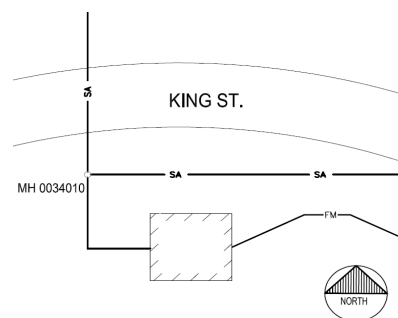


Facility Name:	King St. PS			Notes:
Facility Address:	King St. West Near University Ave.			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	380,714.06E 4,897,472.54N			
Reference Drawing(s):	P1, Jan/99 & P2, Jan/99			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	23.00	0.90	
Main Pipeline Length & Dia.:	m	281.00	0.60	
Main Discharge Location.	n/a	Harbourfront Trunk Sewer		
Overflow Pipe Length & D.:	m	N/A	0.90	
Overflow Discharge Loc.:	n/a	Lake Ontario		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



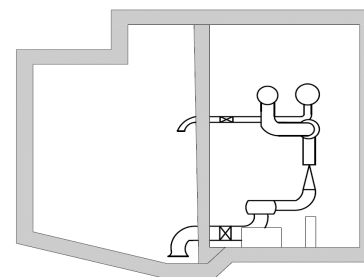
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	P2, Jan/99		
Base Elevation & Level:	m	69.88	0.00	
Low Alarm Elevation:	m	N/A	N/A	
Minimum Elevation:	m	70.25	0.37	
Initial/Normal Elev. & Level:	m	71.88	2.00	
Maximum Elevation:	n/a	74.05	4.38	
High Alarm Elevation:	m	N/A	N/A	
Ground Elevation:	m	76.75	6.87	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	50.60		
Length & Width (or Diam.):	m	N/A	N/A	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	King St. PS	Notes:				
Facility Address:	King St. West Near University Ave.					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	380,714.06E 4,897,472.54N					
Reference Drawing(s): Include Revision(s) & Date(s)	P1, Jan/99 & P2, Jan/99					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	4	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1	Lag 2	Lag 3		
Make:	Flygt					
Model ID or Rating:	3202.00					
Impeller ID or Size:	630.00					
Variable-Speed?:	No					
Year Installed	1999					
Pump Curve ID in Model:	OKILL4PUMPS					
Flow and Level Set Points	Units	Lead	Lag 1	Lag 2	Lag 3	
Firm Capacity	L/s	576.00				
Peak Capacity	L/s	731.00				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A	N/A	N/A	
ECA Rated Flow:	L/s	242.00	242.00	242.00	242.00	
ECA Rated Head:	m	8.90	8.90	8.90	8.90	
Elevation On:	m	72.09	72.48	72.88	73.28	
Elevation Off:	m	72.09	71.28	71.68	72.08	
Pump (Impeller) Elevation:	m	N/A	N/A	N/A	N/A	
Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (2011):	m	N/A	0.90	DI	2'1/1	90EL/E/CV
Discharge Line (2011):	m	4.90	0.3/0.35	DI	3'1/1	90EL/E/CV
Pump Station (2011):	m	N/A	0.35	DI	4'2	TF/CV
Yard Piping (2011):	m	N/A	0.60	N/A		
Main Pipeline (2011):	m	274.00	0.60	N/A		
Exit Elevation:	m	76.50				
Legend: 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes: Assumed piping details from field survey						

7.3.19 King-Elevator Bay PS

Reliability Rating 6.1 Overall Rating B

Total Facility Risk 2.0 /5 Total Equipment Risk 1.9 /5 Condition rating 1.6 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Good Condition. Hinges on one well hatch broken. Well would be easier to access if hatches opened in opposite direction.**

Proc. Mech.: **Piping and Valving heavily corroded.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition. Aging Diesel Generator.**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

- 1) Repair Hinges on Well hatch. (\$ 200)
- 2) Hatches open in the wrong direction - (\$ 1,000)
easier to maintain the well if they
opened in the opposite direction, away
from the building



Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
		Upgrade 1	\$ 200,000	Upgrade 2	\$ 500,000		

Upgrade 1:

- 1) Replace Pipework, Valves, Instrument Panel and Sensor/Transmitter.
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

Upgrade 2:

- 1) Replace Pump Control panel, pumps, flowmeter, diesel generator and tank.
- 2) Consider HVAC and Heaters. (Price not included)

Pump Station Facility Summary

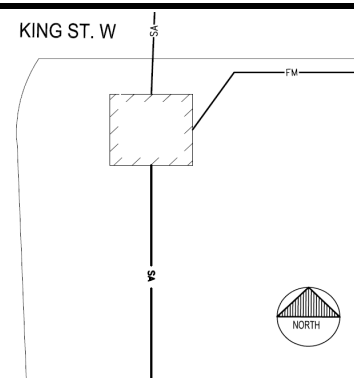


Facility Name:	King Elevator Bay PS			Notes:
Facility Address:	King St. W near Trailhead Place Int.			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	377,110.45E 4,897,222.74N			
Reference Drawing(s):	N/A			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	86.00	0.20	
Main Pipeline Length & Dia.:	m	698.00	0.25	
Main Discharge Location.	n/a	King St. West Collector		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



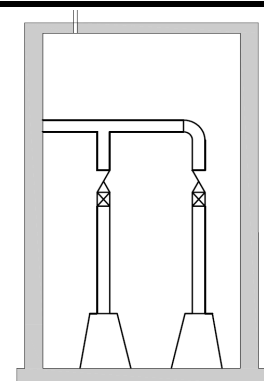
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	71.00	0.00	
Low Alarm Elevation:	m	72.20	1.20	
Minimum Elevation:	m	N/A	N/A	
Initial/Normal Elev. & Level:	m	73.30	2.30	
Maximum Elevation:	n/a	N/A	N/A	
High Alarm Elevation:	m	73.70	2.70	
Ground Elevation:	m	75.00	4.00	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangle		
Average Cross-Section Area:	sq.m	10.20		
Length & Width (or Diam.):	m	3.51	2.90	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	King Elevator Bay PS	Notes:				
Facility Address:	King St. W near Trailhead Place Int.					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	377,110.45E 4,897,222.74N					
Reference Drawing(s): Include Revision(s) & Date(s)	N/A					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated				
SCADA Flow?	No					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3201 43Hp					
Impeller ID or Size:	452					
Variable-Speed?:	No					
Year Installed	N/A					
Pump Curve ID in Model:	P_KINGELEVATOR_CP32014T3-					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	88.00				
Peak Capacity	L/s	149.60				
Tested Flow (e.g.: Drawdown):	L/s	88.00	91.00			
ECA Rated Flow:	L/s	N/A	N/A			
ECA Rated Head:	m	N/A	N/A			
Elevation On:	m	73.40	73.60			
Elevation Off:	m	72.50	72.75			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (N/A):	m	N/A	0.25	CML	N/A	N/A
Discharge Line (N/A):	m	N/A	0.25	CMI	1/1/2	CV, GV, 90EL
Pump Station (N/A):	m	N/A	0.25	CML	2.00	90EL
Yard Piping (N/A):	m	N/A	0.25	CML	N/A	N/A
Main Pipeline (N/A):	m	698.00	0.25	N/A	N/A	N/A
Exit Elevation:	m	92.10				
Legend: CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow						
Notes: Assumed piping details from field survey						

7.3.20 King-Lake Ontario Park PS

Reliability Rating 3.8 Overall Rating A

Total Facility Risk 1.8 /5 Total Equipment Risk 1.4 /5 Condition rating 1.5 /5

Condition Assessment:

- Civil / Site: **Good Condition - Low Flow station (Only used in summer months.)**
- Structural: **Metal structure with some slight signs of corrosion.**
- Proc. Mech.: **Pumps, Piping and Valves not visible - operator stated that there was no issue.**
- Instrument: **Ok Condition**
- Proc. Elec.: **Good Condition**
- Build. Mech.: **N/A**
- Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost			
5-10 Years	10-15 Years	15-20 Years	20-25 Years
	Upgrade 1	\$ 30,000	

Comments:

Low Flow Pumping Station – only used in the summer months.

Upgrade 1:

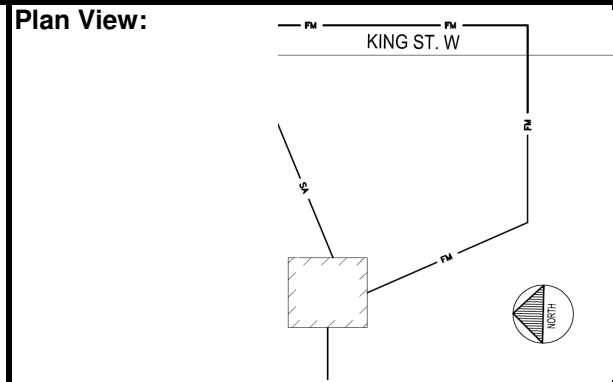
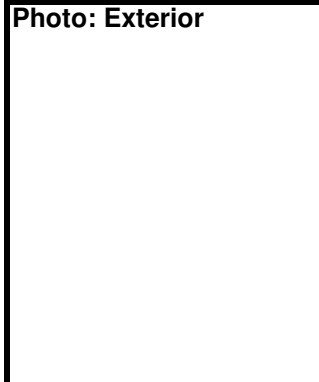
- o Upgrade – Pump Control Panel



Pump Station Facility Summary

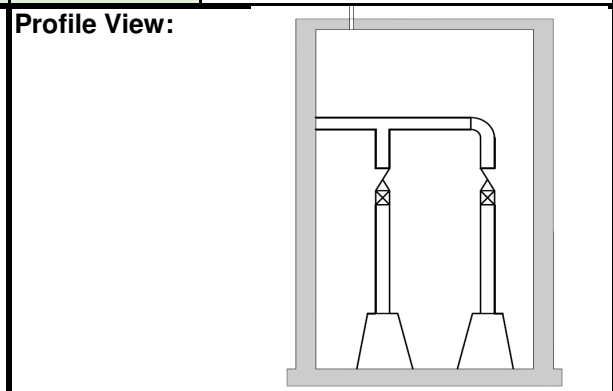
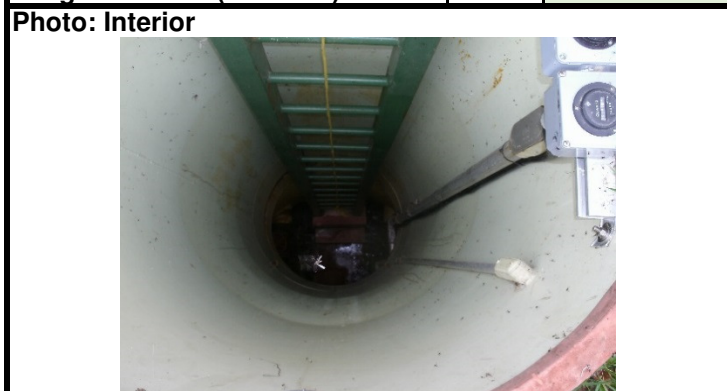


Facility Name:	King-Lake Ontario Park			Notes:
Facility Address:	Lake Ontario Pk south of King-St W			
Community/Service Area:	Ravensview			
Coordinates (Lat./Long.):	377,652.90E 4,896,852.01N			
Reference Drawing(s):	N/A			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	87.00	0.20	
Main Pipeline Length & Dia.:	m	456.00	0.15	
Main Discharge Location.	n/a	King Street W. Collector		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	83.11	0.00	
Low Alarm Elevation:	m	N/A	N/A	
Minimum Elevation:	m	83.11	0.00	
Initial/Normal Elev. & Level:	m	2.5 Assumed		
Maximum Elevation:	n/a	87.72	4.61	
High Alarm Elevation:	m	N/A	N/A	
Ground Elevation:	m	87.72	4.61	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	1.50		
Length & Width (or Diam.):	m	0.69		



Pump Station Facility Summary



Facility Name:	King-Lake Ontario Park	Notes:				
Facility Address:	Lake Ontario Pk south of King-St W					
Community/Service Area:	Ravensview					
Coordinates (Lat./Long.):	377,652.90E 4,896,852.01N					
Reference Drawing(s): Include Revision(s) & Date(s)	N/A					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated				
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Lead	Lag 1				
Make:	Smith & Loveless					
Model ID or Rating:	4B2A 15HP					
Impeller ID or Size:	No					
Variable-Speed?:	No					
Year Installed	N/A					
Pump Curve ID in Model:	P_KingLakeONT-6B3X					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	12.00				
Peak Capacity	L/s	21.60				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	12.60	12.60			
ECA Rated Head:	m	12.20	12.20			
Elevation On:	m	85.61	86.11			
Elevation Off:	m	84.61	85.11			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (N/A):	m	1.50	0.10	N/A	1	GV
Discharge Line (N/A):	m	N/A	0.15	N/A	2/2	90E, CV
Pump Station (N/A):	m	N/A	0.15	N/A	2.00	90EL
Yard Piping (N/A):	m	N/A	0.15	N/A	N/A	N/A
Main Pipeline (N/A):	m	455.57	0.15	N/A	N/A	N/A
Exit Elevation:	m	92.10				
Legend: CML = Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow						
Notes: Assumed piping details from field survey						

7.3.21 King-Portsmouth PS

Reliability Rating	6.1	Overall Rating	B
Total Facility Risk	2.0 /5	Total Equipment Risk	1.9 /5
Condition rating	1.6 /5		

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Wet Well not assessed. Dry well shows signs of water damage.**

Proc. Mech.: **Corrosion present on pump suction line. Corrosion starting to show on Manual valves and pipe clamps. Grinder beyond life expectancy.**

Instrument: **Instrument Panel beyond design life expectancy.**

Proc. Elec.: **Good Condition. Supplied by 2 separate powergrids.**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

1) Evidence of overflow from Sump and Sump Pump visibly old – replacement or repair required. (\$200) (\$ 200.00)

2) Instrument panels to be replaced – beyond life expectancy. (\$ 40,000.00)

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
		Upgrade 1	\$ 150,000	Upgrade 2	\$ 250,000		

Upgrade 1:
1) Replace Grinder

Upgrade 2:
2) Replace Building Mechanical and Sensors/Transmitters

Pump Station Facility Summary

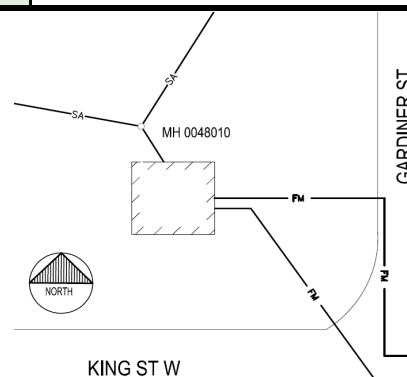


Facility Name:	King-Portsmouth PS			Notes:
Facility Address:	621 King Street West			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	378,872.90E 4,897,332.22N			
Reference Drawing(s):	10403 - E02 & P02, June 1999			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	34'/27	0.45/0.5	
Main Pipeline Length & Dia.:	m	467'/458	0.25'/450	
Main Discharge Location.	n/a	King Street Trunk		
Overflow Pipe Length & D.:	m	N/A	0.45	
Overflow Discharge Loc.:	n/a	Lake Ontario		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



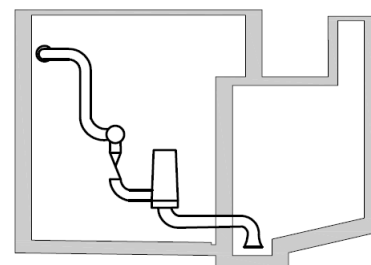
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	10403 - P02, June 1999		
Base Elevation & Level:	m	71.57	0.00	
Low Alarm Elevation:	m	73.20	1.63	
Minimum Elevation:	m	72.35	0.75	
Initial/Normal Elev. & Level:	m	73.62	2.05	
Maximum Elevation:	n/a	77.12	5.54	
High Alarm Elevation:	m	74.33	2.76	
Ground Elevation:	m	77.12	5.54	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	N/A		
Average Cross-Section Area:	sq.m	30.0m Constant Shape		
Length & Width (or Diam.):	m	N/A		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	King-Portsmouth PS	Notes:					
Facility Address:	621 King Street West						
Community/Service Area:	Ravensview WWTP						
Coordinates (Lat./Long.):	378,872.90E 4,897,332.22N						
Reference Drawing(s): Include Revision(s) & Date(s)	10403 - E02 & P02, June 1999						
Page No.	Page 2 of 2						
Pump Details							
Number of Pumps	3	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses					
SCADA Flow?	Yes						
SCADA Level?	Yes						
Pump Type	Units	Lead	Lag 1	Lag 2	Lag 2	Lag 2	
Make:		Flygt					
Model ID or Rating:		CP-3231 90Hp					
Impeller ID or Size:		655.00					
Variable-Speed?:		Yes					
Year Installed		SP-111 and SP-112, 1999					
Pump Curve ID in Model:		P_PORTSMOUTH_CP3231-400mm					
Flow and Level Set Points	Units	Lead	Lag 1	Lag 2	Lag 2	Lag 2	
Firm Capacity	L/s	285.00					
Peak Capacity	L/s	405.00					
Tested Flow (e.g.: Drawdown):	L/s	166.00	158.00	165.00			
ECA Rated Flow:	L/s	150.00	150.00	150.00			
ECA Rated Head:	m	24.00	24.00	24.00			
Elevation On:	m	73.77	73.97	74.17			
Elevation Off:	m	72.77	73.17	73.47			
Pump (Impeller) Elevation:	m	72.93	72.93	72.93			
Piping Details					Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type	
Suction Line - SP111&2 (1999)	m	N/A	0.25/0.3	CML	1/1/1/1	90EL, E, KGV, EJ	
Suction Line - SP113 (1999):	m	N/A	0.30	CML	1/1/1	90EL, KGV, EJ	
Discharge Line (1999):	m	N/A	0.25/0.2	CML	1/1/1	EJ, 90EL, CV, KGV	
Pump Station (1999):	m	N/A	0.3/0.4	CML	2/2/1	E, TEE, FE	
Yard Piping (1999):	m	N/A	0.45	N/A	N/A	N/A	
Main Pipeline (1999):	m	443.00	0.45	N/A	3.00	45EL	
Exit Elevation:	m	74.33					
Legend: CML = Cement Lined Ductile Iron , 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, KGV = Knife Gate Valve							
Notes: Assumed piping details from field survey							

7.3.22 Lakeshore Boulevard PS

Reliability Rating	7.4	Overall Rating	B		
Total Facility Risk	2.5 /5	Total Equipment Risk	1.9 /5	Condition rating	/5

Condition Assessment:

- Civil / Site: **Good Condition - Gravel Compound**
- Structural: **Good Condition**
- Proc. Mech.: **Piping and Valves showing corrosion**
- Instrument: **Aging Pump Control Panel - Ok Condition. SCADA data appears to show the Flowmeter is not currently working.**
- Proc. Elec.: **Generator Controller is beyond expected life expectancy.**
- Build. Mech.: **Good Condition. Generator Tank is banded.**
- Build. Elec.: **Good Condition**

Priority Work:

- 1) SCADA data shows Flowmeter is not currently working or undersized – review and repair/replace (\$ 20,000.00)
- 2) Generator Controller is aged beyond expected life and should be replaced. (\$ 10,000.00)

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 75,000	Upgrade 2	\$ 250,000				

Upgrade 1:

- 1) Replace Pump Control Panel
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

Upgrade 2:

- 1) Replace Instrument Panel, Sensors/Transmitters, Pipework and Valves.

Pump Station Facility Summary

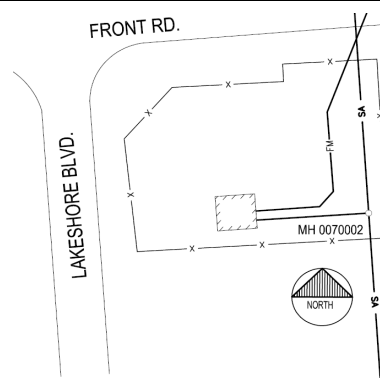


Facility Name:	Lakeshore Blvd PS			Notes:
Facility Address:	Corner Lakeshore Blvd and Front Rd			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	374,225.72E 4,897,048.23N			
Reference Drawing(s):	572-1 and 572-2, Aug 1995			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	22.00	0.45	
Main Pipeline Length & Dia.:	m	436.00	0.40	
Main Discharge Location.	n/a	Front Rd. Trunk		
Overflow Pipe Length & D.:	m	5.00	0.45	
Overflow Discharge Loc.:	n/a	Lake Ontario		
Backup Power?:	n/a	Yes		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		

Photo: Exterior



Plan View:



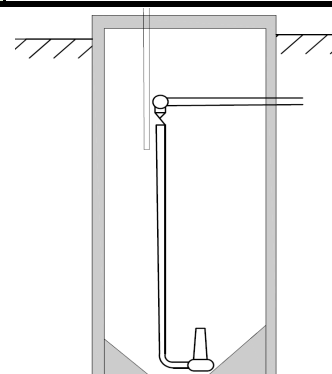
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	572-2		
Base Elevation & Level:	m	70.22	0.00	
Low Alarm Elevation:	m	70.82	0.60	
Minimum Elevation:	m	70.42	0.20	
Initial/Normal Elev. & Level:	m	71.42	1.20	
Maximum Elevation:	n/a	78.30	8.08	
High Alarm Elevation:	m	72.48	2.26	
Ground Elevation:	m	77.80	7.58	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	19.36		
Length & Width (or Diam.):	m	4.40	4.40	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Lakeshore Blvd PS	Notes:				
Facility Address:	Corner Lakeshore Blvd and Front					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	374,225.72E 4,897,048.23N					
Reference Drawing(s): Include Revision(s) & Date(s)	572-1 and 572-2, Aug 1995					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity based on Stantec Report, Peak capacity estimated.				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3201 35 Hp					
Impeller ID or Size:	636					
Variable-Speed?:	No					
Year Installed	1995					
Pump Curve ID in Model:	P_Lakeshore_CP3201MT3-335mm					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	117.00				
Peak Capacity	L/s	210.60				
Tested Flow (e.g.: Drawdown):	L/s	112.00	101.00			
ECA Rated Flow:	L/s	126.00	126.00			
ECA Rated Head:	m	12.70	12.70			
Elevation On:	m	71.80	72.22			
Elevation Off:	m	70.81	70.81			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1995):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1995):	m	5.49	0.25	PVC	1/1/1	CV, 90EL, GV
Pump Station (1995):	m	3.20	0.25	PVC	0	N/A
Yard Piping (1995):	m	N/A	0.25/0.4	PVC	1	MF
Main Pipeline (1995):	m	429.66	0.40	PVC	N/A	N/A
Exit Elevation:	m	76.30				
Legend: 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow						
Notes:						

7.3.23 Morton Street PS

Reliability Rating	5.0	Overall Rating	A
Total Facility Risk	2.8 /5	Total Equipment Risk	1.5 /5
		Condition rating	1.2 /5

Condition Assessment:

- Civil / Site: **Good Condition**
- Structural: **Wet Well not assessed. Dry well shows signs of water damage on areas around pump suction.**
- Proc. Mech.: **Piping and Manual Valves starting to show corrosion. Overflow to Sanitary Sewer never used.**
- Instrument: **SCADA data appears to show the Flowmeter is undersized for the capacity of the PS**
- Proc. Elec.: **Good Condition. Portable back-up generator**
- Build. Mech.: **Good Condition**
- Build. Elec.: **Good Condition**

Priority Work:

SCADA data shows Flowmeter is not currently working or undersized – review and repair/replace (\$10,000)

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
				Upgrade 1	\$ 75,000	Upgrade 2	\$ 150,000

Upgrade 1:

- 1) Replace Instrument Panels and Sensors/Transmitters

Upgrade 2:

- 1) Replace Pipework, Valves and Pump Control Panel.
- 2) Review Condition of Pumps and consider replacing. (Cost Not included)

Pump Station Facility Summary

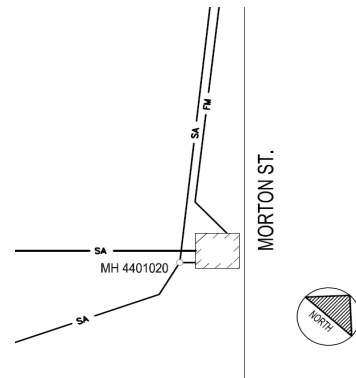


Facility Name:	Morton Street PS	Notes:
Facility Address:	Morton Way	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	379,739.26E 4,897,245.84N	
Reference Drawing(s):	C101 & M101, Feb 2005	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 3.43 0.25	
Main Pipeline Length & Dia.:	m 144.00 0.15	
Main Discharge Location:	n/a Existing San. Sewer	
Overflow Pipe Length & D.:	m 2.20 0.30	
Overflow Discharge Loc.:	n/a Existing San. Sewer	
Backup Power?:	n/a Yes	
Site Fencing?:	n/a No	
CofA/ECA?:	n/a Yes	

Photo: Exterior



Plan View:



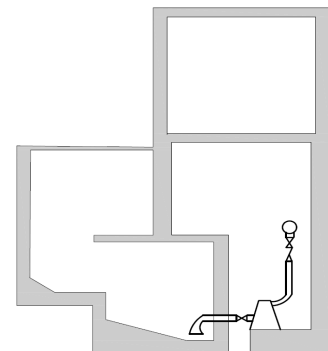
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	M101, Feb 2005		
Base Elevation & Level:	m	72.08	0.00	
Low Alarm Elevation:	m	72.31	0.24	
Minimum Elevation:	m	72.31	0.24	
Initial/Normal Elev. & Level:	m	72.63	0.55	
Maximum Elevation:	n/a	75.30	3.23	
High Alarm Elevation:	m	73.48	1.40	
Ground Elevation:	m	76.66	4.58	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangular		
Average Cross-Section Area:	sq.m	4.50		
Length & Width (or Diam.):	m	3.00	1.50	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Morton Street PS	Notes:				
Facility Address:	Morton Way					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	379,739.26E 4,897,245.84N					
Reference Drawing(s): Include Revision(s) & Date(s)	C101 & M101, Feb 2005					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	NT-3127 7.4Hp					
Impeller ID or Size:	489					
Variable-Speed?:	No					
Year Installed	2005.00					
Pump Curve ID in Model:	P_Morton_NX3127HT_195mm					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	18.00				
Peak Capacity	L/s	32.40				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	18.00	18.00			
ECA Rated Head:	m	14.60	14.60			
Elevation On:	m	73.09	74.68			
Elevation Off:	m	72.41	74.28			
Pump (Impeller) Elevation:	m	72.55	72.55			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (2005):	m	1.03	0.10	DI	1/1	90EL, GV
Discharge Line (2005):	m	1.88	0.1/0.15	DI	1/1/1/1	90EL, E, CV, GV
Pump Station (2005):	m	2.35	0.15	DI	1	GV
Yard Piping (2005):	m	5.40	0.15	DI	2	45EL
Main Pipeline (2005):	m	144.75	0.15	N/A	N/A	N/A
Exit Elevation:	m	74.67				
Legend: 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion,						
Notes: Assumed piping details from field survey						

7.3.24 Notch Hill Road PS

Reliability Rating	4.6	Overall Rating	A
Total Facility Risk	1.8 /5	Total Equipment Risk	1.5 /5
		Condition rating	1.8 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Access wasn't available to well during condition assessment, Operator stated that there is no issues and PS has a low flow.**

Proc. Mech.: **N/A - No access to well.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Review	\$ 4,000			Upgrade 1	\$ 40,000		

Comments:

1) Low Flow Pumping Station. Access to well not available at time of review.

Review:

1) It is suggested a more thorough review is completed before upgrade

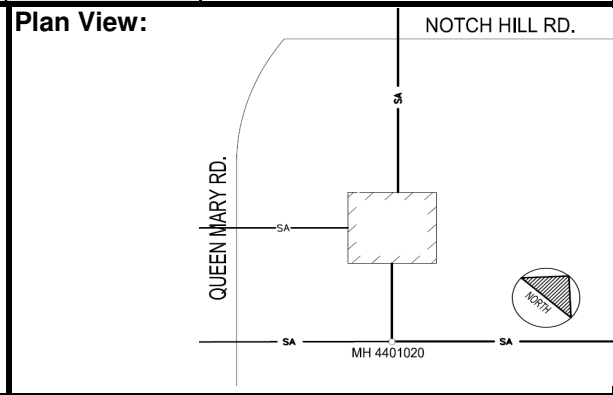
Upgrade 1:

1) Pump Control Panel and Sensors/Transmitters.

Pump Station Facility Summary

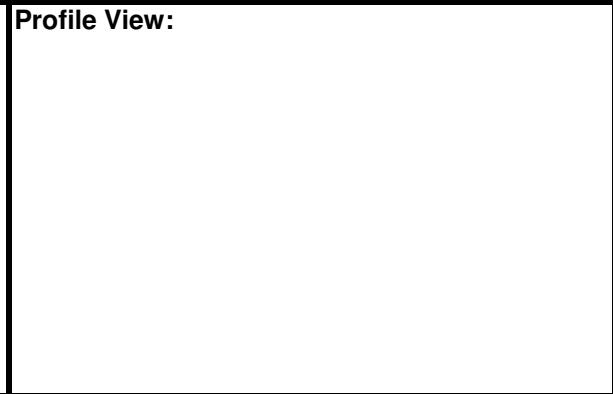


Facility Name:	Notch Hill PS			Notes:
Facility Address:	119 Notch Hill Road			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	377,447.04E 4,899,137.79N			
Reference Drawing(s):	N/A			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	38.00	0.20	
Main Pipeline Length & Dia.:	m	50.00	0.30	
Main Discharge Location.	n/a	Notch Hill Collector		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	N/A		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:	
Reference Drawing Number:	n/a	N/A			Not Modelled
Base Elevation & Level:	m	N/A	N/A		
Low Alarm Elevation:	m	N/A	N/A		
Minimum Elevation:	m	N/A	N/A		
Initial/Normal Elev. & Level:	m	N/A	N/A		
Maximum Elevation:	n/a	N/A	N/A		
High Alarm Elevation:	m	N/A	N/A		
Ground Elevation:	m	N/A	N/A		
Physical Data:	Units				
Section (circular, oval, etc...)	n/a	N/A			
Average Cross-Section Area:	sq.m	N/A			
Length & Width (or Diam.):	m	N/A	N/A		



Pump Station Facility Summary



Facility Name:	Notch Hill PS	Notes: Not Modelled					
Facility Address:	119 Notch Hill Road						
Community/Service Area:	Cataraqui Bay WWTP						
Coordinates (Lat./Long.):	377,447.04E 4,899,137.79N						
Reference Drawing(s): Include Revision(s) & Date(s)	N/A						
Page No.	Page 2 of 2						
Pump Details							
Number of Pumps	2	Notes: Not Modelled					
SCADA Flow?	No Data						
SCADA Level?	No Data						
Pump Type	Lead	Lag 1					
Make:	Myers						
Model ID or Rating:	MW 50-11 0.5 HP						
Impeller ID or Size:	N/A						
Variable-Speed?:	N/A						
Year Installed	N/A						
Pump Curve ID in Model:	N/A						
Flow and Level Set Points	Units	Lead	Lag 1				
Firm Capacity	L/s	N/A					
Peak Capacity		N/A					
Tested Flow (e.g.: Drawdown):	L/s	N/A					
ECA Rated Flow:	L/s	N/A					
ECA Rated Head:	m	N/A					
Elevation On:	m	N/A					
Elevation Off:	m	N/A					
Pump (Impeller) Elevation:	m	N/A					
Piping Details					Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type	
Suction Line (N/A):	m	N/A	N/A	N/A	N/A	N/A	
Discharge Line (N/A):	m	N/A	N/A	N/A	N/A	N/A	
Pump Station (N/A):	m	N/A	N/A	N/A	N/A	N/A	
Yard Piping (N/A):	m	N/A	N/A	N/A	N/A	N/A	
Main Pipeline (N/A):	m	N/A	N/A	N/A	N/A	N/A	
Exit Elevation:	m	N/A					
Legend:							
Notes: Not Modelled - Assessed for Condition							

7.3.25 Palace Road PS

Reliability Rating 6.9 Overall Rating B

Total Facility Risk 2.00 /5 Total Equipment Risk 2.0 /5 Condition rating 1.7 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Well in good condition. Building in good condition, but aging.
Access way hatches have safety gates installed to prevent accidental falls into well.**

Proc. Mech.: **Main/Pump out Piping and Valve bodies heavily corroded.**

Instrument: **SCADA data appears to show the Flowmeter is undersized for the capacity of the PS**

Proc. Elec.: **Good Condition. Portable back-up generator.**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

SCADA data shows Flowmeter is not currently working or undersized – review and repair/replace (\$ 10,000)

Work required 5-25 Years:

Repair/Upgrade & Cost							
5-10 Years		10-15 Years		15-20 Years		20-25 Years	
		Review	4000	Upgrade 1	\$ 325,000		

Review:
1) Review Building Structure and Pumps.

Upgrade 1:
1) Replace Pipework, Valves and Instrumentation.

Pump Station Facility Summary

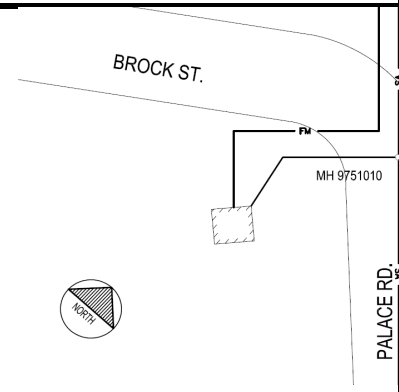


Facility Name:	Palace Road PS			Notes:
Facility Address:	Corner of Palace Rd and Brock Street			
Community/Service Area:	Ravensview WWTP			
Coordinates (Lat./Long.):	379,099.64E 4,898,548.77N			
Reference Drawing(s):	C101, E101 & M101, Feb 2005			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	12.00	0.30	
Main Pipeline Length & Dia.:	m	235.00	0.20	
Main Discharge Location.	n/a	Existing Forcemain		
Overflow Pipe Length & D.:	m	16.20	0.30	
Overflow Discharge Loc.:	n/a	Storm Sewer		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	Yes		

Photo: Exterior



Plan View:



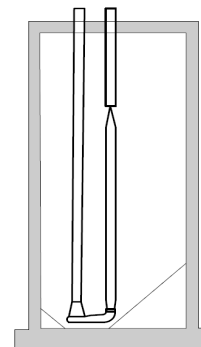
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	M101 & E101		
Base Elevation & Level:	m	95.00	0.00	
Low Alarm Elevation:	m	96.70	1.70	
Minimum Elevation:	m	95.09	0.09	
Initial/Normal Elev. & Level:	m	99.26	4.26	
Maximum Elevation:	n/a	99.60	4.60	
High Alarm Elevation:	m	98.09	3.09	
Ground Elevation:	m	102.05	7.05	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	7.07		
Length & Width (or Diam.):	m	3.00		

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Palace Road PS	Notes:				
Facility Address:	Corner of Palace Rd and Brock					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	379,099.64E 4,898,548.77N					
Reference Drawing(s): Include Revision(s) & Date(s)	C101, E101 & M101, Feb 2005					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity estimated based on flow reports. Peak capacity estimated				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	NP 3127 7.5Hp					
Impeller ID or Size:	489					
Variable-Speed?:	Yes					
Year Installed	2006.00					
Pump Curve ID in Model:	P_PalaceRd_NP3127HT1-195mm					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	22.00				
Peak Capacity	L/s	22.00				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A			
ECA Rated Flow:	L/s	51.00	51.00			
ECA Rated Head:	m	8.40	8.40			
Elevation On:	m	3.80	98.80			
Elevation Off:	m	1.95	1.95			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (2005):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (2005):	m	5.63	0.15/0.2	N/A	1/1	E, CV
Pump Station (2005):	m	2.27	0.20	N/A	1/2/1/1	GV, 45EL, PG, DF
Yard Piping (2005):	m	1.66	0.20	N/A	N/A	N/A
Main Pipeline (2005):	m	235.00	0.20	N/A	N/A	N/A
Exit Elevation:	m	100.83				
Legend: Check Valve, DF = Doppler Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion, LAT = Lateral, PG - Pressure Gauge						
Notes: Only run pump at a time due to forcemain. Not big enough for two pumps Assumed piping details from field survey						

7.3.26 Rankin Crescent PS

Reliability Rating 7.0 Overall Rating B

Total Facility Risk 2.0 /5 Total Equipment Risk 2.2 /5 Condition rating 1.6 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Concrete well cap crumbling, rest of well in good condition. Ladder rusting. Roof - slight evidence of leak.**

Proc. Mech.: **Piping and valves heavily corroded - Valves may be corroded in place making difficult to operate.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition. Portable back-up generator**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

Roof Condition to be reviewed - evidence of leak.

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 50,000			Upgrade 2	\$ 75,000		

Upgrade 1:

- 1) Replace Pipework and Valves.

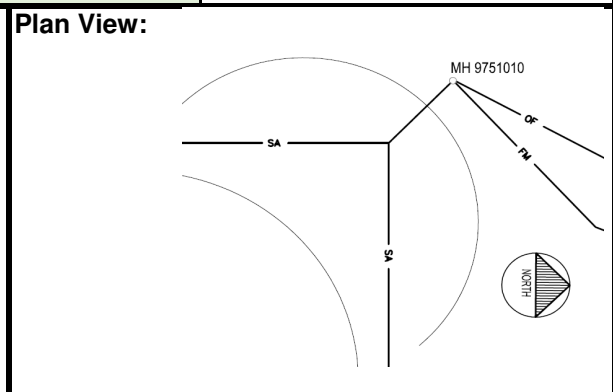
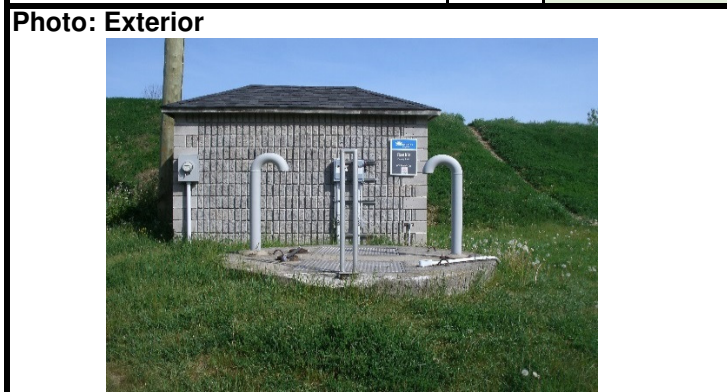
Upgrade 2:

- 1) Replace Instrumentation
- 2) Review Well Structure and Pumps (Cost Not Included)

Pump Station Facility Summary

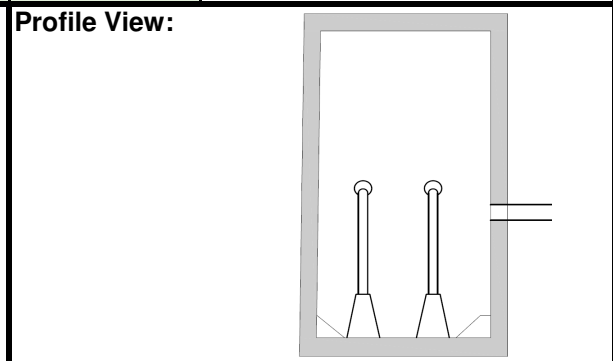


Facility Name:	Rankin Cres PS			Notes:
Facility Address:	Rankin Crescent			
Community/Service Area:	Cataraqi Bay WWTP			
Coordinates (Lat./Long.):	370,491.72 E 4,899,475.06 N			
Reference Drawing(s):	SP0344-PS, Mar 1982			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	9.14	0.20	
Main Pipeline Length & Dia.:	m	560.00	0.15	
Main Discharge Location:	n/a	MH34022-020		
Overflow Pipe Length & D.:	m	17.80	0.20	
Overflow Discharge Loc.:	n/a	Lake Ontario		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	Yes		



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	SP0344-PS		
Base Elevation & Level:	m	77.34	0.00	
Low Alarm Elevation:	m			
Minimum Elevation:	m	77.54	0.20	
Initial/Normal Elev. & Level:	m	77.95	0.61 Assumed	
Maximum Elevation:	n/a	81.10	3.76	
High Alarm Elevation:	m	78.54	1.20	
Ground Elevation:	m	81.08	3.73	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	2.63		
Length & Width (or Diam.):	m	1.83		



Pump Station Facility Summary



Facility Name:	Rankin Cres PS	Notes:				
Facility Address:	Rankin Crescent					
Community/Service Area:	Cataraqui Bay WWTP					
Coordinates (Lat./Long.):	370,491.72 E 4,899,475.06 N					
Reference Drawing(s): Include Revision(s) & Date(s)	SP0344-PS, Mar 1982					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2			Notes: Firm capacity estimated based on flow reports. Peak capacity estimated		
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Units	Lead	Lag 1			
Make:		Flygt				
Model ID or Rating:		CP-3127 10 Hp				
Impeller ID or Size:		485				
Variable-Speed?:		No				
Year Installed		1982				
Pump Curve ID in Model:		P_Rankin_CR127HT3_200mm				
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	19.00				
Peak Capacity	L/s	32.30				
Tested Flow (e.g.: Drawdown):	L/s	61.00	73.00			
ECA Rated Flow:	L/s	15.10	15.10			
ECA Rated Head:	m	13.40	13.40			
Elevation On:	m	78.40	78.48			
Elevation Off:	m	77.95	77.95			
Pump (Impeller) Elevation:	m	77.54	77.54			
Piping Details					Minor Losses	
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (1982):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1982):	m	N/A	0.10	CML	1/1/1	90E
Pump Station (1982):	m	N/A	0.10	CML	1/1/1/1	90E, CV, GV, TEE
Yard Piping (1982):	m	N/A	0.15	CML	1	E
Main Pipeline (1982):	m	559.32	0.15	N/A	N/A	N/A
Exit Elevation:	m	81.52				
Legend: Cement Lined Ductile Iron, 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes: Assumed piping details from field survey						

7.3.27 River Street PS

Reliability Rating 9.5 Overall Rating B

Total Facility Risk 3.8 /5 Total Equipment Risk 1.9 /5 Condition rating 1.3 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Wet Well not assessed. Dry well shows insignificant signs of water damage.**

Proc. Mech.: **Generally in a good condition. Slight corrosion on pipe and valves.**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition. Gas back-up generator**

Build. Mech.: **Good Condition**

Build. Elec.: **Good Condition**

Priority Work:

Grit System not currently in working order - review and repair if possible. If not replace.



Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
				Review	\$ 7,500		

Review:

- 1) Full Condition assessment of Pumpng Station

Pump Station Facility Summary

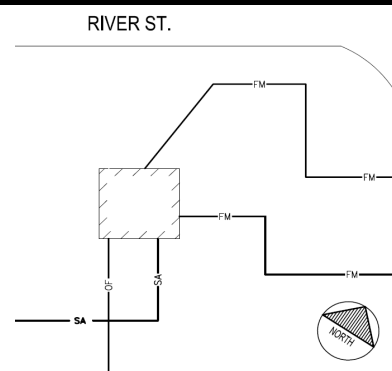


Facility Name:	River St PS	Notes:
Facility Address:	12 River Street	
Community/Service Area:	Ravensview WWTP	
Coordinates (Lat./Long.):	381,797.07E 4,899,783.19N	
Reference Drawing(s):	P3 & G3 06/08/31	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 120.00 1.35	
Main Pipeline Length & Dia.:	m 1134.00 0.99	
Main Discharge Location.	n/a Ravensview Trunk Sewer	
Overflow Pipe Length & D.:	m 46.00 1.20	
Overflow Discharge Loc.:	n/a Lake Ontario	
Backup Power?:	n/a Yes	
Site Fencing?:	n/a Yes	
CofA/ECA?:	n/a Yes	

Photo: Exterior



Plan View:



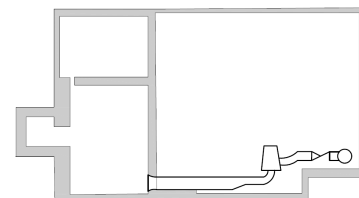
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	P3		
Base Elevation & Level:	m	68.20	0.00	
Low Alarm Elevation:	m	71.00	2.80	
Minimum Elevation:	m	68.81	0.61	
Initial/Normal Elev. & Level:	m	70.89	2.69	
Maximum Elevation:	n/a	73.42	5.22	
High Alarm Elevation:	m	72.00	3.80	
Ground Elevation:	m	77.32	9.12	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a			
Average Cross-Section Area:	sq.m	58m Constant Shape		
Length & Width (or Diam.):	m			

Photo: Interior



Profile View:



Well 1 level 2.8m
 Well 2 level 2.8m
 flow over chamber 1.99

Pump Station Facility Summary



Facility Name:	River St PS	Notes:				
Facility Address:	12 River Street					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	381,797.07E 4,899,783.19N					
Reference Drawing(s): Include Revision(s) & Date(s)	P3 & G3 06/08/31					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	4	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses				
SCADA Flow?	Yes					
SCADA Level?	Yes					
Pump Type	Lead	Lag 1	Lag 2	Lag 3		
Make:	Flygt					
Model ID or Rating:	Ct-3312 385HP					
Impeller ID or Size:	630.00					
Variable-Speed?:	Yes					
Year Installed	2006					
Pump Curve ID in Model:	P_RiverST_CP3312-510mm					
Flow and Level Set Points	Units	Lead	Lag 1	Lag 2	Lag 3	
Firm Capacity	L/s	1700.00				
Peak Capacity	L/s	2130.00				
Tested Flow (e.g.: Drawdown):	L/s	N/A	N/A	N/A	N/A	
ECA Rated Flow:	L/s	420.00	420.00	420.00	420.00	
ECA Rated Head:	m	40.00	40.00	40.00	40.00	
Elevation On:	m	70.70	71.10	71.40	Manuel On	
Elevation Off:	m	70.20	70.85	70.90	Manuel Off	
Pump (Impeller) Elevation:	m	69.71	69.71	69.71	69.71	
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (2006):	m	4.42	0.6/401	Steel	1/1/1	C, GV, 90EL
Discharge Line (2006):	m	3.12	0.305/0.4	Steel	1/2/1/1	C, 45EL, CV, GV
Pump Station (2006):	m	N/A	0.90	Steel	1/2/1	90EL, TEE, GV
Yard Piping (2006):	m	N/A	0.90	Steel	1/1/1	FM, 90EL, E
Main Pipeline (2006):	m	1047/1774	2x1.08	HDPE	1	45EL
Exit Elevation:	m	99.76				
Legend: C = Contraction/Reducer , 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes:						

7.3.28 Schooner Drive PS

Reliability Rating 7.1 Overall Rating B

Total Facility Risk 2.0 /5 Total Equipment Risk 2.0 /5 Condition rating 1.8 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Good Condition. Occasional Grease build up**

Proc. Mech.: **Piping and Valves - Corrosion Present**

Instrument: **Aging - Pump Control Panel and Transmitters.**

Proc. Elec.: **Good Condition. Portable back-up generator**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost			
5-10 Years	10-15 Years	15-20 Years	20-25 Years
	Upgrade 1	\$ 150,000	

Upgrade 1:
 Replace Pipework, Valves, Pump Control Panel, Instrument Panel, Sensor/Transmitter

Pump Station Facility Summary

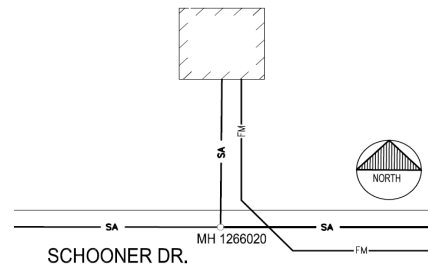


Facility Name:	Schooner Drive PS	Notes:
Facility Address:	Schooner Drive	
Community/Service Area:	Ravensview WWTP	
Coordinates (Lat./Long.):	384,043.10E 4,902,984.32N	
Reference Drawing(s):	N/A	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m 14.00 0.20	
Main Pipeline Length & Dia.:	m 556.00 0.15	
Main Discharge Location.	n/a Hwy 15	
Overflow Pipe Length & D.:	m N/A N/A	
Overflow Discharge Loc.:	n/a N/A	
Backup Power?:	n/a Yes	
Site Fencing?:	n/a Yes	
CofA/ECA?:	n/a N/A	

Photo: Exterior



Plan View:



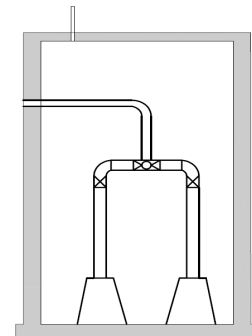
Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	92.50	0.00	
Low Alarm Elevation:	m	92.75	0.25	
Minimum Elevation:	m	N/A	N/A	
Initial/Normal Elev. & Level:	m	93.14	0.64	
Maximum Elevation:	n/a	95.00	2.50m Assumed	
High Alarm Elevation:	m	N/A	N/A	
Ground Elevation:	m	95.00	2.50	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Rectangular		
Average Cross-Section Area:	sq.m	11.40		
Length & Width (or Diam.):	m	3.80	3.00	

Photo: Interior



Profile View:



Pump Station Facility Summary



Facility Name:	Schooner Drive PS	Notes:				
Facility Address:	Schooner Drive					
Community/Service Area:	Ravensview WWTP					
Coordinates (Lat./Long.):	384,043.10E 4,902,984.32N					
Reference Drawing(s): Include Revision(s) & Date(s)	N/A					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses				
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Units	Lead	Lag 1			
Make:		Flygt				
Model ID or Rating:		NP-3127 10hp				
Impeller ID or Size:		484				
Variable-Speed?:		Yes				
Year Installed		2002				
Pump Curve ID in Model:		P_Schooner_CP3127HT3-217mm				
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	10.00				
Peak Capacity	L/s	19.60				
Tested Flow (e.g.: Drawdown):	L/s	16.00	15.00			
ECA Rated Flow:	L/s	18.00	18.00			
ECA Rated Head:	m	14.50	14.50			
Elevation On:	m	93.15	93.45			
Elevation Off:	m	92.85	92.85			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (N/A):	m	N/A	0.15	N/A	N/A	N/A
Discharge Line (N/A):	m	N/A	0.15	N/A	2/2/2	90EL/CV/GV
Pump Station (N/A):	m	N/A	0.15	N/A	N/A	N/A
Yard Piping (N/A):	m	N/A	0.15	N/A	N/A	N/A
Main Pipeline (N/A):	m	555.60	0.15	N/A	N/A	N/A
Exit Elevation:	m	102.65				
Legend: 90EL = 90 DEG Elbow, CV = Check Valve, GV = Gate Valve						
Notes: Assumed piping details from field survey						

7.3.29 Westbrook PS

Reliability Rating **6.7** Overall Rating **B**

Total Facility Risk **2.0 /5** Total Equipment Risk **1.9 /5** Condition rating **1.7 /5**

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Good Condition**

Proc. Mech.: **Well/Pumps do not have the capacity for high flow occurrences (Operator comment). Piping and valves heavily corroded - Valves may be corroded in place making difficult to operate.**

Instrument: **Aging -**

Proc. Elec.: **Main**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Upgrade 1	\$ 150,000	Upgrade 2	\$ 125,000				

Upgrade 1:

- 1) Replace Pipework, Valves, Pump Control Panel, Sensor/Transmitter and Main Breaker.
- 2) Consider upgrade 2 during this work. (See Upgrade 2 Price)

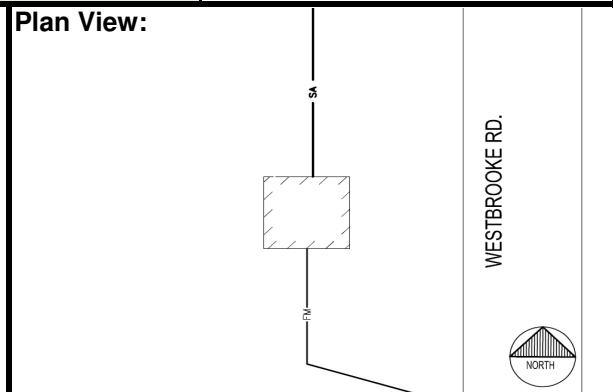
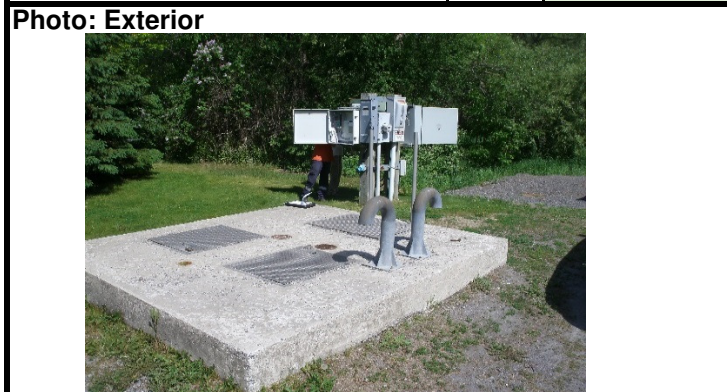
Upgrade 2:

- 1) Replace Instrument Panel and Pumps

Pump Station Facility Summary

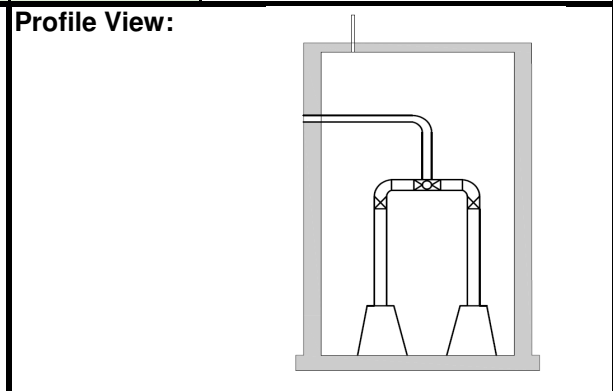


Facility Name:	Westbrook Road PS	Notes:
Facility Address:	1147 Westbrook Road	
Community/Service Area:	Cataraqui Bay WWTP	
Coordinates (Lat./Long.):	370,320.82E 4,902,343.77N	
Reference Drawing(s):	N/A	
Include Revision(s) & Date(s)		
Page No.	Page 1 of 2	
Inflow and Outflow Types	Units Length Diameter	
Inflow Pipe Length & Dia.:	m N/A N/A	
Main Pipeline Length & Dia.:	m 1864.00 0.15	
Main Discharge Location.	n/a Collins Bay Collector	
Overflow Pipe Length & D.:	m 34.00 0.20	
Overflow Discharge Loc.:	n/a Creek	
Backup Power?:	n/a N/A	
Site Fencing?:	n/a No	
CofA/ECA?:	n/a Yes	



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes: Assumed piping details from field survey
Reference Drawing Number:	n/a	N/A		
Base Elevation & Level:	m	79.65	0.00	
Low Alarm Elevation:	m	79.84	0.19	
Minimum Elevation:	m	N/A	N/A	
Initial/Normal Elev. & Level:	m	80.31	0.66	
Maximum Elevation:	n/a	N/A	N/A	
High Alarm Elevation:	m	81.03	1.38	
Ground Elevation:	m	82.65	3.00	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Square		
Average Cross-Section Area:	sq.m	10.20		
Length & Width (or Diam.):	m	3.19	3.19	



Pump Station Facility Summary



Facility Name:	Westbrook Road PS	Notes:				
Facility Address:	1147 Westbrook Road					
Community/Service Area:	Catarauqui Bay WWTP					
Coordinates (Lat./Long.):	370,320.82E 4,902,343.77N					
Reference Drawing(s): Include Revision(s) & Date(s)	N/A					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2	Notes:				
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Lead	Lag 1				
Make:	Flygt					
Model ID or Rating:	CP-3127 7.5Hp					
Impeller ID or Size:	463					
Variable-Speed?:	No	No				
Year Installed	N/A	N/A				
Pump Curve ID in Model:	P_Westbrooke_CP3127HT1-231mm					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	14.00				
Peak Capacity	L/s	18.00				
Tested Flow (e.g.: Drawdown):	L/s	8.00	14.00			
ECA Rated Flow:	L/s	14.60	14.60			
ECA Rated Head:	m	15.60	15.60			
Elevation On:	m	80.53	80.63			
Elevation Off:	m	80.21	80.21			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (N/A):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (N/A):	m	N/A	0.15	CML	1/2/1	CV, 90EL, GV
Pump Station (N/A):	m	1.85	0.15	CML	N/A	N/A
Yard Piping (N/A):	m	N/A	0.15	N/A	N/A	N/A
Main Pipeline (N/A):	m	1864.00	0.15	N/A	N/A	N/A
Exit Elevation:	m	89.00				
Legend:						
C = Contraction/Reducer , 90EL = 90 DEG Elbow, CV = Check Valve, MF = Magnetic Flow Meter, GV = Gate Valve, 45EL = 45 Deg Elbow, E = Expansion						
Notes:						
Assumed piping details from field survey						

7.3.30 Yonge Street PS

Reliability Rating 5.7 Overall Rating B

Total Facility Risk 1.9 /5 Total Equipment Risk 1.7 /5 Condition rating 1.8 /5

Condition Assessment:

Civil / Site: **Good Condition**

Structural: **Access wasn't available to well during condition assessment, Operator stated that there is no issues and PS has a low flow.**

Proc. Mech.: **N/A - No access**

Instrument: **Good Condition**

Proc. Elec.: **Good Condition**

Build. Mech.: **N/A**

Build. Elec.: **N/A**

Priority Work:

None

Work required 5-25 Years:

Repair/Upgrade & Cost

5-10 Years		10-15 Years		15-20 Years		20-25 Years	
Review	\$ 4,000			Upgrade 1	\$ 40,000		

Comments:

1) Low Flow Pumping Station. Access to well not available at time of review.

Review:

1) It is suggested a more thorough review is completed before upgrade

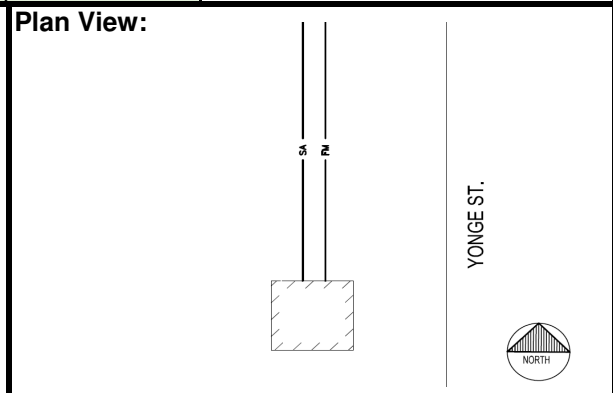
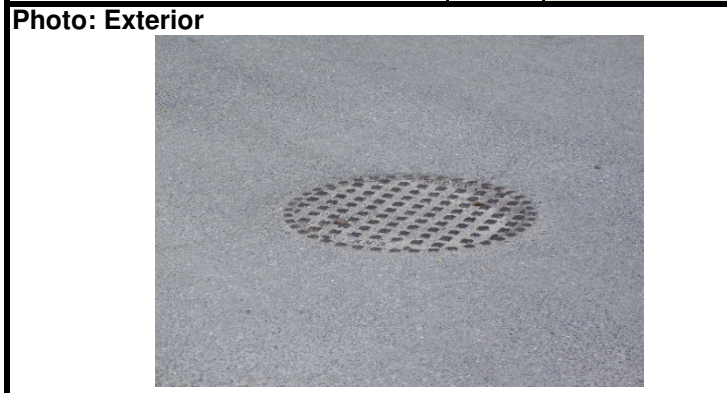
Upgrade 1:

1) Pump Control Panel and Sensors/Transmitters.

Pump Station Facility Summary

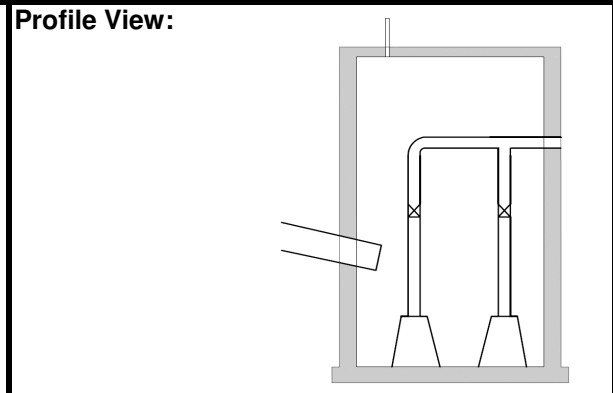


Facility Name:	Yonge St PS			Notes:
Facility Address:	Yonge Street			
Community/Service Area:	Ravensview PS			
Coordinates (Lat./Long.):	378,677.67E 4,896,970.65N			
Reference Drawing(s):	03201, Sept 1979			
Include Revision(s) & Date(s)				
Page No.	Page 1 of 2			
Inflow and Outflow Types	Units	Length	Diameter	
Inflow Pipe Length & Dia.:	m	52.00	0.30	
Main Pipeline Length & Dia.:	m	24.00	0.075	
Main Discharge Location.	n/a	MHSA-2		
Overflow Pipe Length & D.:	m	N/A	N/A	
Overflow Discharge Loc.:	n/a	N/A		
Backup Power?:	n/a	No		
Site Fencing?:	n/a	No		
CofA/ECA?:	n/a	N/A		



Storage Well & Pump Suction Details

Operational Data	Units	HGL	Level	Notes:
Reference Drawing Number:	n/a	3201		
Base Elevation & Level:	m	74.37	0.00	
Low Alarm Elevation:	m	74.52	0.15	
Minimum Elevation:	m	76.87	2.50	
Initial/Normal Elev. & Level:	m	74.54	0.17	
Maximum Elevation:	n/a	76.35	1.98	
High Alarm Elevation:	m	74.84	0.47	
Ground Elevation:	m	76.87	2.50	
Physical Data:	Units			
Section (circular, oval, etc...)	n/a	Circular		
Average Cross-Section Area:	sq.m	1.82		
Length & Width (or Diam.):	m	1.52		



Pump Station Facility Summary



Facility Name:	Yonge St PS	Notes:				
Facility Address:	Yonge Street					
Community/Service Area:	Ravensview PS					
Coordinates (Lat./Long.):	378,677.67E 4,896,970.65N					
Reference Drawing(s): Include Revision(s) & Date(s)	03201, Sept 1979					
Page No.	Page 2 of 2					
Pump Details						
Number of Pumps	2		Notes: Firm capacity based on ECA, Peak capacity estimated based on minor losses			
SCADA Flow?	No Data					
SCADA Level?	No Data					
Pump Type	Lead	Lag 1				
Make:	Myers					
Model ID or Rating:	WHR5-21C 0.5Hp					
Impeller ID or Size:	N/A					
Variable-Speed?:	No					
Year Installed	N/A					
Pump Curve ID in Model:	P_HatterST_25EV-L					
Flow and Level Set Points	Units	Lead	Lag 1			
Firm Capacity	L/s	4.00				
Peak Capacity	L/s	9.90				
Tested Flow (e.g.: Drawdown):	L/s	4.00	7.00			
ECA Rated Flow:	L/s	N/A	N/A			
ECA Rated Head:	m	N/A	N/A			
Elevation On:	m	74.67	74.73			
Elevation Off:	m	74.45	74.45			
Pump (Impeller) Elevation:	m	N/A	N/A			
Piping Details				Minor Losses		
Description (Year Installed)	Units	Length	Diameter	Mat.	Qty.	Type
Suction Line (N/A):	m	N/A	N/A	N/A	N/A	N/A
Discharge Line (1979):	m	N/A	0.08	GS	1	CV
Pump Station (1979):	m	1.20	0.08	GS	2/2	90EL/GV
Yard Piping (1979):	m	N/A	0.08	GS/PE	0	N/A
Main Pipeline (1979):	m	23.28	0.08	N/A	N/A	N/A
Exit Elevation:	m	76.34				
Legend: CV = Check Valve, PE - Polyethylene, GS = Galv. Steel, Sch 40						
Notes:						

8 CAPITAL IMPROVEMENT PLAN AND ASSET VALUATION SUMMARY

8.1 CAPITAL IMPROVEMENT

The table below (Table 8-1) shows the estimated cost of capital improvement over a 25 year period. The cost for each five year period is calculated using the estimated cost of repairs as detailed on the Asset Summary Sheets (Section 7.3). The cost of improvement in the near future (0-5 years) does not include any current improvements underway or already committed.

Table 8-1 Estimated Cost of Capital Improvements for Pumping Stations (0-25 Years)

FACILITY NAME	FORMER FACILITY NAME	0-5 YEARS	5-10 YEARS	10-15 YEARS	15-20 YEARS	20-25 YEARS
Barrett Court PS	Butternut Creek PS	\$200		\$415,000	\$150,000	\$6,000
Bath Road PS	Bath Rd (Walmart) PS				\$250,000	\$6,000
Bath-Collins Bay PS	Collins Bay PS		\$50,000	\$60,000		
Bath-Lower PS	Highway 33 PS	\$1,000	\$100,000	\$100,000		
Bayridge PS	Smugglers Cove PS		\$95,000		\$175,000	
Collins Bay PS	Highway 2 PS			\$150,000		\$5,000
Coverdale PS	Coverdale PS		\$60,000	\$40,000	\$85,000	
Crerar Boulevard PS	Crerar Blvd PS	\$500			\$100,000	\$6,000
Dalton Avenue PS	North End PS	\$10,000	\$4,000		\$400,000	\$8,000
Days Road PS	Days Rd PS	\$5,400	\$3,004,000			\$8,000
Greenview Drive PS	Greenview Drive PS			\$4,000		
Hatter Street PS	Hatter St PS		\$4,000		\$35,000	
Hillview Road PS	Mona Dr PS	\$500		\$250,000		\$6,000
Highway 15	B-40 PS	\$40,000			\$800,000	\$6,000
James Street PS	B-64 PS	\$40,000		\$600,000		\$6,000
John Counter Boulevard PS	John Counter Blvd PS	\$3,000				\$100,000
Kenwoods Circle PS	Woods Landing PS		\$150,000	\$400,000	\$100,000	\$6,000
King Street PS	O'Kill PS	\$7,000		\$160,000	\$600,000	

FACILITY NAME	FORMER FACILITY NAME	0-5 YEARS	5-10 YEARS	10-15 YEARS	15-20 YEARS	20-25 YEARS
King-Elevator Bay PS	Commodore's Cove	\$1,200		\$200,000	\$500,000	\$6,000
King-Lake Ontario Park PS	Lake Ontario Park PS			\$30,000		
King-Portsmouth PS	Portsmouth PS	\$40,200		\$150,000	\$250,000	\$6,000
Lakeshore Boulevard PS	Front Rd PS	\$30,000	\$75,000	\$250,000		\$6,000
Morton Street PS	Morton St PS	\$10,000			\$75,000	\$160,000
Notch Hill Road PS	Notch Hill Rd PS		\$4,000		\$40,000	
Palace Road PS	Palace Rd PS	\$10,000		\$4,000	\$325,000	
Rankin Crescent PS	Rankin Cr PS		\$50,000		\$75,000	\$6,000
River Street PS	River St PS				\$7,500	
Schooner Drive PS	Rivers Edge PS			\$150,000		
Westbrook PS	Westbrook PS		\$150,000	\$125,000		
Yonge Street PS	Yonge St PS		\$4,000		\$40,000	
Cana WWTP	Cana WWTP					
Ravensview WWTP	Ravensview WWTP	\$1,200,000	\$300,000	\$30,000	\$250,000	
Cataraqui Bay WWTP	Cataraqui Bay WWTP					
TOTAL		1,399,000	\$4,050,000	\$3,118,000	\$4,257,500	\$347,000

As can be seen from the graph in Figure 8-1, the cost of capital improvements is concentrated in the years 5 through 20. This is due to the year of construction or last upgrade of the pumping stations and the life-span of the components, with the worst predicted expenditure falling in years 15-20.

In years 5-10 there is a full refurbishment at an estimated cost of \$3.0 million for Days Road PS, with expected major upgrades at an estimated cost of \$≈500-800k a piece to James Street PS, Kenwoods Circle, and Barrett Court in years 10-15, and Highway 15, and King-Elevator Bay in years 15-20.

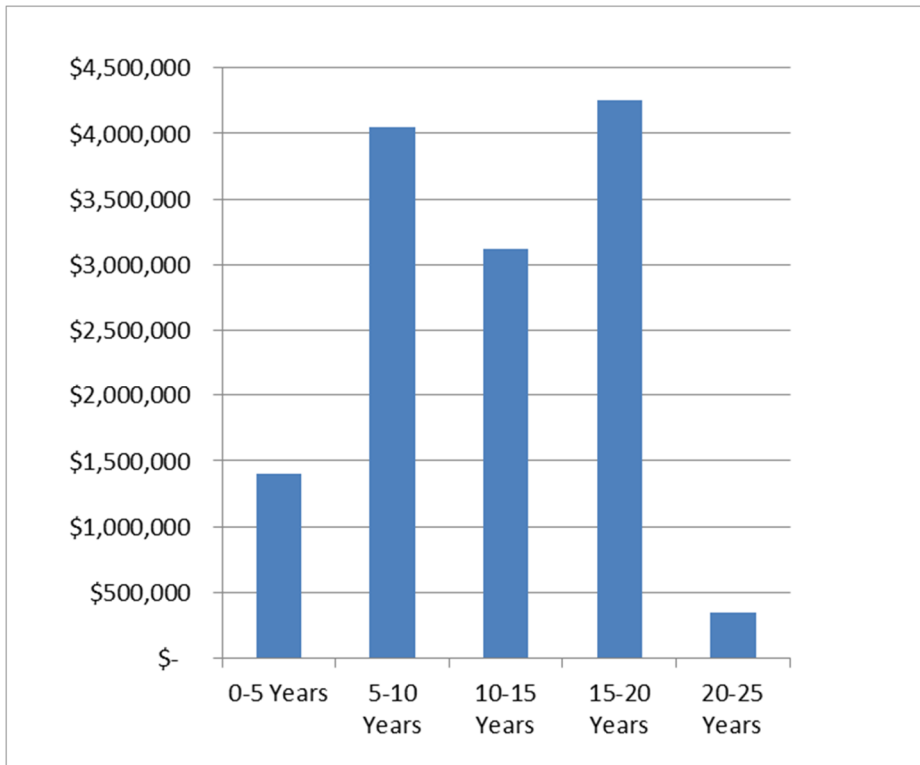


Figure 8-1 Total Estimated Cost of Capital Improvements

Within the Asset Summaries, Section 7.3, it was suggested that expected upgrades be brought forward and combined with those in earlier years. Section 7.3.1 – Asset Summary of Barrett Court for example, suggests completing “Upgrade 2” – Pipework, Valves, Instrumentation, HVAC and Heaters” at the same time as “Upgrade 1” – Pumps, Pump Control Panels, Instrument Panel and Electrical. The graph below (Figure 8-2) shows the predicted distribution of expenditure expected if these upgrades were combined.

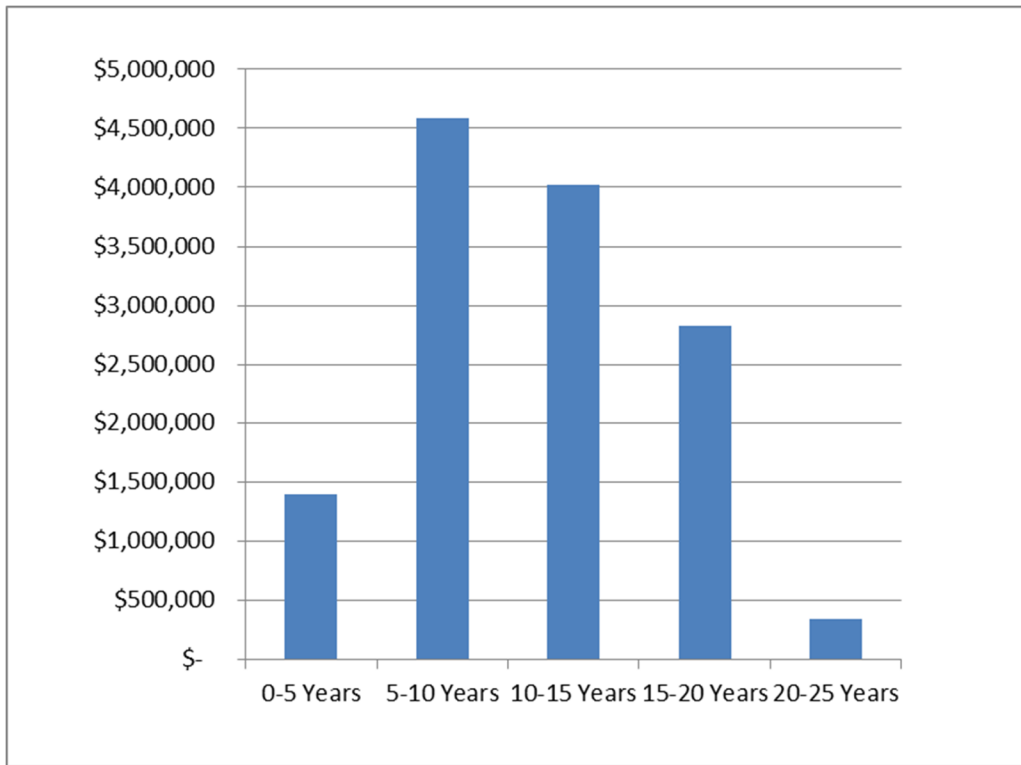


Figure 8-2 Estimated Cost of Capital improvements for PS (0-25 years) – Combined Upgrades

8.2 ASSET REPLACEMENT VALUE SUMMARY

The following table provides a summary of the estimated replacement value associated with each pumping station and wastewater treatment plant. Estimates were based upon WSP knowledge of PS/WWTP cost, using recently tendered quotes within eastern Ontario as a bench mark.

Replacement value included a complete rebuild of the facility with replacement of all equipment (“Like” for “Like”)

Table 8-2 Estimated Replacement Value for Pumping Stations

FACILITY NAME	FORMER FACILITY NAME	STANTEC (2008 STUDY)	WSP (2015 STUDY)	% OF TOTAL VALUE
Barrett Court PS	Butternut Creek PS	\$1,093,684	\$1,720,000	3.2%
Bath Road PS	Bath Rd (Walmart) PS	\$448,148	\$1,349,000	2.5%
Bath-Collins Bay PS	Collins Bay PS	\$276,002	\$309,000	0.6%
Bath-Lower PS	Highway 33 PS	\$136,361	\$304,000	0.6%
Bayridge PS	Smugglers Cove PS	\$522,142	\$886,000	1.6%
Collins Bay PS	Highway 2 PS	\$259,579	\$407,000	0.8%

Facility Name	Former Facility Name	Stantec (2008 Study)	WSP (2015 Study)	% of Total Value
Coverdale PS	Coverdale PS	\$662,448	\$860,000	1.6%
Crerar Boulevard PS	Crerar Blvd PS	\$502,006	\$927,000	1.7%
Dalton Avenue PS	North End PS	\$5,045,233	\$5,099,000	9.5%
Days Road PS	Days Rd PS	\$3,462,464	\$5,711,000	10.6%
Greenview Drive PS	Greenview Drive PS	\$639,311	\$1,432,000	2.7%
Hatter Street PS	Hatter St PS	\$95,175	\$165,000	0.3%
Hillview Road PS	Mona Dr PS	\$1,075,906	\$1,736,000	3.2%
Highway 15	B-40 PS	\$1,227,420	\$1,782,000	3.3%
James Street PS	B-64 PS	\$1,102,341	\$1,324,000	2.5%
John Counter Boulevard PS	John Counter Blvd PS	N/A	\$1,545,000	2.9%
Kenwoods Circle PS	Woods Landing PS	\$425,342	\$1,473,000	2.7%
King Street PS	O'Kill PS	\$2,466,553	\$3,966,000	7.4%
King-Elevator Bay PS	Commodore's Cove	\$551,744	\$1,437,000	2.7%
King-Lake Ontario Park PS	Lake Ontario Park PS	\$279,317	\$124,000	0.2%
King-Portsmouth PS	Portsmouth PS	\$1,766,946	\$2,369,000	4.4%
Lakeshore Boulevard PS	Front Rd PS	\$665,424	\$1,602,000	3.0%
Morton Street PS	Morton St PS	\$532,829	\$1,344,000	2.5%
Notch Hill Road PS	Notch Hill Rd PS	\$59,420	\$144,000	0.3%
Palace Road PS	Palace Rd PS	\$340,516	\$922,000	1.7%
Rankin Crescent PS	Rankin Cr PS	\$272,534	\$1,030,000	1.9%
River Street PS	River St PS	\$9,170,002	\$12,056,000	22.4%
Schooner Drive PS	River Edge PS	\$280,294	\$1,159,000	2.2%
Westbrook PS	Westbrook PS	\$292,869	\$458,000	0.9%
Yonge Street PS	Yonge St PS	\$47,163	\$134,000	0.2%
Total		\$33,699,173	\$53,774,000	100.0%

Table 8-3 Estimated Replacement Value for WWTPs

FACILITY NAME	FORMER FACILITY NAME	STANTEC (2008 STUDY)	WSP (2015 STUDY)	% OF TOTAL VALUE
Cana WWTP	Cana WWTP	N/A	\$3,500,000	0.7%
Ravensview WWTP	Ravensview WWTP	N/A	\$275,000,000	58.7%
Cataraqui Bay WWTP	Cataraqui Bay WWTP	N/A	\$190,000,000	40.6%
Total			\$468,500,000	100.0%

**Stantec's cost estimate includes – Construction Cost; General Overhead and Profit; Bond and Insurance; and a 15% Contingency. For ease of comparison WSP have retained this approach.*

**WSP suggest that a 15% Engineering fee be added to the costs above to get a total estimated cost of replacement.*

Appendix A

FIELD ASSESSMENT SHEETS – PUMPING STATIONS

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Gravel access - good condition Soon to be under construction	1		15	1
Paths	Gravel coumpound - grassing over	2		10	3
Gates/Fences	Good Condition	1		15	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.3
Overall Effective Life Remaining	13.3
Overall Condition rating	1.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - Good condition - evidence of water damage on walls.	3		15	3
Roof	Good Condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good Condition	1		22	1
Ladders	Good Condition	1		22	1

Structural	
Overall Risk Level	1.3
Overall Effective Life Remaining	20.0
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Aging pumps, evidence of leakage and corrosion	4		10	4
Main Process Piping	Pipe and flanges in good condition - some corrosion	3		15	3
Pipe Supports	Concrete shoes - good condition	2		15	2
Main Process Valves - Manual On/Off	Valves in good condition	2		18	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corroded - should not affect operation	3		14	3
Overflow	Over flows to creek	3		14	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Evidence of water damage to dry well floor	3		3	3

Process Mechanical	
Overall Risk Level	2.9
Overall Effective Life Remaining	12.7
Overall Condition rating	2.9

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Aged controls	2		10	2
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Aged transmitter	2		10	2
Gauges	Good Condition	2		20	2
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.8
Overall Effective Life Remaining	15.0
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Pump Starters	Recently Replaced	1		25	1
Main Breaker	Good Condition	1		15	1
Distribution Panel	Good Condition	1		15	1
Transformer	Good Condition	1		10	1
Back up power source	Diesel back-up generator - aging	3		10	3
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.3
Overall Effective Life Remaining	15.7
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Aging Tank - Bunded	2		12	3
HVAC	Aging - Good Condition	1		16	2
Heaters	Aging - Good Condition	1		16	2
Thermostats	Aging - Good Condition	1		16	2

Building Mechanical	
Overall Risk Level	1.3
Overall Effective Life Remaining	15.0
Overall Condition rating	2.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Barrett Court PS	Inspection By:	RW + JS
Inspection Location:	Corner Barrett Court and Hwy 15	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Sump Pump to be reviewed and repaired/replaced	- No issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking Lot behind Pumping station used for parking	1		20	1
Paths	Not Applicable				
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		22	1
Roof	Good Condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good Condition	1		22	1
Ladders	Good Condition	1		22	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	21.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	2		20	1
Main Process Piping	Corrosion present	2		15	3
Pipe Supports	Pipe supports in good condition	1		15	1
Main Process Valves - Manual On/Off	Corrosion present	2		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Valves in good condition	2		15	1
Overflow	Pump out position available on well.	2		20	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	1.8
Overall Effective Life Remaining	16.7
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		20	1
Sensors and Transmitters	Good Condition	1		20	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	1		20	1

Instrumentation	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Gas generator present - good condition	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1	N	25	1
Heaters	Good Condition	1	N	25	1
Thermostats	Good Condition	1	N	25	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath Road PS	Inspection By:	RW + JS
Inspection Location:	4054 Bath Road	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Street lights used	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - Greese build up was present - no longer an issue - Ghost Alarm present

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Attached to parking lot, access in good condition	1		20	1
Paths	Gravel parking lot surrounding wet well	1		20	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		15	1
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		15	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues during regular flows. Well/pumps do not have the capacity for high flow times. (Thaw/Storm)	4		15	2
Main Process Piping	Pipe work heavily corroded	4		7	4
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present. One Valves looks corroded in place therefore inoperable. Valves only turned when required, should be turned regularly to stop sticking.	4		5	4
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corrosion, will not impact use	3		8	3
Overflow	Pump out position available on well. Valves and pipe work corroded	4		7	4
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	3.8
Overall Effective Life Remaining	8.4
Overall Condition rating	3.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.5
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1	N	30	1
Main Breaker	Good Condition	1	N	30	1
Distribution Panel	Good Condition	1	N	30	1
Transformer	Good Condition	1	N	30	1
Back up power source	Portable Back up Generator	1	N	30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Building Mechanical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Cnr Bath and Collins Bay Road	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - No Issues during usual flow. - Levels get High during Thaw and Storms

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Currently construction is occurring on building next door, access presently difficult. No issue once work complete.	1		15	1
Paths	Not Applicable				
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Good condition - No cracks present	1		20	1
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Note written on Hatch - "Don't Open" - Believed to have a broken hinge - Hinge to be replaced.	3		3	5
Ladders	Ladder rusted, but structually sound	2		15	2

Structural	
Overall Risk Level	2.0
Overall Effective Life Remaining	12.7
Overall Condition rating	2.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	10 houses serviced by pumping station therefore low flows. Pumps not visible below water line, but operator states that pumps are in good order.	1		20	1
Main Process Piping	Pipe and flanges extremely rusted.	2		10	4
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	No Isolation Valves observed - no way of isolating pumps during repair unless valves are in separate pit	N/A		N/A	N/A
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	No Check Valves observed - no way of isolating pumps during repair	N/A		N/A	N/A
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				

Process Mechanical

Overall Risk Level	1.5
Overall Effective Life Remaining	15.0
Overall Condition rating	2.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition - aging	2		8	3
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		10	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	13.3
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	OK Condition	1		10	1
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Not Applicable - No Back up power source - Only supplies 10 houses therefore no requirement	3		N/A	N/A
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.5
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Building Mechanical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bath-Lower PS	Inspection By:	RW + JS
Inspection Location:	4170 Bath Road (Corner of Bath and Lower)	Date:	4th June 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Well Hatch to be repaired	- Never over flowed to Lake. - Pumping Station runs well. Only services approx. 10 properties. - Is in good condition - New monitoring box added this week due to collision from construction company next door.

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Access in good condition. Gravel compound	1		15	1
Paths	Gravel compound - good condition	1		15	1
Gates/Fences	Good condition	1		15	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Structure in good condition - no visible issues	1		15	1
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		15	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	1		15	1
Main Process Piping	New discharge header, pump discharge lines corrosion present	2		15	3
Pipe Supports	Corrosion present	3		8	3
Main Process Valves - Manual On/Off	Corrosion present	2		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Valves in good condition - some corrosion present	2		15	1
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	13.6
Overall Condition rating	2.2

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition - however quite aged components	2		8	3
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	14.5
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		25	1
Main Breaker	Not Applicable				
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Not Applicable				
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Bayridge Drive PS	Inspection By:	RW + JS
Inspection Location:	157 Bayridge Drive	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - During peak flows the level gets to 1ft above inlet. - Services 20-30 houses - No other issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Gravel off road parking - good condition	1		15	1
Paths	Not Applicable				
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		15	2
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		15	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	1		15	1
Main Process Piping	Pipe work starting to corrode	2		15	2
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present.	2		15	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corrosion present, will not impact use	2		15	2
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	1.8
Overall Effective Life Remaining	15.0
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition - aging	2		10	2
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		10	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	13.8
Overall Condition rating	1.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1	N	15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	21.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Building Mechanical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Collins Bay PS	Inspection By:	RW + JS
Inspection Location:	Corner Collins Bay Road and Hwy 2	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	- No Issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Construction in effect during visit. Access good once complete	1		15	1
Paths	Not Applicable				
Gates/Fences	Privacy fencing present - good condition	1		15	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		20	1
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		20	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	18.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	1		15	1
Main Process Piping	Corrosion present	2		20	3
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present	2		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Valves in good condition	2		20	1
Overflow	Overflow to creek in good condition	3		15	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	17.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition - however quite aged components	2		8	3
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		10	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	13.3
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Good Condition	1		20	1
Transformer	Good Condition	1		20	1
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1	N	15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	22.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Coverdale PS	Inspection By:	RW + JS
Inspection Location:	Coverdale Drive nr Bayridge Drive	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	- No Issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Good condition	1		25	1
Paths	Good condition	1		25	1
Gates/Fences	Fence surrounding the Gas Generator in good condition	1		10	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Structurally in good condition - no visible cracks	1		22	1
Roof	Good Condition - no visible issues	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good condition	1		20	1
Ladders	Good Condition	1		20	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.4
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	2		20	2
Main Process Piping	Corrosion present	2		20	3
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion on body, but good working order	2		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Corroded	2		20	3
Overflow	Overflow to Man Hole, used infrequently	2		20	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Gas Piping not to CSA B149.1 - entire piping system shall be painted yellow	2		2	4
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	16.2
Overall Condition rating	2.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.5
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Gas Generator - Low Pressure alarm for Natural gas supply, can take a long time for generator to start	2		20	3
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.2
Overall Effective Life Remaining	25.8
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1		20	1
Heaters	Good Condition	1		20	1
Thermostats	Good Condition	1		20	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Crerar Boulevard PS	Inspection By:	RW + JS
Inspection Location:	46 Crerar Blvd	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Gas piping to conform to code - Painted Yellow	- Problems with Natural gas supply - Low Pressure alarm - long time to start generator

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt compound - good condition	1		25	1
Paths	Asphalt compound - good condition	1		25	1
Gates/Fences	Wooden Fence with chain-link Gate - Good condition	1		10	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Good capacity and condition	2		20	2
Roof	No evidence of problems - good condition	1		15	1
Walls - Exterior	Good condition - no visible issues, but evidence of water damage inside drywell	3		10	3
Walls - Interior	Evidence of water damage in dry well - ingress through wall from outside	2		10	3
Foundations	Good condition	1		20	1
Access Ways	All in good condition	1		20	1
Ladders	Ladders and stairs in good condition	1		20	1

Structural	
Overall Risk Level	1.6
Overall Effective Life Remaining	16.4
Overall Condition rating	1.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pump No. 4 out for repair due to Cavitation, operator stated that there are no other issues.	2		15	3
Main Process Piping	Corrosion present on the pump suction lines, all other piping in good presently in good condition. Huge build up of condensation, which will cause an issue in the long term	2		20	2
Pipe Supports	Pipe hangers and Concrete shoes - good condition	2		15	2
Main Process Valves - Manual On/Off	Corrosion on body, but appear to be in good working order	2		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Corrosion starting to appear	2		20	2
Overflow	Overflow creek hardly ever used	2		20	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Auxiliary piping in good condition	1		20	1
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				
Screen	Screen currently broken - awaiting repair	3		8	5

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	16.6
Overall Condition rating	2.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		15	1
Instrument Panels	Good Condition	1		20	1
Sensors and Transmitters	Good Condition	1		20	1
Gauges	Good Condition	1		20	1
Flowmeters	Good Condition	1		20	1

Instrumentation	
Overall Risk Level	1.0
Overall Effective Life Remaining	19.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Gas Generators - Good condition	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1		25	1
Heaters	Good Condition	1		25	1
Thermostats	Good Condition	1		25	1
Gantry Crane	Good working order	2		20	2

Building Mechanical

Overall Risk Level	1.3
Overall Effective Life Remaining	23.8
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Dalton Ave	Inspection By:	RW + JS
Inspection Location:	Corner Dalton Ave and St Remy Place	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - Upgraded 5-6 years ago (actually 2007) - Pumps, Electrical and Generator upgrade - Level seldom above lower grating level - Pump No. 4 out for repair due to cavitation

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Gravel Access way - good condition	1		15	2
Paths	Whole compound gravel - some weeds growing through	1		15	2
Gates/Fences	Good Condition	1		15	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Dry Well - Structurally sound. Gets overwhelmed due to lack of capacity. Waste water level gets extremely high (11" from top of wet well), due to overflow (bypass) blockage	4		10	4
Roof	Good condition - no evidence of leaking	2		10	2
Walls - Exterior	Aging, but structurally sound	2		15	2
Walls - Interior	Good condition - wall has been damaged in one location	2		15	2
Foundations	Good Condition	2		15	2
Access Ways	Good Condition	2		10	1
Ladders	Ladders in good condition. Aging Concrete stairs	2		10	2

Structural	
Overall Risk Level	2.3
Overall Effective Life Remaining	12.1
Overall Condition rating	2.1

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Aging pumps, but still in relatively good condition.	3		13	4
Main Process Piping	Corrosion occurring, Mainly present on first segment of pump discharge	3		8	4
Pipe Supports	Concrete shoes - all in good condition	2		15	2
Main Process Valves - Manual On/Off	Valve flanges and bodies badly corroded	3		10	4
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Manual override handle bent. Leakage from manual override gland causing corrosion on body of valve.	4		8	4
Overflow	Pumping station should overflow to creek - overflow blocked. During overflow requirement creek is at a higher level than the overflow from pumping station.	5		2	5
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Coated in condensation - corrosion starting	3		15	2
Sample Pumps	Not Applicable				
Insulation	Not replaced on auxiliary pipe work after a repair	4		4	3
Sump Pump	Dry Well floods due to sump pump failure	4		4	4
Screen	Screen currently broken - awaiting repair	3		7	5
Wet Well	Gets overwhelmed due to lack of capacity. Waste water level gets extremely high (11" from top of wet well), due to overflow (bypass) blockage	4		6	4

Process Mechanical	
Overall Risk Level	3.5
Overall Effective Life Remaining	8.4
Overall Condition rating	3.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Aged components	3		10	3
Instrument Panels	Aged components	3		8	3
Sensors and Transmitters	Aged components	2		10	2
Gauges	Aged components	2		10	2
Flowmeters	Aged components	2		12	2

Instrumentation	
Overall Risk Level	2.4
Overall Effective Life Remaining	10.0
Overall Condition rating	2.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Aged equipment	2		10	2
Main Breaker	Aged equipment	2		10	3
Distribution Panel	Aged equipment	3		8	3
Transformer	Aged equipment	2		15	2
Back up power source	2 sources of power and a back up Diesel Generator	1		20	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.8
Overall Effective Life Remaining	13.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Tank in good condition, but Not banded	3		15	3
HVAC	Aging - Good Condition	1		18	2
Heaters	Aging - Good Condition	1		18	2
Thermostats	Aging - Good Condition	1		18	2
Gantry Crane	Aging - Good working order	2		15	2

Building Mechanical

Overall Risk Level	1.6
Overall Effective Life Remaining	16.8
Overall Condition rating	2.2

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Days Road PS	Inspection By:	RW + JS
Inspection Location:	415 Days Road	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Section of the Wet well lighting not working during visit. All other interior lighting in OK condition	3		15	3
Exterior Lighting	OK Condition	2		10	2
Emergency lighting	OK Condition	2		8	2

Building Electrical	
Overall Risk Level	2.3
Overall Effective Life Remaining	11.0
Overall Condition rating	2.3

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
<ul style="list-style-type: none"> - Sump Pump in Dry well to be reviewed and replaced if required - Overflow to be unblocked - Insulation to be replaced 	<ul style="list-style-type: none"> - Dry Well Floods - due to Sump Pump quitting - Wet well gets overwhelmed due to lack of capacity - Overflow - Creek floods higher than overflow level + Overflow to creek blocked - 1.5 years since last flood

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Upgrade to commence in next couple of months. Awaiting upgrade breakdown				
Paths					
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	
Overall Effective Life Remaining	
Overall Condition rating	

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Upgrade to commence in next couple of months. Awaiting upgrade breakdown				
Roof					
Walls - Exterior					
Walls - Interior					
Foundations					
Access Ways					
Ladders					

Structural	
Overall Risk Level	0.00
Overall Effective Life Remaining	0.00
Overall Condition rating	0.00

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps					
Main Process Piping					
Pipe Supports					
Main Process Valves - Manual On/Off					
Main Process Valves - Actuated					
Main Process Valves - Check					
Overflow	Not Applicable				
Filters/Strainers					
Dosing System					
Sampling System					
Auxiliary Pipe and Valves (Sampling/Dosing)					
Sample Pumps					
Insulation					
Sump Pump					

Process Mechanical

Overall Risk Level	
Overall Effective Life Remaining	
Overall Condition rating	

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel					
Instrument Panels					
Sensors and Transmitters					
Gauges					
Flowmeters					

Instrumentation	
Overall Risk Level	
Overall Effective Life Remaining	
Overall Condition rating	

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Electrical Upgrades commenced				
Main Breaker					
Distribution Panel					
Transformer					
Back up power source					
Emergency lighting					

Process Electrical	
Overall Risk Level	
Overall Effective Life Remaining	
Overall Condition rating	

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks					
HVAC					
Heaters					
Thermostats					

Building Mechanical	
Overall Risk Level	
Overall Effective Life Remaining	
Overall Condition rating	

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Greenview Drive PS	Inspection By:	RW + JS
Inspection Location:	38 Greenview Drive	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Network Access panel					
Interior Lighting					
Exterior Lighting					

Building Electrical	
Overall Risk Level	
Overall Effective Life Remaining	
Overall Condition rating	

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	- Refit of Pumping Station to commence in next couple of months

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking available on Road	1		15	1
Paths	No path to Well cap or panel, but both adjacent to road.	1		15	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No access available - operator states no issues, due to low capacity requirement	2		20	2
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Not Applicable				
Ladders	Not Applicable				

Structural	
Overall Risk Level	2.0
Overall Effective Life Remaining	20.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	No access available - operator states no issues, due to low capacity requirement	2		15	2
Main Process Piping	No access available - operator states no issues, due to low capacity requirement	2		15	2
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	No access available - operator states no issues, due to low capacity requirement	2		15	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	No access available - operator states no issues, due to low capacity requirement	2		15	2
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	15.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		15	1
Instrument Panels	Not Applicable				
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.3
Overall Effective Life Remaining	16.7
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		25	1
Main Breaker	Not Applicable				
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	23.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hatter Street PS	Inspection By:	RW + JS
Inspection Location:	Corner of Hatter Street and Yonge Street	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Good condition	1		20	1
Paths	Good condition	1		20	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Structurally in good condition - no visible cracks	1		22	1
Roof	Good Condition - no visible issues	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good condition - no handles for larger access hatches	2		15	3
Ladders	Good Condition	1		20	1

Structural	
Overall Risk Level	1.1
Overall Effective Life Remaining	19.7
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	2		15	2
Main Process Piping	Corroded	2		13	3
Pipe Supports	Corroded	2		13	3
Main Process Valves - Manual On/Off	Corroded	2		13	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Corroded	2		13	3
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	13.4
Overall Condition rating	2.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.5
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Diesel Generator - in good working order	1		15	1
Network Access panel	Good Condition	1		15	1

Process Electrical

Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Bunded and in good order	1		25	1
HVAC	Good Condition	1		20	1
Heaters	Good Condition	1		20	1
Thermostats	Good Condition	1		20	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	21.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Hillview Road Ps	Inspection By:	RW + JS
Inspection Location:	740 Hillview Road	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Add handles for larger access hatches	- System not fully Calibrated - No handles on access hatches

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Gravel access - good condition	1		15	1
Paths	Gravel coumpound - Good condition	1		15	1
Gates/Fences	Chain-link fenceand gate - Good Condition	1		15	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - Good condition.	2		20	2
Roof	Good Condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good Condition	1		22	1
Ladders	Good Condition	1		22	1

Structural	
Overall Risk Level	1.1
Overall Effective Life Remaining	20.7
Overall Condition rating	1.1

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Aging pumps - good condition	2		15	3
Main Process Piping	Pipe and flanges in good condition - no signs of corrosion	2		20	2
Pipe Supports	Pipe supports - good condition	2		20	2
Main Process Valves - Manual On/Off	Valves in good condition - slight corrosion visible	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corroded - should not affect operation	3		15	3
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Good Condition	2		10	2

Process Mechanical

Overall Risk Level	2.2
Overall Effective Life Remaining	16.7
Overall Condition rating	2.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Beyond Design Life Expectancy - Should be replaced	4		5	4
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	2		15	2
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	2.3
Overall Effective Life Remaining	13.8
Overall Condition rating	2.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Good Condition	1		20	1
Transformer	Good Condition	1		15	1
Back up power source	Diesel back-up generator - aging	3		15	3
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.5
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Aging Tank - Bunded	2		15	3
HVAC	Aging - Good Condition	1		16	2
Heaters	Aging - Good Condition	1		16	2
Thermostats	Aging - Good Condition	1		16	2

Building Mechanical	
Overall Risk Level	1.3
Overall Effective Life Remaining	15.8
Overall Condition rating	2.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Highway 15 PS	Inspection By:	RW + JS
Inspection Location:	676 Highway 15	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Air
-Pump Control Panel should be replaced	- Flow has reduced due to hospital being decommissioned - An airlock occasional occurs as pumps hardly run

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Concrete driveway - good condition	1		20	1
Paths	Concrete - good condition	1		20	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - water damage	3		15	3
Roof	Good Condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good Condition	1		22	1
Ladders	Good Condition	1		22	1

Structural	
Overall Risk Level	1.3
Overall Effective Life Remaining	20.0
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Aging pumps, evidence of leakage and corrosion	4		10	4
Main Process Piping	Pipe and flanges in good condition - slight signs of corrosion	2		20	2
Pipe Supports	Pipe supports - good condition	2		20	2
Main Process Valves - Manual On/Off	Valves in good condition - slight corrosion visible	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corroded - should not affect operation	3		15	3
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Good Condition	2		10	2

Process Mechanical	
Overall Risk Level	2.5
Overall Effective Life Remaining	15.8
Overall Condition rating	2.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Beyond Design Life Expectancy - Should be replaced	4		5	4
Instrument Panels	Good Condition	1		15	1
Pump Starters	Recently Installed	1		25	1
Sensors and Transmitters	Good Condition	2		10	2
Gauges	Good Condition	2		20	2
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	2.4
Overall Effective Life Remaining	19.0
Overall Condition rating	2.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Good Condition	1		20	1
Transformer	Good Condition	1		20	1
Back up power source	Currently No Back-up power. New generator to be added to James street Booster station and power shared with pumping station. (Score based on work being completed)	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.8
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Aging - Good Condition	1		16	2
Heaters	Aging - Good Condition	1		16	2
Thermostats	Aging - Good Condition	1		16	2
Gantry Crane	Good Condition	1		18	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	16.5
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	James Street PS	Inspection By:	RW + JS
Inspection Location:	107 James Street	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Air
-Pump Control Panel should be replaced	- Draining of swimming pool at the military Sports centre causes high flow.

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt access road. New facility. Damage present in paving off to one side - needs to be repaired.	1		15	4
Paths	Not Applicable				
Gates/Fences	Good Condition	1		20	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	17.5
Overall Condition rating	2.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		25	1
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		15	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	18.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	1		20	1
Main Process Piping	New facility - pipe work in good condition	1		25	1
Pipe Supports	New facility - pipe supports in good condition	1		25	1
Main Process Valves - Manual On/Off	New facility - valves in good condition	1		25	1
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	New facility - valves in good condition	1		25	1
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	24.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		20	1
Sensors and Transmitters	Good Condition	1		20	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	1		20	1

Instrumentation	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Back up Gas Generator on Site and ability to use portable back up Generator	1		20	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.8
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	John Counter Blvd PS	Inspection By:	RW + JS
Inspection Location:	Corner John Counter Blvd & Old Mill Road	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Present and look in good condition	1		25	1
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Hole in paving to be repaired	- Capacity is greater than current requirement - awaiting subdivision completion - No Issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt access - good condition	1		20	1
Paths	Asphalt access - good condition	1		20	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		22	1
Roof	Good Condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good Condition	1		22	1
Ladders	Good Condition	1		22	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	21.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible below water line, but operator states that pumps are in good order.	2		15	2
Main Process Piping	Pipe and flanges extremely rusted.	2		10	4
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Valves corroded, but mainly on body, should not affect operation	3		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corroded - should not affect operation	3		15	3
Overflow	Pump out position available on well. Valve and pipe work heavily corroded. Valve unlikely to work	3		8	5
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.6
Overall Effective Life Remaining	12.6
Overall Condition rating	3.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Shape, However - Aged Components	2		10	3
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Aged transmitter	2		10	2
Gauges	Good Condition	2		20	2
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.8
Overall Effective Life Remaining	15.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Good Condition	1		20	1
Transformer	Good Condition	1		15	1
Back up power source	No Back-up power source. No requirement due to large capacity and low flow	N/A		N/A	N/A
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	18.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1		18	2
Heaters	Good Condition	1		18	2
Thermostats	Good Condition	1		18	2

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	18.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Kenwoods PS	Inspection By:	RW + JS
Inspection Location:	86 Kenwoods Circle	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	- Very Low flow - Runs for 0.1Hrs a day - Lots of Capacity - during power outages, no need to check level

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt access - good condition	1	N	25	1
Paths	Concrete access - good condition	1	N	25	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - Good condition - some evidence of water damage on walls near pump discharge line, has been repaired with Polyurethane Injection	2		12	3
Roof	New tin roof - good condition	1		20	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good condition	1		20	1
Ladders	Ladders and stairs - Good Condition	1		20	1

Structural	
Overall Risk Level	1.1
Overall Effective Life Remaining	19.7
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues during regular flows.	3		15	2
Main Process Piping	New Piping	2		20	2
Pipe Supports	Pipe hangers and Concrete shoes - good condition	2		15	2
Main Process Valves - Manual On/Off	Corrosion starting to show on body, but good working order	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Corrosion starting to show on body, but good working order	1		20	2
Overflow	George Street CSO Tank now used to control levels, no overflow requirement	1		25	1
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				
Rock Trap	Good working condition	2		15	2
Weir	Good working condition	2		15	2
Grinder	Had a fault - now repaired	2		15	2

Process Mechanical	
Overall Risk Level	1.9
Overall Effective Life Remaining	17.8
Overall Condition rating	1.9

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Good Condition	2		20	2
Flowmeters	Good Condition	2		20	2

Instrumentation	
Overall Risk Level	1.4
Overall Effective Life Remaining	18.0
Overall Condition rating	1.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Good Condition	1		20	1
Transformer	Good Condition	1		20	1
Back up power source	Gas back up generator	1		25	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1		15	2
Heaters	Old furnace and Thermostat - needs replacing	2		4	4
Thermostats	Good Condition	1		15	2

Building Mechanical	
Overall Risk Level	1.3
Overall Effective Life Remaining	11.3
Overall Condition rating	2.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King Street PS	Inspection By:	RW + JS
Inspection Location:	61 King Street	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Furnace	- Aging Furnace - Grinder had a fault - recently repaired

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking available in parking lot - good condition	1		20	1
Paths	Good Condition	1		20	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Structurally in good condition - no visible cracks	1		22	1
Roof	Good Condition - no visible issues	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Hinges on Well hatch broken. Hatches open in the wrong direction - well easier to maintain if they opened in the opposite direction.	3		5	5
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.6
Overall Condition rating	1.6

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues during regular flows.	3		15	2
Main Process Piping	Pipe work heavily corroded	4		9	4
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present	3		10	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corrosion, will not impact use	2		12	3
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	3.0
Overall Effective Life Remaining	11.5
Overall Condition rating	3.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.5
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Diesel Generator - aging, but good condition. Drain on vent pipe bent, may leak.	2		15	2
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.2
Overall Effective Life Remaining	25.0
Overall Condition rating	1.2

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Diesel tank aging, but banded and in relatively good condition	2		15	2
HVAC	Good Condition	1		20	1
Heaters	Good Condition	1		20	1
Thermostats	Good Condition	1		20	1

Building Mechanical	
Overall Risk Level	1.3
Overall Effective Life Remaining	18.8
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Elevator Bay PS	Inspection By:	RW + JS
Inspection Location:	1100 Elevator Bay	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Not Applicable				
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Repair hinges on the well access hatch	- No Issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking available at Park parking lot	1		15	1
Paths	Asphalt path - good condition	1		15	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Metal structure - some signs of corrosion, but no structural issues	2		20	2
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good working order	1		20	1
Ladders	Good working order	1		20	1

Structural	
Overall Risk Level	1.3
Overall Effective Life Remaining	20.0
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	2		20	2
Main Process Piping	Pipe work not visible, but operator stated that there are no issues.	2		20	2
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Valves not visible, but operator stated that there are no issues.	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Valves not visible, but operator stated that there are no issues.	2		20	2
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	20.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition	2		12	2
Instrument Panels	Not Applicable				
Sensors and Transmitters	Not Applicable				
Gauges	Not Applicable				
Flowmeters	Not Applicable				

Instrumentation	
Overall Risk Level	2.0
Overall Effective Life Remaining	12.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		25	1
Main Breaker	Not Applicable				
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Not Applicable				
Network Access panel	Not Applicable				

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Building Mechanical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Lake Ontario PS	Inspection By:	RW + JS
Inspection Location:	King-Lake Ontario Park	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - Small capacity and only used in the summer to service toilet block in park - No issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt compound - good condition	1		25	1
Paths	Asphalt compound - good condition	1		25	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - Good condition - some evidence of water damage on walls.	2		15	2
Roof	No evidence of problems - good condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	2		20	2
Foundations	Good Condition	1		22	1
Access Ways	Good condition	1		20	1
Ladders	Ladders in good condition Aging concrete steps - slippery in winter	2		10	2

Structural	
Overall Risk Level	1.4
Overall Effective Life Remaining	17.7
Overall Condition rating	1.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps in good condition	2		20	2
Main Process Piping	Corrosion on pump suction line. Corrosion starting to show on clamps. All other pipework in good condition	2		20	3
Pipe Supports	Pipe hangers and Concrete shoes - good condition	2		15	2
Main Process Valves - Manual On/Off	Slight corrosion starting to show on body, but good working order	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	No corrosion - good condition	1		20	1
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Evidence of overflow around sump. Sump pump visibly old - possible replacement or repair required	3		5	4
Grinder	Beyond Life expectancy - needs replacement in the near future	3		5	4

Process Mechanical	
Overall Risk Level	2.1
Overall Effective Life Remaining	15.0
Overall Condition rating	2.6

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Not Applicable				
Instrument Panels	Beyond Design Life Expectancy - Should be replaced	4		5	4
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Good Condition	2		20	2
Flowmeters	Good Condition	2		20	2

Instrumentation	
Overall Risk Level	2.3
Overall Effective Life Remaining	15.0
Overall Condition rating	2.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	2 seperate power grids	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1		18	1
Heaters	Good Condition	1		18	1
Thermostats	Good Condition	1		18	1
Gantry Crane	Good working order	2		15	2

Building Mechanical	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.3
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	King-Portsmouth PS	Inspection By:	RW + JS
Inspection Location:	621 King Street West	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		15	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		15	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	16.7
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
<ul style="list-style-type: none"> - Grinder repair/replacement - Sump Pump repair/replacement - Instrument Panels 	- Grinder getting old

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulevard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Gravel - Good condition	1		15	1
Paths	Gravel - Good condition	1		15	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulevard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Structurally in good condition - no visible cracks	1		22	1
Roof	Good Condition - no visible issues	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good condition	1		20	1
Ladders	Good Condition	1		20	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.4
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulevard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pump body visible, no signs of issue and operator stated that there are no issues.	2		15	2
Main Process Piping	Corroded	2		14	3
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corroded	2		12	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Corroded	2		14	3
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	13.8
Overall Condition rating	2.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulavard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition - however quite aged components	2		8	3
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	From SCADA data it appears that Flowmeter is not currently working at PS	4		4	4

Instrumentation	
Overall Risk Level	2.0
Overall Effective Life Remaining	10.5
Overall Condition rating	2.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulevard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		20	1
Back up power source	Diesel Generator - in good working order	1		15	1
Generator Controller	Generator Controller is aged beyond expected life and should be replaced.	4		5	4
Network Access panel	Good Condition	1		15	1

Process Electrical

Overall Risk Level	1.4
Overall Effective Life Remaining	20.7
Overall Condition rating	1.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulevard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Bunded and in good order	1		25	1
HVAC	Good Condition	1		20	1
Heaters	Good Condition	1		20	1
Thermostats	Good Condition	1		20	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	21.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Lakeshore Boulavard PS	Inspection By:	RW + JS
Inspection Location:	Corner Lakeshore Blvd and Front Road	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Flowmeter may be undersized. Review and possible replacement required. - Generator Controller is aged beyond expected life and should be replaced.	- No Issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt access - good condition	1		25	1
Paths	Asphalt access - good condition	1		25	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - Good condition - some evidence of water damage on walls near pump discharge line.	2		17	2
Roof	No evidence of problems - good condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good condition	1		20	1
Ladders	Good Condition	1	N	20	1

Structural	
Overall Risk Level	1.1
Overall Effective Life Remaining	19.7
Overall Condition rating	1.1

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps in good condition	2		20	2
Main Process Piping	Corrosion starting to show	2		20	1
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion starting to show on body, but good working order	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	No corrosion - good condition	1		20	1
Overflow	Overflow to Sanitary Sewer, never used	2		25	1
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	1.8
Overall Effective Life Remaining	21.0
Overall Condition rating	1.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Older - Good Condition	2		15	2
Flowmeters	From SCADA data it appears to show that Flowmeter is undersized for the capacity of the PS	4		5	4

Instrumentation	
Overall Risk Level	1.8
Overall Effective Life Remaining	14.0
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Portable Generator used	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Good Condition	1		22	1
Heaters	Good Condition	1		22	1
Thermostats	Good Condition	1		22	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	22.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Morton Street PS	Inspection By:	RW + JS
Inspection Location:	Morton Way	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Flowmeter may be undersized. Review and possible replacement required.	- Low flow - No problems

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking available on Parking lot	1		15	2
Paths	No path to Well cap or panel.	2		15	2
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.5
Overall Effective Life Remaining	15.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No access available - operator states no issues, due to low capacity requirement	2		20	2
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Not Applicable				
Ladders	Not Applicable				

Structural	
Overall Risk Level	2.0
Overall Effective Life Remaining	20.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	No access available - operator states no issues, due to low capacity requirement	2		15	2
Main Process Piping	No access available - operator states no issues, due to low capacity requirement	2		15	2
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	No access available - operator states no issues, due to low capacity requirement	2		15	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	No access available - operator states no issues, due to low capacity requirement	2		15	2
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	15.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		15	1
Instrument Panels	Not Applicable				
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Good Condition	2		20	2
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	17.5
Overall Condition rating	1.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		25	1
Main Breaker	Not Applicable				
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Not Applicable				
Network Access panel	Not Applicable				

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Building Mechanical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Notch Hill Road PS	Inspection By:	RW + JS
Inspection Location:	Notch Hill Road	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - Scarcely in operation - 12 years since operator has accessed the well - Red light alarm light on top of electrical box

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Good Condition	1		15	1
Paths	Asphalt upto Well and control room	1		15	1
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Structurally sound - No cracks - Good Condition	2		21	1
Roof	Aging - good condition	1		11	2
Walls - Exterior	Aging - good condition	2		15	2
Walls - Interior	Aging - good condition	2		15	2
Foundations	Aging - good condition	2		15	2
Access Ways	Good Condition - safety gate included to prevent accidental fall into well. (Should be included for all wells)	1		20	1
Ladders	Good Condition	2		15	1

Structural	
Overall Risk Level	1.7
Overall Effective Life Remaining	16.0
Overall Condition rating	1.6

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible below water line, but operator states that pumps are in good order. Forcemain not big enough for 2 pumps in operation. Only 1 pump operated at a time	3		15	4
Main Process Piping	Pipe and flanges extremely rusted.	2		10	4
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Valves starting to corrode, but mainly on body, should not affect operation	3		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body majorly corroded - should not affect operation	3		15	4
Overflow	Pump out position available on well. Valves and pipe work corroded	2		15	3
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.6
Overall Effective Life Remaining	14.0
Overall Condition rating	3.6

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		15	1
Instrument Panels	Good Condition	1		20	1
Sensors and Transmitters	Good Condition	1		20	1
Gauges	Not Applicable				
Flowmeters	From SCADA data it appears to show that Flowmeter is undersized for the capacity of the PS	4		4	4

Instrumentation	
Overall Risk Level	1.8
Overall Effective Life Remaining	14.8
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable - No Generator				
HVAC	Good Condition	1		20	1
Heaters	Good Condition	1		20	1
Thermostats	Good Condition	1		20	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Palace Road PS	Inspection By:	RW + JS
Inspection Location:	Corner of Palace Road and Brock Street	Date:	27th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Good Condition	1		20	1
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Flowmeter may be undersized. Review and possible replacement required.	- Forcemain not big enough for 2 pumps in operation. Only 1 pump operated at a time

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking available on turn around	1		20	1
Paths	Not Applicable				
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Well concrete structure crumbling on top. No cracks within well	3		15	3
Roof	New Roof - some evidence of a slight leak.	3		10	3
Walls - Exterior	Good Condition	1		20	1
Walls - Interior	Good Condition	1		20	1
Foundations	Good Condition	1		20	1
Access Ways	Good Condition	1		15	1
Ladders	Ladder rusted, but structurally sound	2		15	2

Structural	
Overall Risk Level	1.7
Overall Effective Life Remaining	16.4
Overall Condition rating	1.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible below water line, but operator states that pumps are in good order.	2		15	2
Main Process Piping	Corrosion Present.	3		8	3
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present. One Valves looks corroded in place therefore deemed difficult to operate. Valves only turned when required, should be turned regularly to stop sticking.	4		6	4
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corrosion	4		10	4
Overflow	Overflows to Lake Ontario	3		10	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical

Overall Risk Level	3.2
Overall Effective Life Remaining	9.8
Overall Condition rating	3.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		20	1
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.3
Overall Effective Life Remaining	17.5
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		30	1
Main Breaker	Good Condition	1		30	1
Distribution Panel	Good Condition	1		30	1
Transformer	Good Condition	1		30	1
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	27.5
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable - No Generator				
HVAC	Good Condition	1		20	1
Heaters	Good Condition	1		20	1
Thermostats	Good Condition	1		20	1

Building Mechanical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Rankin Crescent PS	Inspection By:	RW + JS
Inspection Location:	Rankin Crescent	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1		20	1
Exterior Lighting	Not Applicable				
Emergency lighting	Good Condition	1		20	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Roof condition to be reviewed - evidence of leak.	- General Note - Valves are not operated at any site on a regular basis. Therefore they are usually stuck in position, requiring a lot of work to get valves to turn. - No other issues

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Asphalt access road and parking lot - good condition	1		25	1
Paths	Mostly gravel pathways - good condition	1		25	1
Gates/Fences	Chain-link fence and Gate - Good condition	1		20	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	23.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	Wet Well - Not assessed - but operator states in good condition Dry well - Good condition - evidence of water damage on walls.	2		15	3
Roof	No evidence of problems - good condition	1		15	1
Walls - Exterior	Good Condition	1		22	1
Walls - Interior	Good Condition	1		22	1
Foundations	Good Condition	1		22	1
Access Ways	Good condition	1		20	1
Ladders	Ladders and stairs in Good Condition	1		20	1

Structural	
Overall Risk Level	1.1
Overall Effective Life Remaining	19.4
Overall Condition rating	1.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps have been replaced due to tripping out under low flow conditions. Generally in good condition	2		20	2
Main Process Piping	Some signs of corrosion starting	2		20	2
Pipe Supports	Pipe hangers and Concrete shoes - good condition	2		15	2
Main Process Valves - Manual On/Off	Corrosion starting to show on body, but good working order	2		20	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Corrosion starting to show on body, but good working order	1		20	2
Overflow	Emma CSO Tank now used to control levels, no overflow requirement	1		25	1
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Grit System - good condition Hydrogen Peroxide system - new piping Compressed Air piping - Good condition	1		25	1
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				
Grit System	Not worked since upgrade. Needs attention	4		4	4

Process Mechanical	
Overall Risk Level	1.6
Overall Effective Life Remaining	20.7
Overall Condition rating	1.7

Note - Grit system removed from calculations.

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Valve Control Panel	Good Condition	2		15	2
Instrument Panels	Good Condition	1		20	1
Sensors and Transmitters	Good Condition	1		20	1
Gauges	Good Condition	2		20	2
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.6
Overall Effective Life Remaining	19.0
Overall Condition rating	1.6

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1	N	30	1
Main Breaker	Good Condition	1	N	30	1
Distribution Panel	Good Condition	1	N	30	1
Transformer	Good Condition	1	N	30	1
Back up power source	Gas back up generators	1	N	30	1
Network Access panel	Good Condition	1	N	20	1

Process Electrical

Overall Risk Level	1.0
Overall Effective Life Remaining	28.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Chemical Tanks in good condition	1	N	25	1
HVAC	Good Condition	1	N	25	1
Heaters	Good Condition	1	N	25	1
Thermostats	Good Condition	1	N	25	1
Gantry Crane	Good working order	2	N	15	2

Building Mechanical

Overall Risk Level	1.20
Overall Effective Life Remaining	23.0
Overall Condition rating	1.20

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	River Street PS	Inspection By:	RW + JS
Inspection Location:	12 River Street	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Good Condition	1	N	25	1
Exterior Lighting	Good Condition	1	N	25	1
Emergency lighting	Good Condition	1	N	25	1

Building Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	25.0
Overall Condition rating	1.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
- Grit System to be reviewed and replaced if cannot be repaired	- Upgrade completed 2014 - Overflow used to occur before Emma CSO tank added - New Hydrogen Peroxide System online soon - Grit removal system not worked since upgrade - Pumps trip out on Low Flow

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Gravel Access way - good condition	1		15	2
Paths	Gravel path way to well	1		15	2
Gates/Fences	Good Condition	1		15	1
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition Greese build up	2		20	3
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		15	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.3
Overall Effective Life Remaining	16.7
Overall Condition rating	1.7

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues.	1		15	1
Main Process Piping	Corrosion present	2		15	3
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present	2		15	3
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corrosion, will not impact use	2		13	3
Overflow	Pump out position available on well.	2		15	2
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	1.8
Overall Effective Life Remaining	14.6
Overall Condition rating	2.4

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Shape, However - Aged Components	2		10	3
Instrument Panels	SCADA Panel in Good Condition	1		15	1
Sensors and Transmitters	Aged Transmitter	2		10	2
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.8
Overall Effective Life Remaining	13.8
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	Good Condition	1		20	1
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Portable Back-up Generator	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical

Overall Risk Level	1.0
Overall Effective Life Remaining	21.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Schooner Drive PS	Inspection By:	RW + JS
Inspection Location:	22 Schooner Drive	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	- Greese Build up

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Road side parking	1		20	1
Paths	Not Applicable				
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.0
Overall Effective Life Remaining	20.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No Cracks - Good Condition	1		15	1
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Good Condition	1		15	1
Ladders	Good Condition	1		15	1

Structural	
Overall Risk Level	1.0
Overall Effective Life Remaining	15.0
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	Pumps not visible, but operator stated that there are no issues during regular flows. Well/pumps do not have the capacity for high flow times. (Thaw/Storm)	4		15	2
Main Process Piping	Pipe work heavily corroded	4		7	4
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	Corrosion present. One Valves looks corroded in place therefore inoperable. Valves only turned when required, should be turned regularly to stop sticking.	4		6	4
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	Body corrosion, will not impact use	2		8	3
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	3.5
Overall Effective Life Remaining	9.0
Overall Condition rating	3.3

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	OK Condition - aging	2		8	3
Instrument Panels	Good Condition	1		15	1
Sensors and Transmitters	Good Condition	1		10	1
Gauges	Not Applicable				
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	13.3
Overall Condition rating	1.8

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Process Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		20	1
Main Breaker	OK Condition	1		10	1
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	18.8
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Building Mechanical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Westbrook Road PS	Inspection By:	RW + JS
Inspection Location:	1147 Westbrook Road	Date:	26th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	<ul style="list-style-type: none"> - Bad Greese Build up. Requires Pumping out every 4-6 weeks. - Due for Upgrade - High Flow station

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Civil/Site Conditions

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Access Roads and Driveways	Parking available on Parking lot	1		15	2
Paths	No path to Well cap or panel.	2		15	2
Gates/Fences	Not Applicable				
Drainage	Not Applicable				
Over flow Channels	Not Applicable				

Civil/Site	
Overall Risk Level	1.5
Overall Effective Life Remaining	15.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Structural - Building Envelope/Architectural					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Well	No access available - operator states no issues, due to low capacity requirement	2		20	2
Roof	Not Applicable				
Walls - Exterior	Not Applicable				
Walls - Interior	Not Applicable				
Foundations	Not Applicable				
Access Ways	Not Applicable				
Ladders	Not Applicable				

Structural	
Overall Risk Level	2.0
Overall Effective Life Remaining	20.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Process Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Process Pumps	No access available - operator states no issues, due to low capacity requirement	2		15	2
Main Process Piping	No access available - operator states no issues, due to low capacity requirement	2		15	2
Pipe Supports	Not Applicable				
Main Process Valves - Manual On/Off	No access available - operator states no issues, due to low capacity requirement	2		15	2
Main Process Valves - Actuated	Not Applicable				
Main Process Valves - Check	No access available - operator states no issues, due to low capacity requirement	2		15	2
Overflow	Not Applicable				
Filters/Strainers	Not Applicable				
Dosing System	Not Applicable				
Sampling System	Not Applicable				
Auxiliary Pipe and Valves (Sampling/Dosing)	Not Applicable				
Sample Pumps	Not Applicable				
Insulation	Not Applicable				
Sump Pump	Not Applicable				

Process Mechanical	
Overall Risk Level	2.0
Overall Effective Life Remaining	15.0
Overall Condition rating	2.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Instrumentation and Controls/SCADA					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Pump Control Panel	Good Condition	1		15	1
Instrument Panels	Not Applicable				
Sensors and Transmitters	Good Condition	1		15	1
Gauges	Good Condition	2		20	2
Flowmeters	Not reviewed in person, but no issues	2		20	2

Instrumentation	
Overall Risk Level	1.5
Overall Effective Life Remaining	17.5
Overall Condition rating	1.5

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Process Electrical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Utility Power Feed	Good Condition	1		25	1
Main Breaker	Not Applicable				
Distribution Panel	Not Applicable				
Transformer	Not Applicable				
Back up power source	Portable Back Up Generator	1		30	1
Network Access panel	Good Condition	1		15	1

Process Electrical	
Overall Risk Level	1.0
Overall Effective Life Remaining	23.3
Overall Condition rating	1.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Building Mechanical

	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Tanks	Not Applicable				
HVAC	Not Applicable				
Heaters	Not Applicable				
Thermostats	Not Applicable				

Building Mechanical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Yonge Street PS	Inspection By:	RW + JS
Inspection Location:	Yonge Street	Date:	28th May 2015

Building Electrical					
	Condition Assessment	Comp Risk Level (1-5)	Maint. Prog. (Y/N)	Effective Life remaining	Cond. Rating (1-5)
Interior Lighting	Not Applicable				
Exterior Lighting	Not Applicable				
Emergency lighting	Not Applicable				

Building Electrical	
Overall Risk Level	0.0
Overall Effective Life Remaining	0.0
Overall Condition rating	0.0

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
	- Foam Build up effecting floats

Appendix B

FIELD ASSESSMENT SHEETS – WASTEWATER TREATMENT PLANTS

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Cataraqui Bay WWTP	Inspection By:	RW + JS + MV
Inspection Location:	Sand Bay Lane	Date:	

System		Condition Assessment	
Head works	Only the Thickening Building and Anaerobic Digesters reviewed - The rest of Plant is to be upgraded		
Septage Receiving	N/A		
Primary Clarifiers	N/A		
Aeration Tanks	N/A		
Secondary Clarifiers	N/A		
Chloronation/ Dechloronation	N/A		
Alum. Chemical feed systems	N/A		
Thickening Building	Motor Control Centre (MCC's) in good condition.		
Anaerobic digesters	<ul style="list-style-type: none"> - 1 x Heat Exchanger currently out of comission. Currently the older of the 2 heat exchangers is in use. - Gas Compressor recently replaced. -Motor Control Centre (MCC) beyond it's design life and should be replaced. - Operator commented that replacement of equipment during the upgrade would be advantageous 		
Dewatering	N/A		

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Cataraqui Bay WWTP	Inspection By:	RW + JS + MV
Inspection Location:	Sand Bay Lane	Date:	

System	Condition Assessment
Biosolids Storage	N/A
Other Chemical Systems	N/A
Electrical Substation	N/A
Blowers	N/A
Stand-by generator	N/A
Flare Stack	Non-Enclosed Flare - not to code

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel
<ul style="list-style-type: none"> - Equipment within the Anaerobic digester building to be included in upgrade - Digester Building MCC should be replaced. 	<ul style="list-style-type: none"> - Replacement of equipment in the Anaerobic digester building during the upgrade would be advantageous

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Ravensview WWTP	Inspection By:	RW + JS + MV + MM
Inspection Location:	936 Highway 2	Date:	15th July 2015

System	Condition Assessment
Head works / Septage Receiving	<p>Bar Screen - 2 older models and 1 new bar screen added during up grade. Old bar screens - Recently retrofitted with support bracing so that screen element does not move out of position and cause a shut down Experience normal wear and tear with occasional break down.</p> <p>Slurry Pumps get airlocked from time to time.</p> <p>Grit Channels - North conveyor on start -up experiences too much torque causing conveyor to malfunction and due to position is difficult to repair - suggested that drive is changed to soft start/vfd so power/torque is not immediate (cheap solution).</p> <p>Sluice gate valves take a long time to open - add the possibility to use a portable actuator.</p> <p>Operator reports hydrogen sulphide related odours causing rust build up. Verification of ventilation rates and gas detection system should be undertaken.</p>
Primary Clarifiers	<p>Tank concrete starting to decay - possible action required in the next 10-15 years.</p> <p>Sludge and scum remover - run with plastic sprockets and steel chains once plastic sprocket wears the boards drop below surface meaning they are less effective. Tanks 2 and 7 currently out of commission.</p> <p>Remaining tanks also require upgrade to sprocket/chains - suggested steel sprockets are added instead of plastic and oilers are added to keep chains lubricated. Scum pumps have had to be removed and welded - not currently an issue, but could be required again.</p> <p>Primary sludge pumps experience premature issues with rotors and stator consideration for replacement with centrifugal solid handling pumps. Operator indicated that BAF effluent overflows primary bypass chamber during high flows - Hydraulics should be assessed to determine if bypass chamber wall can be raised to prevent this from happening.</p>
Biological Aerated Filters	<p>Tarps that were installed above BAF tanks, prevent operators from taking measurements of bead depth along the centreline of the tank - Ability to install fabric hatches at locations along the centreline will assist with this task.</p> <p>On-line analyzers (DO, pH, ammonia) are not reliable, there could be an issue related to probe placement. This could potentially be resolved with conversations with suppliers.</p> <p>Operator stated that Bray Valves/Operators seem not to work as well as other valves in the plant - further investigation required, possible to request other manufacturers on any upgrades.</p>
Anaerobic digesters	<p>Pumps require general maintenance.</p> <p>Roofs cracked and require repair.</p>
Cogeneration	<p>Heat exchanger suffers from corrosion</p>
Biosolids Storage	<p>Emptied once a year (May-Dec) - No issues</p>
Effluent Water System	<p>One of the two vertical turbine pumps were out of service, posing an issue with redundancy. If this style of pump is problematic at the site, consideration to switch to submersible pumps may resolve the issue (further evaluation may be required).</p>

Field Assessment Sheet

Project No: UK-15-02

Project No: 151-02944-00

Inspection Site:	Ravensview WWTP	Inspection By:	RW + JS + MV + MM
Inspection Location:	936 Highway 2	Date:	15th July 2015

System		Condition Assessment	
Electrical Substation		Good Condition with plenty of life expectancy	
Electrical Distribution and Motor Control Centres		Good Condition with plenty of life expectancy	
Scada / PLC Panels and Instrumentation		Good Condition with plenty of life expectancy	
Blowers		New transformer required.	
Stand-by generator		Good Condition with plenty of life expectancy	
Flare		Current flow is only 1/3 of its capacity - possibly due to collection of water in flare header.	
Pipe work		Generally in good condition. Some pipe work under the Primary Tanks (in tunnels) starting to Rust due to moisture.	
Structural		Various locations have leaks through concrete into the tunnels - could cause structural issues going forward	

General	
Work to be conducted in the next 5 year	Comments from City of Kingston Personnel

Appendix C

RISK ASSESSMENT SHEET

