

April 5, 2018
File: 2017-8011

Daniel Bings
Environmental Protection Division
Ministry of Environment and Climate Change Strategy
Ste. 400 – 640 Borland St, Williams Lake BC V2G 4T1

Re: FORMAL REPORT - POLLUTION ABATEMENT ORDER 109192 (PE-4606)

Dear Mr. Bings:

Associated Environmental Consultants Inc. (Associated) has prepared this Formal Report on behalf of the Anmore Green Estates Strata Corporation LMS 3080 to update the Ministry of Environment and Climate Change Strategy on the recent and pending actions regarding Pollution Abatement Order 109192.

1 INTRODUCTION

Anmore Green Estates (AGE) is a 51-home community in Anmore, BC. AGE has a private community wastewater treatment system that consists of a treatment plant and two septic disposal fields (the wastewater system; Figure 1). The wastewater system is authorized under Ministry of Environment Permit PE-4606 (MWLAP, 2002). Portions of AGE's property boundary form the jurisdictional boundary between the Village of Anmore (Anmore) and the City of Port Moody (Port Moody) (Figure 1).

On November 23, 2017, the Ministry of Environment and Climate Change Strategy (ENV) issued a Pollution Abatement Order to the Anmore Green Estates Strata Corporation LMS 3080 (the AGE Strata) in response to septic effluent from the wastewater system daylighting on neighbouring properties (ENV 2017a, ENV 2017b). The properties where the daylighting occurs contain two schools and a park, all of which were constructed after the AGE development.

A detailed Engineering Assessment determined that the only way to permanently eliminate the risk of septic effluent daylighting in the school grounds is to connect AGE to a nearby municipal sewer connection that is less than 100 m away (Graham 2018). However, this solution is complicated by jurisdictional boundaries. The AGE development is in Anmore and the connection is in Port Moody. The sewer in the Port Moody pipe is treated by Greater Vancouver Sewerage and Drainage District (GVS&DD), of which Port Moody is a member but Anmore is not. Therefore, the connection of AGE to the nearby sewer line requires permission from, and cooperation among, Anmore, Port Moody, and GVS&DD. Significant effort has been made to gain the cooperation of these three groups, but to date, the efforts have not been successful (Section 3.2). Further information, including a referenced chronological history of events and details on past communications with the affected parties, is provided in the Action Plan (Associated 2018).



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— Property Boundary
AGE Property

PROJECT NO.: 2017-8011.000.000
DATE: January 2017
DRAWN BY: DA

0 30
m

FIGURE 1: PROPERTY OVERVIEW

Anmore Green Estates Ltd

Anmore Green Estates

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2 ABATEMENT ORDER REPORTING REQUIREMENTS

The Abatement Order requires that the AGE Strata produce an Action Plan, followed by a Formal Report. Because of the jurisdictional issues affecting this project, ENV understands that the options for resolving the contamination are not solely within the control of the AGE Strata. Therefore, at the direction of ENV, the content of the Action Plan included a history of the site and political positions, a summary of ENV's recent findings, a list of actions recently taken, and proposed pending actions (Associated 2018). The Action Plan was submitted to ENV on January 19, 2018. The proposed actions are summarized in Table 1.

Table 1: Table of actions proposed in the Action Plan

Goal	Actions
Impacted Zone Management	Maintain the fencing and signage until resolution is found, or if removal is ordered by SD 43 (this is a condition under the SD 43 Licence to Occupy).
Engagement	<p>Provide the Action Plan and detailed Engineering Assessment to Anmore, Port Moody, GVS&DD, and SD 43.</p> <p>Formally request meetings and offer presentations of technical information to Anmore, Port Moody, GVS&DD, and SD 43.</p> <p>Keep in regular communication with ENV, and respond to any further requests.</p>

The Action Plan was approved verbally by ENV on January 26, 2018¹. The approved actions were to be implemented by March 1, 2018. Because communications with the affected parties are slow, the March 1, 2018 deadline was extended by ENV.

This Formal Report is the second deliverable required under the Abatement Order, and its contents reflect direction provided by ENV during progress update meetings with Associated that were held on January 26, February 20, and March 23, 2018 (D. Bings, personal communication 2018). The Formal Report summarizes AGE Strata's recent and pending actions.

¹ Written approval was provided on February 28, 2018.

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3 RECENT ACTIONS

The actions taken by the AGE Strata since the Action Plan was submitted on January 19, 2018 are summarized below.

3.1 IMPACTED ZONE MANAGEMENT

When the Action Plan was submitted, the fencing and warning signs required by the Abatement Order were already in place. Since then, the fencing has been continuously vandalized, and all signage was stolen on two occasions. Signs issued by Government of British Columbia were installed on February 18, 2018. These signs remain in place, and fencing is maintained regularly (Photograph 1, Appendix A).

As required by the Permit, the wastewater system is operated by an Environmental Operators Certification Program (EOCP) certified operator. The Permit also requires the use of two septic disposal fields (eastern and western) be altered monthly. However, during the winter months, the certified operator observed excess flow from the cut banks and ponding on the western field. Therefore, the operator elected to discharge more often to the eastern field.

3.2 ENGAGEMENT

3.2.1 Affected Parties

The Action Plan and Engineering Assessment were distributed to SD 43, Anmore, Port Moody, and GVS&DD on January 22, 2018 with an offer to share all referenced documents. To date, the AGE Strata has not received any direct responses or information requests from the affected parties contacted.

Appendix B provides a summary of the responses of the affected parties, as presented in the Action Plan. We understand that a key jurisdictional issue is that GVS&DD will not allow the connection to their sewer system without Anmore becoming a member municipality, which Anmore is unwilling to do. Because of this, engagement with the affected parties has focused on finding a resolution with GVS&DD and Anmore. Recent communication with these two groups and their responses are summarized below:

- The 2017 GVS&DD's Implementation Guideline states that services are not provided to areas outside the GVS&DD boundary, except under certain named conditions. One of these named conditions is "that the connection to regional sewerage services is the only reasonable means of preventing or alleviating a public health or environmental contamination risk."
- On January 10, 2018, AGE Strata requested that the GVS&DD confirm if this condition will apply for their wastewater system. On February 28, 2018, GVS&DD responded that they will not engage directly with the AGE Strata, and that any solution needs to be between AGE and Anmore.
- All requests made by AGE Strata to Anmore staff for meetings have been denied. On March 13, 2018, Anmore staff reiterated their June 1, 2017, legal position that Anmore Council is concerned that their support of AGE's connection may be interpreted as a willingness to join the GVS&DD,

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which they are not prepared to do. We understand that because of this, Anmore staff are unwilling to meet with or discuss solutions with AGE Strata representatives.

3.2.2 Elected Officials and Regulatory Agencies

On March 13, 2018, the Parent Advisory Committee (PAC) for Eagle Mountain Middle School submitted a letter to the Honorable George Heyman, Minister of Environment and Climate Change Strategy, expressing their concern and expectation of “expediency in resolving the matter permanently and in ensuring that the risk of future contamination is averted” (EMM PAC 2018). On March 22, 2018, an AGE Strata representative (who is also affiliated with the SD 43 PAC) contacted Eagle Mountain Middle School PAC directly and offered to share information, and meet directly with the PAC.

AGE Strata has continued to request the input of multiple elected officials and regulatory authorities who are not directly involved in the issue, but have a potential interest from a public-risk perspective. A brief summary of communications with these groups is provided below.

- The Honorable Selina Robinson, Minister of Municipal Affairs and Housing, was contacted by AGE Strata on December 19, 2017. On January 19, 2018, Ms. Robinson concluded that she does not have the authority to intervene as the issue rests with the local governments and does not have a role in reviewing or reversing decisions made or actions taken by local governments. She recommended that AGE Strata continue to work with ENV, Fraser Health, and Anmore to find a solution.
- The Honorable Rick Glumac, Member of Legislative Assembly for Port Moody-Coquitlam, was contacted by AGE Strata on December 19, 2017. At a follow-up meeting with an AGE Strata representative, Mr. Glumac indicated that he would monitor the situation; however, he is not prepared to interject into local municipal issues. On February 27, 2018, AGE Strata requested another meeting with Mr. Glumac to update him on recent efforts and request his support in facilitating resolution. To date, there has been no response to the recent meeting request.
- AGE Strata has attempted to engage Fraser Health in finding resolution. To date, their response is that they cannot directly engage because the Permit is under the jurisdiction of ENV. All testing results and reports have been sent to Fraser Health to keep them informed, and offers to supply additional information have been made.

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4 PENDING ACTIONS

4.1 IMPACTED ZONE MANAGEMENT

Pending actions for impact zone management are provided below, and summarized in Section 5.

4.1.1 Fencing and Signs

AGE Strata will continue to maintain and replace the fencing and signs, as needed, which will stay in place until resolution is found, or the removal is ordered by SD 43².

4.1.2 Nutrient Testing

ENV has expressed concern that the septic effluent may be affecting nutrient levels in two nearby creeks: Turners Creek West and Wilkes Creek. Stormwater catch basins installed during the construction of the schools and park direct groundwater and surface flow into these creeks. In response to this concern, AGE Strata will implement a water monitoring program that includes nutrient testing from the stormwater catch basins and the two creeks.

The water monitoring program will include quarterly testing of onsite catch basins and Turners Creek West and Wilkes Creek for key nutrient parameters: ammonia-N, nitrate-N, nitrite-N, total Kjeldahl nitrogen (TKN), organic nitrogen, total nitrogen, total phosphorus, total dissolved phosphorus, and orthophosphate. Where possible, samples will be collected both upstream and downstream relative to the AGE wastewater system. Results will be compared with BC Aquatic Life Guidelines for the Protection of Aquatic Life (ENV 2018) and used to assess the potential impacts to the nearby surface water bodies. The first round of testing is planned for April 2018, and the results will be presented as part of the next formal deliverable, due to ENV by July 1, 2018.

To determine the specific sampling locations for monitoring, AGE Strata will request the design of the installed stormwater catch basins from SD 43.

4.1.3 Dye Test (Optional)

Although ENV has concluded that the results from previous sampling done in response to the Abatement Order has exceeded the balance of probability that septic effluent is daylighting in the school grounds, and that there is a risk to human health, the likelihood of this health risk has not been perceived by all affected parties. Testing to date indicates that septic breakout occurs regularly but not continuously, and is affected by seasonal changes in surface and groundwater flows. Therefore, there is little conclusive information regarding the precise locations of breakout and travel time of effluent to the downstream environment. If

²Permission for maintaining the fencing and signage is subject a SD 43 License to Occupy agreement that was issued December 22, 2017, and is valid for a six-month period. Removal at SD 43 discretion is a condition of the License.

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further evidence is required by ENV or the affected parties, we recommend completing a dye tracer test. The overall principle behind a tracer test is to inject dye into the source (i.e., wastewater effluent) and monitor the receiving environment to determine where (and at what concentration) the tracer appears.

The general proposed methodology for this optional dye test consists of injecting Rhodamine WT (Rhodamine) as the dye tracer into the effluent chamber at the wastewater treatment facility. Hand-augured monitoring wells, onsite catch basins, and the nearby creeks (Wilkes Creek and Turner Creek West) would then be monitored to determine whether (and where) the Rhodamine arrives, and if so, at what concentration. Due to uncertainty in the sorption of the tracer dye to soils as well as the groundwater travel time at the AGE site, the test would begin with a lower concentration of injected dye. If Rhodamine is not measured within approximately the first week after the initial injection, a second dye injection will be completed at a higher concentration. There is the potential that the florescent dye could express from seepages for an extended period of time; therefore, this staged injection process is recommended to minimize the potential visual effects of surfacing dye in the populated downstream environments.

If ENV or the affected parties would like to pursue this option, AGE Strata can provide a detailed work plan for the dye test. To complete that work plan, AGE Strata will require the design of the installed stormwater catch basins from SD 43 to select the precise monitoring locations. The AGE Strata would also like to submit the formal plan to Fraser Health, for their review. The test should be run when the groundwater table is high; therefore, if proceeding, we suggest the test occur in October/November 2018 to optimize test results.

4.2 ENGAGEMENT

Pending actions for continued engagement are explain below, and summarized in Section 5.

4.2.1 Affected Parties

Delegation requests will be made to Anmore, Port Moody, and SD 43, and the school PACs to address any technical questions or concerns they may have, to present the option of the dye test, and to continue the efforts to find an amicable resolution. The requests for delegations will be made by April 30, 2018.

4.2.2 Elected Officials and Regulatory Agencies

As expressed to ENV on March 14, 2018, AGE Strata is in full support of the Eagle Mountain Middle School PAC's letter to Mr. Heyman (Minister of Environment and Climate Change Strategy). The offer made by AGE Strata (March 22, 2018) to present directly to the PACs will be followed up to address the direct concerns of the PAC, and support their request to the Minister.

AGE Strata's offer to share information or to engage directly with any elected officials or regulating agencies remains open.

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5 SUMMARY AND TIMELINES

Below is a summary of the pending actions, and their applicable implementation dates.

Table 2: Summary and Timeline of Pending Actions

Timeline	Action
Immediate	Provide this deliverable to Anmore, Port Moody, and SD 43, and GVS&DD. Request designs of the installed stormwater catch basins from SD 43.
By April 30, 2018	Implement nutrient water quality testing program. Formally request meetings and offer presentations of technical information and options for proceeding to Anmore, Port Moody, and SD 43, and the school PACs.
Continuing Efforts	Maintain the fencing and signage until resolution is found, or if removal is ordered by SD 43 ³ . Keep in regular communication with ENV, and respond to any further requests. Respond to inquiries from any elected officials or governing bodies.

We trust that the information provided herein will fulfill the requirements of the second deliverable required by the Pollution Abatement Order. Any of the referenced documents can be provided upon request. The next formal deliverable will be provided to ENV on or before July 1, 2018.

Please feel free to contact the undersigned if you have any questions.

Yours truly,

Fawn Ross, R.P.Bio
Environmental Scientist

Attachments:

Appendix A: Site Photographs

Appendix B: Summary of Positions of Affected Parties (as presented in the Action Plan)

³ This is a condition under the SD 43 Licence to Occupy

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References

- Associated Environmental Consultants Inc. (Associated). 2018. Action Plan for Pollution Abatement Order (PE-4606).
- British Columbia Ministry of Environment and Climate Change Strategy (ENV). 2017a. Inspection Details: Report Number: 071030, file: 4606.
- British Columbia Ministry of Environment and Climate Change Strategy (ENV). 2017b. Pollution Abatement Order File: 04606.
- British Columbia Ministry of Environment and Climate Change Strategy (ENV). 2018. D. Bings, personal communication during telephone calls with Fawn Ross (Associated) on January 26, February 20, and March 23, 2018.
- British Columbia Ministry of Environment and Climate Change Strategy (ENV). 2018. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture Summary Report. Ministry of Environment, Water Protection and Sustainability Branch. March 2018. Available at: https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/waterquality/wqgs-wqos/approved-wqgs/wqg_summary_aquaticlife_wildlife_agri.pdf
- British Columbia Ministry of Water Lands and Air Protection (MWLAP). 2002. Permit PE-04606, in: Province of British Columbia (Ed.), PE-4606.
- Eagle Mountain Middle School Parent Advisory Committee (EMM PAC). 2018 Letter to Honourable George Heyman Minister of Environment and Climate Change Strategy.
- S. Graham Engineering and Geology Inc. (Graham). 2018. Assessment of the ability to repair or replace the septic treatment plant effluent disposal fields at Anmore Green Estates, Anmore, BC.

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**APPENDIX A:
PHOTOGRAPH OF FENCING/SIGNAGE**



Photograph 1: Provincially designed signs installed on February 18, 2018



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**APPENDIX B:
SUMMARY OF RESPONSES FROM AFFECTED PARTIES (AS PRESENTED IN THE ACTION PLAN)**

Affected Party	Response
AGE	The AGE Strata supports the connection. They have offered to facilitate it by paying GVS&DD for the connection, and the 20% premium for services as is paid by Eagle Mountain Middle School to GVS&DD.
Port Moody	<p>Port Moody is in support of the connection, and has offered two options to facilitate the AGE connection:</p> <ul style="list-style-type: none">• Anmore joins GVS&DD, and AGE connects to Port Moody via a servicing agreement; or• Anmore does not join GVS&DD, and the boundary line between Port Moody and Anmore is adjusted so that AGE is part of Port Moody.
GVS&DD	GVS&DD stated they would support the connection if Anmore became a member of GVS&DD, and if the request for the AGE connection came directly from Anmore. The GVS&DD policy group is currently reviewing whether the Pollution Abatement Order qualifies as an exception under the GVS&DD's Implementation Guideline.
Anmore	Anmore has expressed no interest in joining the GVS&DD or adjusting the municipal boundary between Anmore and Port Moody, and will not support or facilitate the AGE connection.
SD43	SD 43 has indicated that they support a long-term solution to the problem; however, they are prohibited from allowing a direct connection. SD 43 actions to date have not demonstrated a willingness to facilitate a solution.