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MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE
Notice of Meeting on **Tuesday, July 11, 2017 at 9:30 a.m.**
Main Conference Room, 479 Island Highway, Victoria, BC

Kathy Heslop (Chair)	David Reed	Jim Petrie	Joe Gill
Director Dave Howe	Courtenay Rodash	Alex Wilson	

AGENDA

1. Approval of Agenda

2. Adoption of Minutes of June 13, 2017

3. Motion to Close the Meeting
   That the Magic Lake Estates Water and Sewer Committee close the meeting in accordance with the Community Charter, Part 4, Division 3, 90(1)(g) litigation or potential litigation affecting the municipality.

4. Water Update (verbal report with handout)

5. Wastewater Update (verbal report with handout)

6. Operations Report (verbal report with handout)

7. Correspondence

8. New Business

9. Adjournment

To ensure quorum, advise Lorrie Siemens 250.360.3087 or lsiemens@crd.bc.ca if you cannot attend.

IWSS-928280410-5260

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Minutes of a Meeting of the Magic Lake Estates Water and Sewer Committee Held Tuesday, June 13, 2017 in the Main Conference Room, 479 Island Highway, Victoria, BC

PRESENT: **Committee Members:** K. Heslop (Chair), Director D. Howe, A. Wilson, J. Gill, D. Reed, J. Petrie,
Staff: M. McCrank, Senior Manager, Infrastructure Operations, I. Jesney, Senior Manager, Infrastructure Engineering, M. Cowley, Manager, Wastewater Engineering and Planning, L. Siemens (recorder)
ABSENT: C. Rodash

The meeting was called to order at 9:30 a.m.

1. Approval of Agenda

MOVED by J. Petrie, **SECONDED** by J. Gill,
That the agenda be approved as distributed.

CARRIED

2. Presentations/Delegations

Justine Stark, on behalf of Islands Trust provided a presentation titled "Housing on North Pender Island – Secondary Suites". A discussion followed.

MOVED by J. Gill, **SECONDED** by Director Howe,
That the presentation be received for information.

CARRIED

3. Adoption of Minutes of May 9, 2017

MOVED by A. Wilson, **SECONDED** by J. Gill,
That the minutes of May 9, 2017 be adopted as previously distributed.

CARRIED

4. Motion to Close the Meeting

MOVED by J. Gill, **SECONDED** by Director Howe,
That the Magic Lake Estates Water and Sewer Committee close the meeting in accordance with the Community Charter, Part 4, Division 3, 90.1 (e) t*he acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality.*

CARRIED

The Magic Lake Estates Water and Sewer Committee closed the meeting at 10:10 a.m. and resumed in open session at 10:16 a.m.

5. Buck Lake and Privateers Road Sewer Replacement Update

M. Cowley presented a written report.

MOVED by J. Gill, **SECONDED** by Director Howe,
That the Magic Lake Estates Water and Sewer Committee direct staff to proceed with the detailed design, acquire land-use agreements, and tender the Buck Lake and Privateers Road Sewer Replacement projects as previously approved by the community through the Alternative Approval Process.

CARRIED

Director Howe left the meeting at 11 a.m.

6. Water Update

I. Jesney presented a verbal report and distributed a hand-out. The hand-out will be included as part of the agenda package.

7. Wastewater Update

M. Cowley presented a verbal report and distributed a hand-out. The hand-out will be included as part of the agenda package.

8. Operations Report

M. McCrank presented a verbal report and distributed a hand-out. The hand-out will be included as part of the agenda package.

The following inserts will be included with the water bills in early July:

- Notice of Annual General Meeting
- Notice of Water Conservation
- Information on "What to Flush".

9. Correspondence

There was no correspondence

10. New Business

I. Jesney advised that all local services annual reports should be posted on the CRD website by the end of June each year.

11. Adjournment

MOVED by J. Gill, **SECONDED** by D. Reed,
That the meeting be adjourned at 11:30 a.m.

CARRIED

Making a difference...together

July 11, 2017

File: 0360-20
Magic Lake Estates Water and Sewer Committee

Magic Lake Estates Water Service

Magic Lake North Dam (Saddle Dam) License Agreements:

- The purpose of the license is to enable CRD to access, operate and maintain the saddle dam.
- The new landowner at 3804 Pirates Road is willing to enter into an agreement to enable CRD to access, repair and maintain the dam. Work continues towards getting this executed.

Buck Lake Intake:

- Staff are completing budget estimates based upon the design/specification for Committee review.
- No update since last month

Magic Lake Dam Safety Upgrade (Siphon):

- Design and specifications completed for valve upgrade. Work will be undertaken by CRD Operations staff in the summer of 2017 with testing in the fall after the high water demand period.
- No update since last month

Signal Hill, Schooner and Capstan Way PRV's:

- Works will be tendered externally and construction for all three sites is scheduled to take place in late summer/fall of 2017.
- Recent Progress – Construction cost comparison between the below ground and above ground PRV options resulted in costs being almost equal for materials, and a little more for below ground replacements. Construction cost per site is approximately $125,000 with a high contingency. Staff are completing detailed design for tendering all three sites.

Chemical (ISOPAC) Storage and Handling:

- The CRD is evaluating recommendations to determine the most appropriate method.
- Recent Progress – Ergonomics consultant has provided recommendation for a separate storage to limit handling of chemicals. This is consistent with other sites that receive bulk chemicals. Staff are evaluating options for providing separate storage that works with the existing process.

Prepared by: Stephen Henderson and Dale Puskas.

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File: 0360-20
Magic Lake Estates Water and Sewer Committee

July 11, 2017

MAGIC LAKE ESTATES WASTEWATER

Wastewater Infrastructure Projects – Phase 1 Update

Sewer Pipe Replacement – Buck Lake & Privateers Road

- Preparing scope of work for geotechnical investigation.
- Making inquiries to find a land agent to assist in securing land use agreements from property owners where the sewer replacement work will take place.

Inflow & Infiltration Program

- The contract for CCTV and manhole (MH) inspections of the entire collection system has been signed.
- The contractor is preparing a work plan and schedule for execution of the inspection and cleaning work.
- After the inspection work is complete, a report will be prepared summarizing the pipe condition and priority repairs.

Schooner Tank Assessment

- A draft assessment report from Stantec/Stasuk has been received. See the information report attached to the Meeting Agenda.

Wastewater Projects - 2017 Capital Plan

Schooner Outfall Protection

- A consultant has completed the inspection, draft report is completed.
- Initial findings indicate greater damage to the concrete encasement than originally thought. The consultant's estimate to complete repair is approximately $40,000 construction budget.
- It is recommended to complete the repair this summer/early fall to prevent damage to the outfall during the winter.
- It is recommended that the costs that exceed the $30,000 budget be funded from the Capital Reserve Fund.

Phase 2 Wastewater Infrastructure Upgrades – Public Consultation

- No change from last report.

Schooner and Cannon Outfall Inspections

- The outfall inspections were completed on June 7, 2017. Waiting for the consultant's report, but no large deficiencies were noted by the inspector.

Report Prepared by: Malcolm Cowley and Dale Puskas

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REPORT TO MAGIC LAKE ESTATES WATER AND SEWER COMMITTEE MEETING OF TUESDAY, JULY 11, 2017

SUBJECT **CONDITION ASSESSMENT OF SCHOONER WASTEWATER TREATMENT AERATION TANK**

ISSUE

This report summarizes the condition of the Schooner wastewater treatment aeration tank.

BACKGROUND

The existing steel aeration tank was apparently installed in the 1960's presumably by the developer of the Magic Lake Estates development before the CRD was requested to take on the wastewater service.

In 2012, Stantec completed an initial assessment of the Magic Lake Estates Sewerage System and noted that the Schooner WWTP needed upgrades to address flows in excess of the plant's discharge permit. Their report provided two options to increase the plant's capacity depending on the existing aeration tank's remaining service life.

Provided that the aeration tank has a remaining service life of 15 years, Option 1 was to install a new clarifier and equalization tank. This option extends the life of the existing plant and allows further time for funding a new treatment plant in 15-20 years.

If the aeration tank has less than 15 years of life remaining, then Stantec recommended Option 2 which was to install a new sequencing batch reactor (SBR) plant. Therefore, Stantec recommended that a condition assessment of the aeration tank be completed to determine if Option 1 was possible.

Consequently, site investigations were performed by Stasuk on May 10 and Stantec on June 2, 2017. The DRAFT report from these investigations is attached (**Attachment 1**).

The DRAFT report needs to be finalized, but Stantec has provided some retrofit recommendations including, but not limited to, the following items:

1. Assess the structural capacity of the tank based on current codes and seismic requirements;
2. Anchor the aeration and clarifier tanks down;
3. Install a new internal liner in the aeration tank;
4. Repair all of the exterior coating failure areas;
5. Install seismic restraints for piping and miscellaneous equipment; and
6. Implement a tank inspection and maintenance programme.

The cost to undertake the above recommendations is to be determined. However, these costs will be included as part of the overall Schooner WWTP Upgrades which will be presented to the Community at an Open House planned for later this year.

CONCLUSION

The Schooner aeration tank was evaluated by Stasuk and Stantec in May/June, 2017. Although the tank has several deficiencies, Stantec has indicated that it could be retrofitted so that it can continue to be used. However, Stantec has also noted that the cost to complete the repairs should be evaluated versus installing a new tank. This business case should be undertaken as part of the next step to complete the overall WWTP Upgrades that are required to bring the plant into compliance with the Ministry of Environment discharge permit.

RECOMMENDATION

That the Magic Lake Estates Water and Sewer Committee receive this report for information.

Submitted by:	Malcolm Cowley, P.Eng., Manager, Wastewater Engineering and Planning
Concurrence:	Ian Jesney, P.Eng. Senior Manager, Infrastructure Engineering

MC:ls
Attachment: 1

Attachment 1

Assessment of Schooner Water System Tank, Pender Island, BC

Stantec

Prepared for:
Capital Regional District

Prepared by:
Mr. Kenneth Jamieson, P.Eng.
Project Manager
Stantec Consulting Ltd.
400 – 655 Tyee Road
Victoria, BC V9A 6X5

June 23, 2017

Sign-off Sheet

This document entitled *Structural Assessment of Schooner Water System Tank* was prepared by Stantec Consulting Ltd. for Capital Regional District (CRD), and for the attention of Ms. Lani O'Dwyer. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use, which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by _____
(signature)

Kenneth Jamieson, P.Eng.

Reviewed by _____
(signature)

Paul Dudzinski, P.Eng., Struct.Eng, MIStructE.

Table of Contents

1.0 INTRODUCTION

The Capital Regional District (CRD) has requested that Stantec Consulting Ltd. (Stantec) review an existing above ground steel aeration tank, and a CRD owned and operated small water system on Pender Island, British Columbia. The tank is located above grade elevation and partially buried. No record drawings of the tank exist and were reported to be installed in the 1960's. The following image provides a location plan of the tank on Schooner Way via a service road south of the Town Center.

Figure 1: Tank Location

2.0 SCOPE OF WORK

Our scope of work specifically included:

- Onsite field observations performed by Stantec
- Condition assessment of the tank
- Rational analysis calculations performed with respect to seismic restraint of the tank above grade, partially buried to resist lateral forces in the event of an earthquake
- Recommendations

Our scope of work specifically excluded:

- Assessment of mechanical and electrical systems
- Geotechnical Investigations
- Detailed Engineering design and structural drawings

The assessment is based, in part, on information provided by CRD and onsite visual observations documented by Stantec and Stasuk Testing & Inspection.

Unless specifically noted, we have assumed that this information is correct and have relied on it in developing our conclusions.

3.0 OBSERVATIONS

A site visit was performed by Stantec on June 2, 2017 by a representative from our Victoria office. Stasuk Testing & Inspection visited the site on May 10, 2017 to provide non-destructive testing (NDT) services of the tank.

The tank is of steel construction, located above grade elevation, and bearing on compacted fill material.

No existing record drawings were available and field measurements were taken of the tank in order to determine the capacity of the storage tank to resist seismic post-disaster demand forces applied to the structure during a seismic event.

A visual walk around the exterior of the tank structure indicated coating failures per the NDT report (Appendix B). Rail guards and the suspended steel access grating and associated steel support channel members were in reasonable condition and acceptable. No anchorage or foundation of the tank at grade elevation was observed.

Two adjacent above grade circular tank structures bearing on an existing concrete slab at grade level had four equally spaced steel base gusset plates located at the bottom of each tank, however, expansion bolt connections to the foundation slab were missing.

The tanks physical properties are as follows:

- Width: 3.0m (10'-0")
- Length: 19.0m (63'-4")
- Height: 3.0m (10'-0")
- Volume: 171.0m^3 (45,173 US gallons)
- Coated exterior rectangular steel shell construction bearing on compacted fill material at grade level and partially buried

Stasuk Testing & Inspection completed non-destructive testing (NDT) thickness testing at multiple locations of the tank and findings are enclosed within the (NDT) report enclosed within Appendix B and is further addressed in Section 4.2 – Tank Deformation.

Figure 2: Northern view of tank and access platform

4.0 STRUCTURAL ASSESSMENT

Stasuk Testing & Inspection performed NDT testing on the exterior shell of the tank, including visual observations.

4.1 NDT TESTING ASSESSMENT

As depicted in the image below, the perimeter walls of the tanks were tested for material thickness.

Figure 3: East tank wall thickness survey performed by Stasuk Testing & Inspection

4.2 TANK DEFORMATION

Stantec conducted a review of the tank structure based on the findings from Stasuk Testing & Inspection (included in Appendix B). The tank has an original wall thickness of 6.35mm (0.25") with the lowest thickness noted to be 4.78mm (0.118") with minor pitting and corrosion present on the internal shell surfaces.

A stress check was performed on the steel wall plates, based on the minimum thickness measurements provided by Stasuk Testing & Inspection. The stress on the walls is at the upper yielding limit for steel for the tank and is not acceptable due to corrosion and material loss which is approximately 35% of the original base material.

A visual review of the outside of the tank observed that no deformation of the tank walls was observed and panel joint seam welds were in good condition.

4.3 SEISMIC RESTRAINT OF TANK

Our office performed rational analysis calculations to determine the adequacy of the partially buried tank during a seismic event with an Importance Factor (Ie) of 1.5 for Post-disaster structures based on tank geometry, self-weight, the tank empty and at full capacity.

A comparison of the soil static and dynamic lateral earth pressures during a seismic event were calculated versus the horizontal load generated during a seismic event if the tank is at full fluid capacity.

In addition, a tank wall design check was performed for wall strength/deformation when the tank is empty to verify if yielding of the tank wall material occurs as a result of static and or dynamic lateral earth pressures during a seismic event, based on the reduction of the wall thickness. Yield wall stresses are at the upper limit during a seismic event.

In addition, no seismic restraint (base anchorage) of the tank was noted at grade elevation. During a seismic event, the tank will overturn in the short direction and sliding of the tank structure will occur in both the longitudinal and transverse directions as lateral passive soil pressure at the northern end of the site is not adequate to resist horizontal forces when the tank is at capacity during a seismic event in one direction only.

Seismic restraint of the tank at grade elevation should be designed by a structural engineer registered within the Province of British Columbia.

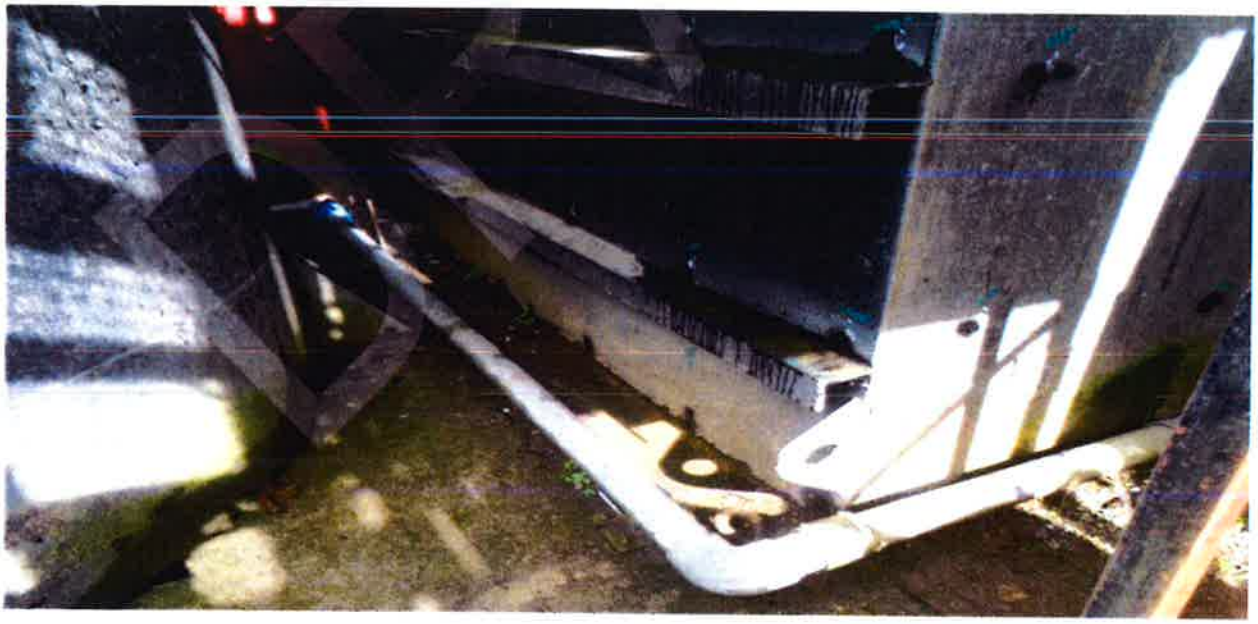

Figure 4: Tank base with no foundation or anchorage at existing grade

Figure 5: Adjacent 2 No. circular above grade steel tank structures. Note: Missing bolted connections (4 total/tank) to the existing foundation slab

5.0 CONCLUSIONS

The aeration tank was constructed under building codes from the 1960's and does not meet the present post-disaster seismic design requirements of the 2012 British Columbia Building Code. In addition, the tank is showing signs of corrosion and beyond the operational life expectancy of 40 years.

Without providing anchorage connections for each above grade steel tank structure, each tank has a high probability of failure during an earthquake event.

6.0 RECOMMENDATIONS

6.1 RETROFIT SOLUTIONS

- Provide field installed soil anchors with associated steel brackets field welded to each corner of the tank at the base elevation. Anchors and brackets to be located on the east and west walls to resist lateral post-disaster demand loads, preventing sliding and overturning of the tank in the short direction
- Both circular aeration tank structures to have epoxy resin field installed anchors to each brackets already provided, preventing sliding and overturning of each tank
- Provide a new internal liner, this will reduce further corrosion of the steel inner walls

- Seismic restraints for piping and miscellaneous equipment
- Provide patch repairs of the exterior coating at locations noted on the NDT
- Monitoring and formalizing a tank inspection and maintenance programme will extend all above ground tanks serviceability requirements

6.2 PERIODIC TANK INSPECTION

- Removal of dirt, weeds and vegetation around the outside base of the tank
- Removal of tree limbs or bushes which may scratch the tank shell
- Check the tank interior for evidence of contamination
- Examine tank foundation connections (after remedial repairs are completed)
- Examine tank for signs of corrosion, leaks, cracks or mineral streaks
- Examine exterior tank coatings for peeling, bubbling, cracking or corrosion
- Overflows are all intact and secure
- Examine soundness of security fence and that gates and locks work properly
- Undertake coating touch-up as per the instructions of the tank distributor or manufacturer if needed
- Keep record of inspection findings

We also recommend that the CRD hire a professional cost consultant to provide an accurate Class C Cost Estimate after engineered retrofit details have been provided for costing purposes to determine if additional repairs are worthy versus the present facility to be decommissioned and future funding provided for a new plant facility. Any associated construction work should be costed by a designated professional familiar with this type of work.

Report prepared by:

Kenneth Jamieson, P.Eng.
Project Manager
Stantec Consulting Ltd.
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Report reviewed by:

Paul Dudzinski, P.Eng, Struct.Eng, MIStructE
Associate
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Appendix A SITE PICTURES

Photo 1: West view of elevated tanks from entrance to facility off Schooner Way

Photo 2: East view of elevated access platform over steel tank

Appendix A Site Pictures
June 212, 2017

Photo 3 **Welded connection of railing post to tank perimeter and in good condition**

Photo 4: **View of steel channel supporting access ramp**

Appendix A Site Pictures
June 212, 2017

Photo 5: View of end bearing of steel access grating to support angle

Photo 6: North face tank elevation showing extent of elevated grade rising to the east end of the site

Appendix B STASUK TESTING & INSPECTION

Stasuk Testing & Inspection

8955 Fraserwood Court, Burnaby
British Columbia V5J 5H7
Telephone: (604) 420-4433
Fax: (604) 420-2685
www.nde.net

SCHOONER WASTEWATER INSPECTION REPORT

Client: Capital Regional District
479 Island Hwy, Victoria B.C. V9B 1H7

Attn: Lani O'Dwyer

Inspection Date: September 29th, 2016
Client PO#: 291112
Stasuk WO#: 16-0441
Report #: 001

SUBJECT: MLE - Schooner Wastewater Treatment Plant Aeration Tank
Location: Schooner Wastewater Treatment Plant – Pender Island BC
Specification (s): Following API 653 Ultrasonic and Visual inspection requirements only
Reference Drawings: None Provided

Details & Results:

Schooner Wastewater Treatment Plant Aeration Tank is a; partially buried steel tank that is 19.2m long, 3m wide and 3m high with an original wall thickness of 0.250". The tank was inspected as per the Capital Regional District scope of work and in accordance with API 653 solely in regards to the non-destructive testing; ultrasonic testing and external visual inspections.

See the following pages of this report.

Thank you for choosing Stasuk Testing & Inspection.

Russell W Petrie
CGSB Registration No. 10214 / CWB Registration No. 12374

Structural Summary;

The following section of this report will discuss the examination of the accessible structural welding as carried out per the work scope. Throughout the entirety of the inspection process no sign of any imminently detrimental defects were noted.

The external horizontal tank stiffeners and fillet welds on the South end of the tank were noted to be in acceptable condition. The horizontal and vertical tanks seam welds were noted to be of acceptable quality without the presence of any pre-existing weld process defects or any signs of failure occurring.

Image-1: South Eastern corner of the wastewater aeration tank; note the stiffeners and the vertical and horizontal seam welds.

The Eastern shell of the tank was thoroughly examined with no concern noted for the original welding of the tank itself or its present condition, however; there is some concern to be noted for the quality of the workmanship in regards to the pipe hangars that are welded to the upper shell along the length of the tank. The welding was noted to be of low quality as well as the care to execute the application, leaving evidence of cutting disc marks into the tank shell - in one noted area above the water line, with a depth of approximately half the wall thickness. More will be said in regards to the surface condition of the shell in these areas when coating quality is discussed later.

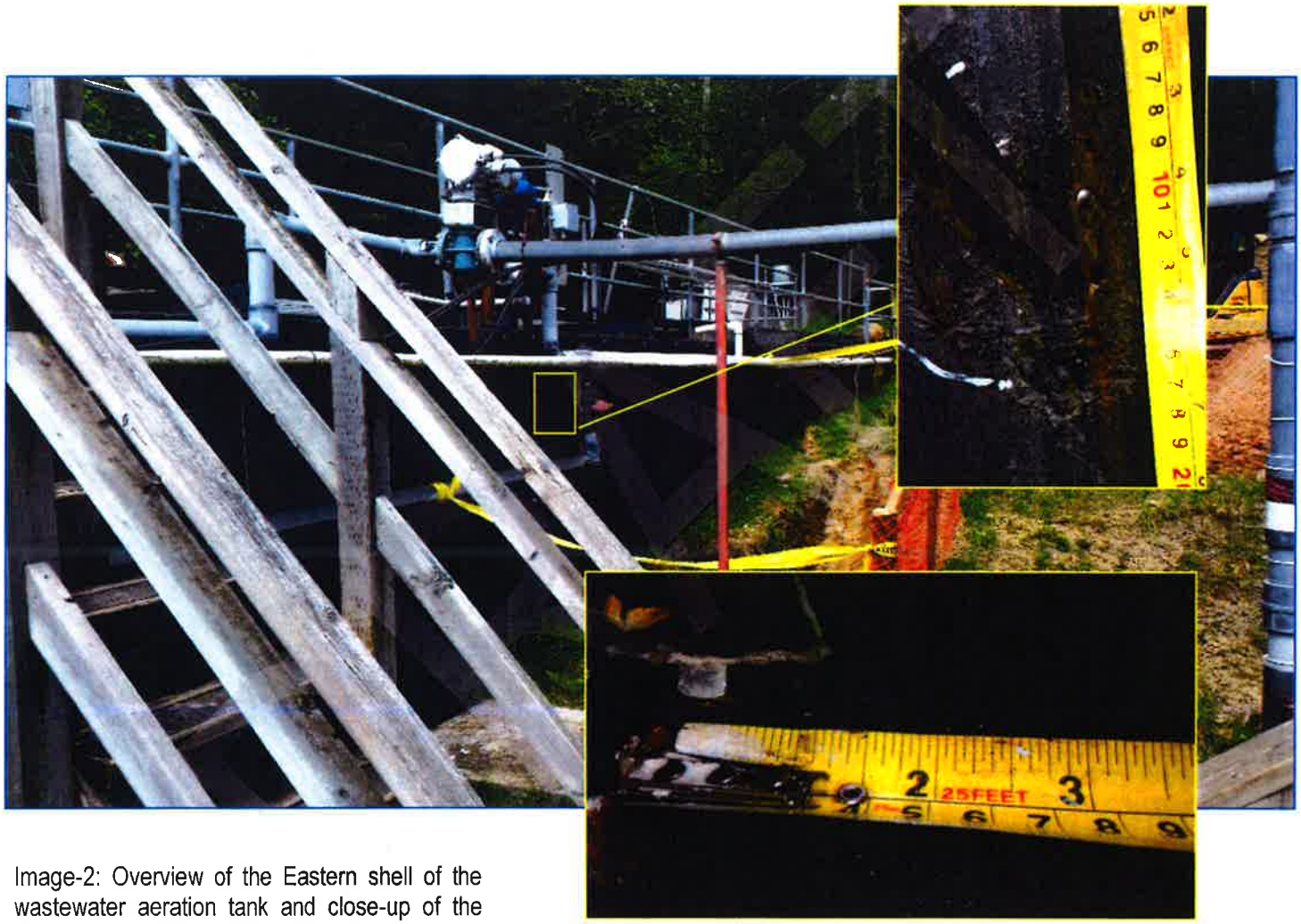

Image-2: Overview of the Eastern shell of the wastewater aeration tank and close-up of the pipe hangar welds and the cutting disc mark.

An excavator was brought in to expose selected areas of the tank that have been buried since the tank was installed. The condition of the tank in these locations was found to be acceptable.

Image-3: Overview of the excavations along the Eastern tank wall

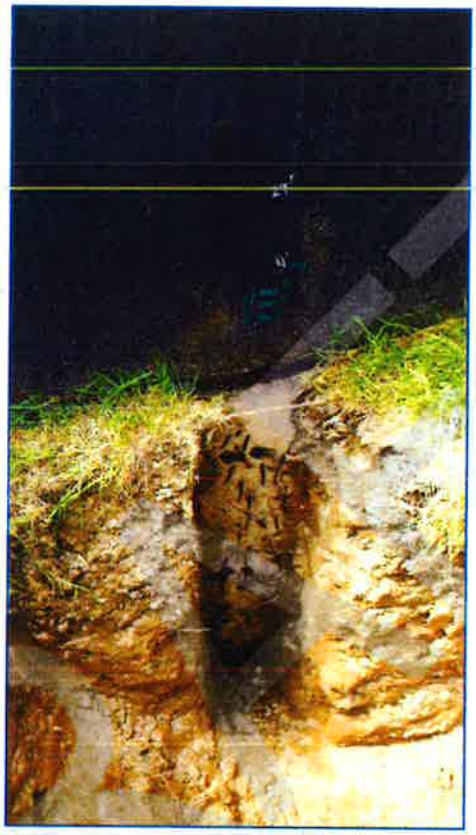

Image-4: Overview of the excavation at 29' from the North end of the tank, along the Eastern tank wall

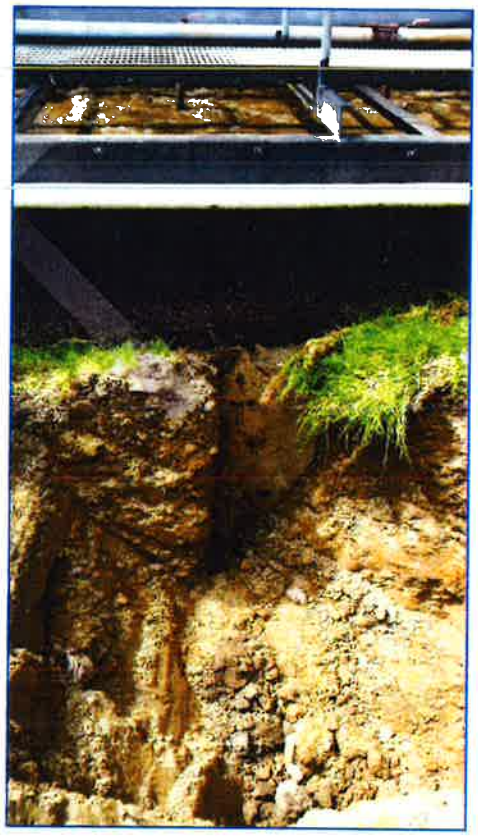

Image-5: Overview of the excavation at 12' from the Northern end of the tank along the Eastern tank wall

The North eastern corner of the tank was also exposed approximately 12" in the south and 12" in the west direction for a depth of approximately 8'. The tank was found to be in acceptable condition. The accessible tank corner joint welding that was in this location was found to be in acceptable condition showing no signs of failure. The two (2) exposed stiffeners on the North end were also found to be in acceptable condition.

Image-6: Overview and close-up of the Northern excavation of the wastewater aeration tank

Image-7: Overview of the Western wall of the wastewater aeration tank. Note the hangars are not welded on this side of the tank. They are bolted to the top ledge.

Image-8: North End view of the Western wall

Image-9: South End view of the Western wall

Image-10: Overview of the single excavation made on the Western side of the wastewater aeration tank. This was located at 41' from the North tank end.

A brief structural assessment was carried out on the external upper tank stiffeners crossing the wastewater. The stiffeners and associated welding were found to be in acceptable condition. No sign of failure present.

Image-11 & 12: A selected image of the typical cross bracing on the top of the aeration tank.

Coating Summary;

All accessible vertical and horizontal tank seam welds were noted to be free from corrosion with a high integrity of the coating present over the majority of the tank external surface. The Eastern shell surface did present itself as the area with most failure.

Some concern should be noted on the condition of the external pipe hangars that are welded to the upper east side of the tank shell: The welding quality is low and the integrity of the coating in these locations was found to be compromised. A recommendation is to wire wheel each location, prime with an anti-rust agent and re-coat with an approved coating compatible with the existing shell coating, alleviating the chance of a more detrimental corrosion forming in the future.

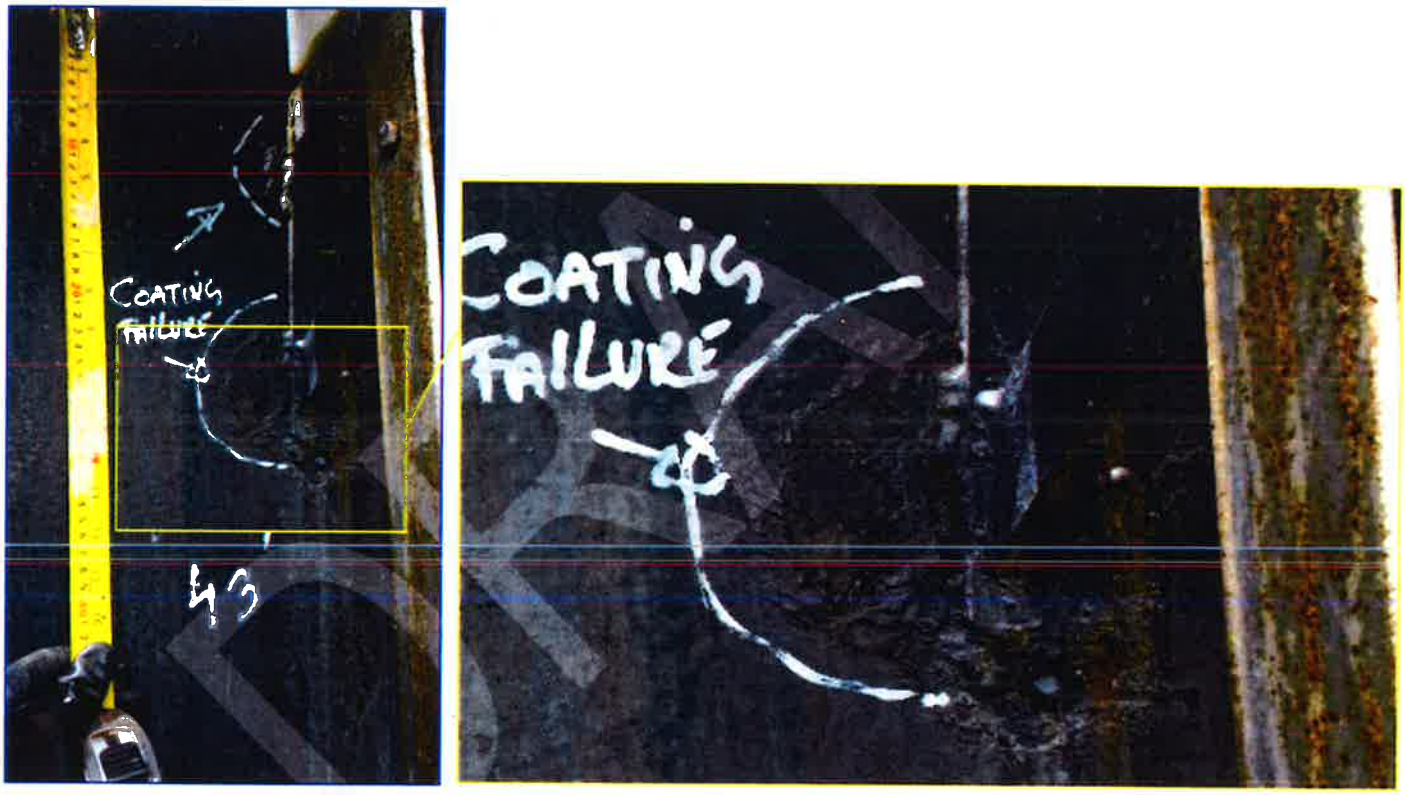

Image-13: Area of concern located at 43' from the north end of the tank on the Upper East Side shell. The welding quality and coating has been compromised.

Other areas where coating failure was present are as follows;

Image-14: Coating failures present the South East corner of the wastewater tank approximately 3' from the top ledge.

Image-15: Coating failures present the East shell wall of the wastewater tank at 20' from the North end.

Image-16: Coating failures present the East shell wall of the wastewater tank at 29'6"' from the North end.

Image-17: A close-up image of the typical coating failure present along the entirety of the top tank ledge. Coating failure may be due to weather expose as well as chemicals used in the treatment process.

Image-18: Coating failures present on the Upper East shell wall of the wastewater tank at 52' from the North end.

Ultrasonic Thickness Summary;

Ultrasonic testing was carried out at 9.0" & 15.0" from the upper tank ledge on the West and East tank shell, encompassing the wastewater level which was measured at approximately 11.0" down from the tank ledge.
Minor corrosion and pitting was found to be present on the internal shell surface above the water line with a low thickness noted to be 0.188". The pitting was also confirmed visually on the internal shell surfaces.
See Table – 1 & 2 of this report for the recorded thickness measurements in these locations.

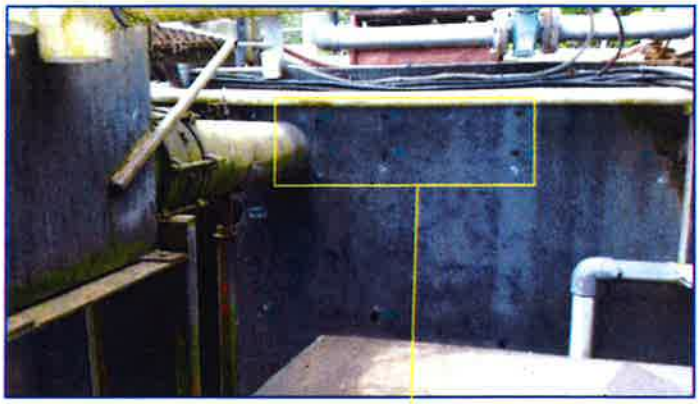

Image-19: An example view of how the location of the requested thickness measurement locations on the East and West tanks shells.

Image-20: Measuring the water level from the tank top. 11" was found to be approximate.

Ultrasonic thickness testing of the North and South tank shell was carried out on a 2' grid line including the readings above and below the water line (9.0" & 15.0" from the top of the tank). See Table – 3 & 4 for the recorded thickness measurements in these locations.

Image-21: View of the South end of the aeration tank. Note the thickness measurement locations.

Image-22: Overview of the North end of the aeration tank. Note the thickness measurement locations. The exposed area was approximately 12" W x 96" H.

Stasuk
Testing & Inspection

8955 Fraserwood Court, |
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Telephone: (604) 4
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www

Schooner Wastewater Aeration Tank Thickness Measurements (WEST)

	1'	3'	5'	7'	9'	11'	13'	15'	17'	19'	21'	23'	25'	27'	29'	31'	33'	35'	37'	39'	41'	43'	45'	47'	49'	51'	53'	55'	57'
9"	238	240	243	235	226	243	212	240	241	239	217	241	238	236	208	237	238	239	218	235	239	201	216	229	188	234	215	236	225
Wastewater Line																													
15"	233	237	236	243	233	242	237	239	239	239	240	241	236	235	240	239	241	243	240	240	241	241	239	242	239	240	241	236	237
2'																													
4'																							239			239			
6'																					243		239			243			
8'																					243		245			241			
10'																					237								

Table-1: Schooner Wastewater Aeration Tank Thickness Measurements (WEST); Measurements commence on end of the tank.

Schooner Wastewater Aeration Tank Thickness Measurements (WEST)

	62'	60'	58'	56'	54'	52'	51'	50'	48'	46'	44'	42'	40'	38'	36'	34'	32'	30'	29'	28'	26'	24'	22'	20'	18'	16'	14'	12'	10'	8'	6'
9"	200	213	211	217	214	188		213	237	211	211	221	205	222	234	227	239	228		217	223	229	232	238	215	237	209	219	230	248	228
	Wastewater Line																														
15"	246	242	242	241	242	241		241	242	241	239	241	241	239	241	241	242	242		242	245	241	241	241	241	240	240	239	242	238	239
2'							245																								
4'	243	243	245				239												241												
6'	238	239	247				241												241												
8'	237	242	242				243												242												
10'							237												226												

Table-2: Schooner Wastewater Aeration Tank Thickness Measurements (East); Measurements commence on t end of the tank.

	6"	2'	4'	6'	8'	9'6"
9"	246	245	249	237	226	198
Wastewater Line						
15"	243	246	247	247	247	245
2'	248	248	246	247	249	246
4'	247	247	247	247	248	244
6'	246	245	247	250	247	247
8'	245	246	246	249	245	247
10'	243	243	242	237	245	221

Table-3: The South End of the Aeration Tank (Facing North)

	6"	2'	4'	6'
9"	229	Fill	Fill	Fill
Wastewater Line				
15"	247	Fill	Fill	Fill
2'	247	Fill	Fill	Fill
4'	246	Fill	Fill	Fill
6'	247	Fill	Fill	Fill
8'	239	Fill	Fill	Fill
10'	Fill	Fill	Fill	Fill

Table-4: The North End of the Aeration (Facing South)

Making a difference...together

July 11, 2017

File: 0360-20
Magic Lake Estates Water and Sewer Committee

Magic Lake Estates Water and Sewer Committee

OPERATIONS REPORT

Water Operations Highlights:

- Hydrant #28, fronting 3772 Privateers repairs completed and returned to full operation.

Wastewater Operations Highlights:

- Operating Permit Regulatory Non-compliance reporting for June 2017:

Facility	# of Reports Issued for May	Total # of Reports Issued 2017	Cause
Schooner WWTP	0	11	UV failure (effluent disinfection system) as a result of power outages (typically).
Schooner Pump Station	0	1	Occurred in February during an extended power system outage. Raw sewage discharged into the marine environment.
Cannon WWTP	0	17	Exceeding maximum daily flows due to storm water entering through I&I.

- Preliminary electrical audit of key facilities conducted. Primary purpose of the audit is to determine the status of standby power at various sewage lift stations and treatment facilities.

Capital Improvement work:

Nothing to report.

Other key Operational Activities

The CRD was recently approached by "Moving Around Pender Alternative Transportation Society". The Society, which operates and maintains a community bus service on Pender Island, is looking for secure space to store their community bus and have asked the CRD to consider the possibility of using the Magic Lake Estates Water Treatment Facility property for bus storage.

The CRD has reviewed the information and has given serious consideration to the request but after discussion between our Pender Island Operations staff and Management we have concluded that there is not enough room to park this equipment at this site.

At present our operations group is fully utilizing the site for equipment and materials storage and project staging and laydown area along with the need for a turnaround area for larger delivery trucks. Additional to this, there is also a proposed plan for a chemical storage facility at this site which will also reduce the available space and for these reasons we will have to decline the request.

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