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August 15th, 2014

Ms. Heather Rasmussen
Monitoring Officer
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, Nunavut X0B 0C0
(867) 983-4606

Re: NIRB 03MN107: Comments Received for Agnico Eagle Mines Ltd.'s "Meadowbank Gold Project 2013 Annual Report

Dear Ms. Rasmussen,

The following information is provided in response to comments and recommendations made by Government of Nunavut, Aboriginal Affairs and Northern Development Canada, Environment Canada, Fisheries and Oceans Canada, Health Canada and Transport Canada June 9th, 2014, regarding the Meadowbank Gold Project 2013 Annual Report.

Should you have any questions or require further information, please contact Stephane Robert, Ryan Vanengen or Marie-Pier Marcil at marie-pier.marcil@agnicoeagle.com.

Regards,

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Transport Canada (TC) Comments and Recommendations

1- **Appendix E1 Hazardous Waste Shipping Manifest Movement Document;**
The proponent is reminded of the requirements of the Transportation of Dangerous Goods (TDG) Regulations Part 3 Documentation. The information displayed on the Hazardous Waste Shipping Manifest Movement Documents does not comply with all the requirements of Part 3 of the TDG Regulations. TC TDG Prairie Northern Region will contact AEM to give recommendations for addressing the non-compliances.

In addition to hiring a qualified hazardous waste disposal contractor, AEM and our contractors transporting goods from Baker Lake to Meadowbank have undergone training in TDG in 2014. We look forward to having a discussion with TC TDG Prairie Northern Region and welcome feedback to ensure compliance with Part 3 of TDG Regulation for the next barge season.

2- **Appendix F1 Report: GN Spill Reports;**
The proponent is reminded of the requirements of the TDG Regulations Part 8 Accidental Release and Imminent Accidental Release Report Requirements. A 30 day follow-up report is required by Transport Canada for the quantities of dangerous goods displayed in the table in Section 8.1 of the TDG Regulations. TC TDG Prairie Northern Region will contact AEM to obtain more information regarding the dangerous goods spills and give recommendations, if required, for their course of action.

AEM looks forward to discussions with TC TDG Prairie Northern Region to get recommendation and ensure compliance with Part 8 of the TDG Regulation.

Environment Canada Comments and Recommendations

1- **EC recommends that there be ongoing follow-up monitoring of Lake NP-2. Following on the seepage issue described in Appendix G3 of the Report, it would be appropriate to conduct a water quality and biological survey in 2014 of Lake NP2 to evaluate the fish population status.**

As in 2013, AEM will continue to monitor water quality in Lake NP-2. Furthermore, AEM has committed to conduct monthly open water sampling in downstream waterbodies NP-1, Dogleg and Second Portage Lake. Additionally, we have added CN analysis to the CREMP monitoring. During the winter period, AEM conducted weekly inspections of the area and when safe to do so, took samples in NP-2. As soon as the freshet began, AEM conducted daily visual inspections and take bi-weekly sampling using the onsite laboratory (not accredited) for CN WAD analysis at ST-16 and in the nearshore areas of NP2. Given the proactive mitigation of building a cut-off in 2013, continuous monitoring and pumping of sump ST-16, freshet action plan inspections and water quality results of 2013 and 2014, no follow-up field biological surveys will be completed in NP2 in 2014, rather follow-up laboratory toxicity testing will confirm the results of 2013. AEM has reviewed the baseline fish population data which provides species assemblages and presence/absence data, but will not provide a reference to evaluate "fish population status" at NP2 (i.e. the data does not have high repeatability and was not collected in support of population estimates using CPUE). In consultation with EC, depending on our water quality findings and toxicological laboratory testing, AEM will conduct additional biological surveys in 2015 as needed.

2- EC notes that Appendix A of the Report: 2013 Core Receiving Environment Monitoring Program, which lists thresholds and trigger values does not include one for cyanide. This parameter should be added to routine analyses in exposure and reference lakes, as well as have a trigger level developed.

AEM has added Total and Free Cyanide analyse to the CREMP in 2014 and will develop appropriate trigger levels based on applicable threshold limits.

3- With respect to groundwater, the monitoring program has been limited by the success of well installations. Use of brine has confounded the total dissolved solids (TDS) analyses, so EC is substantially limited to information on metals. Well MW-11-02 (tailings facility) will be replaced this year, and is proposed to be sited along the west margin of the Portage Attenuation Pond. EC concurs with the plans to address well failure.

AEM acknowledges ECs comments.

4- Concerning Table 4.2 of the Report:
EC requests that the Proponent please clarify how parameters are being expressed. In the Third Portage Pit table, is "ammonia" in mg N/L intended to refer to the NH3 fraction, and the "ammonia nitrogen" in mg N/L referring to the total ammonia? This seems to be the case from the magnitudes of the values but as the NH3 fraction would be determined by pH and temperature this doesn't make sense.

Ammonia refers to NH3 in mg N/L and ammonia-nitrogen refers to total ammonia (NH3-NH4) in mg N/L. These analyses are performed by an accredited laboratory and pH/temperature are taken into account when the analysis is performed. In Table 4.2, results presented for ammonia and ammonia-nitrogen are an average, therefore AEM does not think applying the CCME table with pH and temperature to find the portion of the NH3 fraction is a valid approach.

Are metal values expressed as total metals? Modeling was done using dissolved metals, while lab measurements typically are of total metals, so the values used would affect comparability.

Yes, metal values in Table 4.2 of the 2013 Annual report are expressed as total metals. This was a clerical error by AEM, as we used the total metal values instead of dissolved metal values. We appreciate the thoroughness of ECs review. Overall, the conclusions in this section of the report and the explanation expressed in Section 4.4 of the 2013 Annual Report remain the same. AEM will take care next year to use dissolved metals when conducting this comparison.

5- As above, concerning Table 8.6 of the Report, are metals concentrations for total or dissolved metals?

Metal concentration for Saddle Dam 1 Seepage (ST-S-2) in Table 8.6 are expressed as total metal as requested by NWB Water License for seepage.

6- Table 8.10 shows a drop in cyanide concentrations in the tailings reclamation pond water of 4 orders of magnitude between June and July – how is this accounted for?

Cyanide concentration in the tailings pond had decreased significantly between June and July 2013 due to the optimisation of the cyanide destruction system, the freshet water volume inflow into the TSF (which caused significant dilution) and mainly due to the increase of UV destruction of CN as ice cover thawed and daylight hours were at their maximum. This trend has been observed in previous years as the concentrations of cyanide will increase once the freshet period is done and the daylight decreases. As an example, in July 2013, CN concentration was 0.01 mg/L and at the end of December 2013 CN concentration had increased to 3.99 mg/L.

Government of Nunavut Comments and Recommendations

Appendix G17: 2013 Wildlife Monitoring Summary Report

1- Caribou Sensory Disturbance (Section 6.7)

The Proponent has indicated that mine activities have not lead to sensory disturbance of caribou. The following threshold was set (TEMP Ref. 4.4.2.2):

> ***Mine-related construction and operation activities will not preclude Caribou and Muskoxen from using suitable habitats beyond 500 m of mine buildings, facilities and roads*.**

The Proponent indicated that this threshold was not exceeded; however, the presence of caribou within 500 m of mine operations does not indicate wildlife are not subject to noise disturbance. Although caribou have been observed in the Local Study Area (LSA), the collaring results provide evidence of caribou entering the Regional Study Area (RSA) and diverting their route away from mine operations (Figure 9.10). Caribou may be affected by noise disturbance over distances greater than 500 m. In addition, impacts are not limited to exclusion from suitable habitat, but can also be related to wildlife health (e.g. increased energy expenditure) or behaviour. Further investigation is warranted on disturbance caused by mine operations. The GN recommends the Proponent revise the above threshold to examine noise disturbance on a broader scale.

It is important to note that the noise target is based on a recommendation made by Environment Canada's "Environmental Code of Practice for Metal Mines" (2009):

> *"In residential areas adjacent to mine sites, the equilibrium sound pressure level (Leq) from mining activities should not exceed 55 dBA during the day and 45 dBA at night. Ambient noise can also affect wildlife, so sites in remote locations should also work to meet these objectives for off-site ambient noise levels."*

In 2013, no Leq values exceeded target sound levels of 55 dBA (daytime) and 45 dBA (nighttime), so we can assumed that mine activities, based on the target, do not preclude Caribou from using suitable habitat near the mine site. AEM looks forward to discussing this recommendation with the GN Wildlife Biologist and together we will determine the best approach to document if the caribou are affected by noise disturbance on a broader scale caused by the mine activities.

2- Wildlife Mortality (Section 7.6.3)

The Proponent indicated that five caribou were killed in 2013 following a collision with a grader on the all-weather access road (AWAR). The accident occurred under poor visibility conditions due to fog. This exceeds the Proponent's following threshold (TEMP Ref. 4.4.2.3):

> ***Caribou and Muskoxen will not be killed or injured by vehicle collisions. Threshold level of mortality is one individual per year.***

The Proponent has indicated that protocols have been developed to minimize the risk of future vehicle-related mortalities due to poor visibility. The GN requests the Proponent provide further information on new mitigation measures.

This incident resulted in a thorough investigation with the driver to identify the factors contributing to the cause of the accident (which was mainly due to poor visibility and the fault of the driver). The seriousness of this accident and the subsequent investigation has reminded all drivers on the road that wildlife have the right of way at all times. AEM continues to take steps to advise all drivers on the road to use extra caution during adverse conditions and to remind drivers to further reduce speeds if the weather or visibility deteriorates. In addition to weekly monitoring by trained wildlife observers from Baker Lake and incidental reporting of wildlife by road operators, new mitigative measures include working closely with the GN wildlife EIS technicians who provide real-time telemetry data on approaching caribou. This has allowed AEM to send proactive reminders and notices to all AEM and contractors in advance of large herds migrating near the road. Furthermore, between October and December, during the main caribou migration, AEM increases AWPAR wildlife surveys from weekly to biweekly or sometimes three times weekly. In combination with in-field monitoring and telemetry data, AEM environment and the security department take all efforts to avoid any caribou collisions. Frequent use of convoys or road closures during peak migrations has also been implemented as a mitigation.

3- Hunter Harvest Study (Section 8.5)

The following threshold was set by the Proponent to measure impacts of the AWAR on caribou hunting activities (TEMP Ref. 4.4.2.3):

> ***The AWAR will not result in significant changes in the spatial distribution, seasonal pattern, or harvest levels of caribou kills by Baker Lake hunters. Changes will not exceed 20% of current harvest activities correlated to use by the road.***

The Proponent has compared 2013 caribou harvest levels within 5 km of the AWAR to harvests levels prior to road construction with data from the Nunavut Wildlife Harvest Study. The percentage of harvests recorded within 5 km of the AWAR has more than doubled (18% to 48%, Table 8.2) since road construction. This exceeds threshold levels set by the Proponent and warrants further mitigation measures.

Results from the 2013 Hunter Harvest Study illustrate that caribou harvests were centered along the AWAR, extending further than 5 km from the road (Figure 8.4). An area extending as far as 15 km from the road seems more descriptive of the current harvest activities. As such, the GN recommends the Proponent examine harvest

levels within 15 km of the AWAR. It is anticipated that the impact of the AWAR on harvest activities will be better demonstrated at this scale.

The 5 km corridor was established in collaboration with GN wildlife biologists during the 2005 NIRB EIS and was based on the available data and literature at that time. AEM will discuss changing the width with GN wildlife biologists, as AEM is concerned that this may compromise the comparison of future data to historical data.

The Proponent has indicated that the increased harvest along the AWAR will be discussed with the Baker Lake HTO and that hunters would be reminded of the no shooting zone around the AWAR. The GN requests clarification on the extent of the no shooting zone from the AWAR and its suitability for mitigating impacts on hunting activities centered along the AWAR. The Proponent has also indicated that further monitoring and communication with the Baker Lake HTO and the GN will be required to evaluate management and mitigation decisions. The GN welcomes discussions on implementing further mitigation measures.

AEM agrees with the GN and will work with the GN and HTO to discuss the implementation of further mitigation measures along the AWPAR.

4- Caribou Satellite-Collaring Program (Section 9.6)
The Proponent indicated that two collared caribou were located in the Local Study Area (LSA) and the Regional Study Area (RSA) during calving season (Figure 9.2). The GN recommends further mitigation measures be developed to minimize impacts to caribou during this critical period.

AEM will discuss and work with the GN Wildlife Biologist to determine the best strategy in the future.

5- Appendix G19: Report: Archaeological Impact Assessment Meadowbank Exploration:
With reference to Appendix G19: Report: Archaeological Impact Assessment Agnico Eagle Meadowbank 2013 Exploration Studies, an archeological impact assessment study was conducted in 2013. The final report was submitted to CH on March 31, 2014. While CH considers that the proponent has complied with the requirements set out by our department, geo-spatial clarification is required with regards to the additional surveyed areas to the north, west and east of the Priority Areas (Areas 1 and 2).

<u>Context of information request:</u>
The goals of the Exploration Studies were:

1) **Inspection of five proposed drilling locations in Priority Areas (Areas 1 and 2); and**
2) **Additional assessment of areas with moderate to high archaeological potential within the Priority Areas (Areas 1 and 2).**

As stated in Appendix G9:

"the assessment of these Priority Areas was expanded to include additional areas to the north, west and east". Section 5.2 p. 5-5.

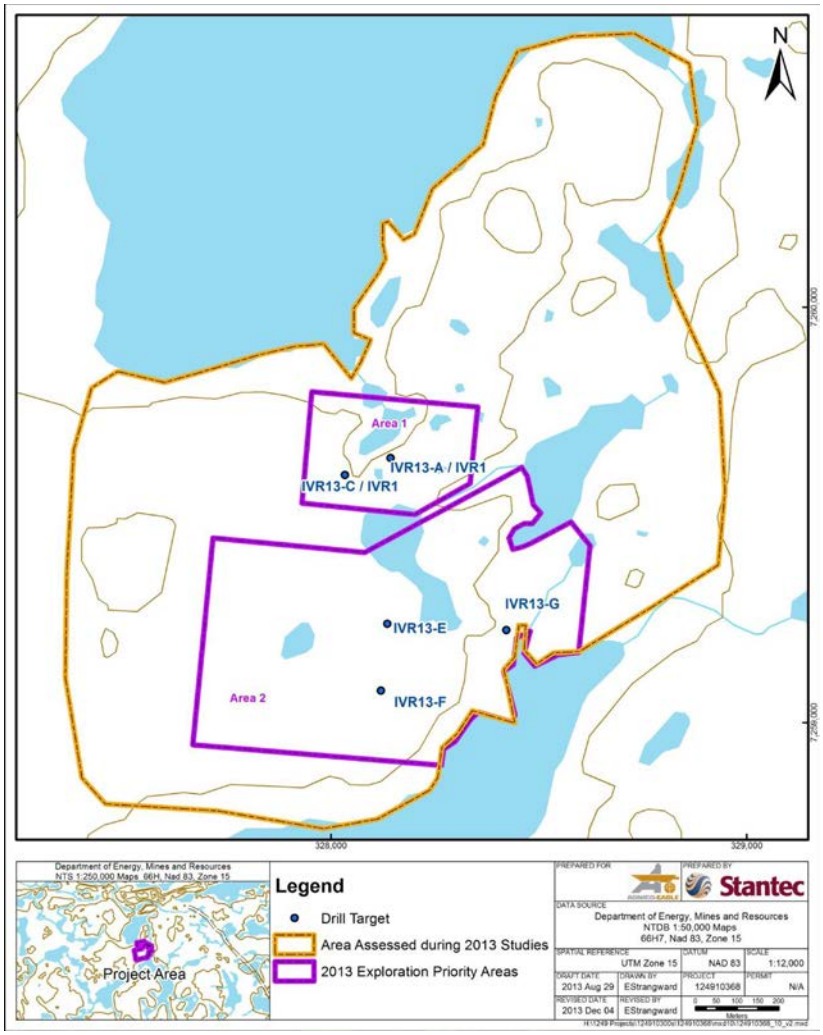
To confirm the department's approval of the report, can the Proponent confirm that the latter areas are included (shown) in Figure 1-3 and that they are contained within

the boundaries of Areas 1 and 2 as shown? If not please provide an adequate explanation as to why they were excluded.

The Priority Areas (purple boundary – Areas 1 & 2) were created and examined for archaeological sites mainly because the five drill locations (blue dot) are within these Priority Areas. As more time was available to the field, AEM archaeologists extended this area to ensure the terrain surrounding the Priority Areas was also evaluated to prevent any future disruption (illustrated on Figure 1-3). These areas are within the orange boundary in the Figure below. The locations of these additional terrains are:

- *To the north of Priority Area 1;*
- *The area to the west of Priority Areas 1 and 2; and*
- *Area extending east of the Priority Areas.*

In summary, all the terrain within the "Areas Assessed during 2013 studies" (orange boundary) were visited and inspected for archaeological sites. This included the five proposed drill locations (blue dots) and the assessment of the exploration Priority Areas (purple boundary). No archaeological sites were identified.



6. **Kivalliq SEMC and Meadowbank Socio-Economic Monitoring Program**
   The GN understands that AEM will establish a Meadowbank socio-economic monitoring program, as outlined in the Terms of Reference submitted by AEM to the NIRB on June 29, 2007 to satisfy Term and Condition #64 of the Meadowbank Gold Project Certificate. Since 2010, the GN has been in continuous communication with AEM to discuss the establishment of a project-specific monitoring program. Without a finalized Meadowbank socio-economic monitoring program, the Kivalliq SEMC reports do not include comprehensive project-specific data that monitor the Meadowbank FEIS predictions. Accordingly, the report should not qualify as the submission of monitoring results for the Meadowbank socio-economic monitoring program, as indicated on page 95 of the Meadowbank annual report. It is the view of the GN, however, that with the establishment of a project-specific monitoring program, the Kivalliq SEMC reports could become an acceptable channel to report monitoring results if desired. The GN expects to continue communication with AEM, and contribute to the development of the monitoring program that will satisfy Term and Condition #64.

   AEM acknowledges the GN's comments and looks forward to developing the monitoring program that will satisfy NIRB Condition #64.

Health Canada Comments and Recommendations

AEM acknowledges Health Canada's comments.

AANDC Comments and Recommendations

1. **In Section 12 of the Meadowbank 2013 Annual Report relating to the evaluation of impact predictions, there are several tables that speak to each of the valued ecosystem components and associated potential impacts and monitoring. While AANDC finds this format and data useful, in many cases it is unclear how observed impacts may relate to predictions. For example, many previously identified potential impacts are evaluated currently as either 'no observed impacts' or 'no exceedance of license limits', however, that does not speak directly to how they compare to FEIS predicted values. It would facilitate the review if there was a column that directly compared the predicted to the measured values. In each case where actual values have exceeded predictions (and in appropriate cases where they are rapidly approaching predictions), there should be a description of any steps taken and rationale provided for those steps. It is recognized that in many cases much of this information exists elsewhere, however, adding a detailed reference in these tables would provide for a much more effective review of the material.**

   As noted by AANDC, in all cases a detailed description of steps taken are provided in other sections of the annual report. AEM followed the objectives of the Project Certificate Appendix D and believes the intention of PEAMP is as a high level overview. AEM takes note of AANDC's recommendations and will discuss ways to improve the presentation of information with AANDC, without creating redundancy in the annual report.

2. **In the tables described above, AEM lists both proposed monitoring and applicable monitoring. While this is a useful comparison, there is no description or rationale provided where the applicable monitoring in 2013 is different than the FEIS proposed monitoring. This rationale should be provided so that reviewers may determine if the current monitoring, if different than proposed, is appropriate.**

   This request is not one of the objectives of the PEAMP outlined in the NIRB project certificate Appendix D. Furthermore, the FEIS plans were reviewed by agencies during the EIS process and as stated in many of the original FEIS supporting documents, monitoring plan development and execution are an iterative process. AEM has worked with applicable agencies and reviewers to develop monitoring plans that reflect changes to the mine planning and meet the conditions of our authorizations, licenses and permits. As an example, as a condition of the Type A water license, monitoring plans are submitted to the NWB prior to approval. These plans are reviewed annually by AEM, revised as needed and recommendations of reviewers are integrated into the plans prior to final approval by the NWB. Ultimately the reviewer will make recommendations and AEM will make adjustments to ensure the plans meet the conditions of the NWB Type A license.

3. **In table 12.3, AEM states '…poor water quality observed in nearshore areas of NP-2, however no observed impacts.' Given that water quality itself is a valued ecosystemic component, it is unclear how poor water quality was observed and yet there are no observed impacts. AANDC recommends that AEM further explain this impact determination.**

   This statement reflects the fact that during the July inspection AANDC inspectors and AEM personnel observed water quality changes (described in the text as "poor water quality") in the nearshore area of NP-2 adjacent to ST-16. Later it was determined that this "poor water quality" was due to seepage from the waste rock pile that seeped through the road into NP-2. However, the magnitude and duration of this water quality change was not significant and there are no known impacts to the receiving environment. Aside from WQ, no other impacts were observed; this is why the statement "there are no observed impacts" was made. The text was written to reflect that AEM acknowledged the occurrence and for transparency, AEM reported it in Table 12.3 VECs evaluation as per Appendix D objectives.

4. **In table 12.3, monitoring proposed for tailings contamination of groundwater through taliks is to monitor permafrost development in the underlying talik. However, the described applicable monitoring in 2013 does not seem to include monitoring of the talik. AANDC recommends that AEM describe how current monitoring is sufficient to capture potential contaminants flowing through the underlying talik into groundwater, where permafrost has not yet fully developed.**

   Monitoring of the freezeback of the talik includes thermistor and groundwater monitoring data collection to ensure that no groundwater is contaminated by tailings through the talik. To monitor the permafrost aggradation and talik beneath Second Portage Lake, AEM installed a thermistor (T90-2) in the North Cell tailings and a single deep thermistor (T147-1) at the downstream toe of Stormwater Dike in 2012. The thermistor T147-1 is being utilized to monitor the freeze back of the talik, and in the future will be used to monitor the thermal regime beneath the tailings in the South Cell. Overall, thermistor T147-1 shows the existence of a frozen crust of material from El. 120 m to El. 115 m that stayed frozen during the summer of 2013. Below El. 115 m, the temperature varied between 0.8°C and 0.1°C from the beginning of March 2013 to the end of August 2013 indicating a slow cooling of the

near surface talik. Thermistor T90-2 is installed within the talik of the former lakebed inside the North Cell of the TSF. Temperatures below 0 degrees Celsius were recorded in 2013 which seems to indicate that the tailings are continually frozen at this location. Please refer to Section 5.3.3 of the Annual report for a complete review of the thermistor monitoring in 2013.

All the results from thermistors installed in the periphery of the tailings storage facility have provided an indication of the permafrost aggradation in the former lakebed of SPL. In conjunction with the ground water monitoring data taken from the wells and wall seepage, thermistor data provides a very good indication that tailings are not impacting groundwater quality through the talik.

5. **Table 12.6 shows that vehicle collisions with caribou have exceeded the threshold. AANDC recommends that AEM clarify if there are further measures being put into place in 2014 to reduce collisions.**

   As previously stated under GN annual report comments, this incident resulted in a thorough investigation with the driver to identify the factors contributing to the cause of the accident (which was mainly due to poor visibility and driver error). The seriousness of this accident and the subsequent investigation has reminded all drivers on the road that wildlife have the right of way. AEM continues to take steps to advise all drivers on the road to use extra caution during adverse conditions and to remind drivers to further reduce speeds if the weather deteriorates. In addition to weekly monitoring by trained wildlife observers from Baker Lake and incidental reporting of wildlife by road operators, the environmental department is working closely with the GN wildlife EIS technicians who provide real-time telemetry data on approaching caribou, which allows AEM to send proactive reminders and notices to all AEM and contractors in advance of large herds migrating near the road. Furthermore, between October and December, during the main caribou migration, AEM increases AWAR wildlife surveys from weekly to biweekly or sometimes three times weekly. In combination with in-field monitoring and telemetry data AEM environment and the security department take all efforts to remind travellers, thus avoiding any caribou collisions. If high numbers of caribou are using the road, convoys or road closures are organized during these peak migrations.

6. **With regards to socio-economic Terms and Conditions #63 and #64, AANDC has worked with AEM and the Government of Nunavut (GN) on the regional Kivalliq Socio-Economic Monitoring Committee (SEMC). AANDC has also had considerable collaborative discussion with the GN and AEM regarding a Meadowbank socio-economic monitoring program. This program has yet to be finalized, but is anticipated to include monitoring of FEIS predictions as well as other socio-economic indicators of importance to the SEMC.**

   The most recent Kivalliq SEMC report provided regional socio-economic trend information, as well as discussions pertaining to how resource development initiatives have impacted the Kivalliq region. While the report does include a number of socio-economic indicators provided by AEM during the most recent Kivalliq SEMC, it is the view of AANDC that this report does not yet fully meet the requirements of Term and Condition 64 with regards to a Meadowbank specific socio-economic monitoring program.

AANDC anticipates continued collaboration with AEM and the GN in working towards a Meadowbank socio-economic monitoring program to satisfy Term and Condition #64.

AEM acknowledges AANDC's comments and looks forward to collaborating with AANDC and the GN to develop the monitoring program that will satisfy NIRB Condition #64.

DFO Comments and Recommendations

1. **Authorization NU-03-0190 AWPAR / 5.3 Photographic Record every other years: Not completed – No photographic records provide in 2013. AEM please clarify why this was not completed.**

   Thank you for bringing this to our attention as this was an oversight in our reporting. Typically the annual report includes photo documentation of the monitoring and all future reports will include them. Below you will find pictures of the R02 AWAR compensation features taken in summer 2013 with larval drift traps in the foreground.

2. **Authorization NU-08-0013 Western Channel Crossing / Monitoring of habitat shoal 2013, 2015, 2020 via annual report March 31.**

   Not completed - Monitoring of Western Channel Crossing to be included in Habitat Compensation Monitoring Reporting along with Authorizations NU-03-0191.3 and .4. DFO could not locate mention of Western Channel Crossing Monitoring in the Annual Report. AEM Please clarify.

   As previously discussed by DFO and AEM, and further agreed upon during our teleconference on June 19, 2014, as of 2012, the Western Channel Crossing authorization is not valid as it is incorporated into NU-03.0191.3 (as it was consumed by mining operations in the Portage Pit in 2011 and accounted for in the revised NNLP). Therefore, no monitoring was completed. For clarification, the Western Channel Crossing is not related to the Vault Authorization NU-03-191.4.

3. **Authorization NU-03-0191.3 Portage Pit and Bay-Goose Pit, Dewatering of 2nd and 3rd Portage Lakes / 3.1 Annual Monitoring due March 31.**

   As per p.3 and p.4 of AEM's Habitat Compensation Monitoring Report 2013, AEM did not conduct monitoring in support of Authorization NU-03-0191.3; "*the only monitoring conducted in 2013 was for the AWAR compensation feature.*"

   As per authorization NU 03-0190, AEM will monitor the habitat compensation features along the AWPAR every other year (as stated in the HCMP Version 3) and for authorizations NU 03-0191.3 and NU-03-0191.4, fisheries monitoring will follow the schedule of the original habitat compensation monitoring as outlined in Table 1-5 in the Final Habitat Compensation Monitoring Plan (HCMP Version 3) and discussed in the subsequent responses.

   As discussed with DFO on June 19, 2014 teleconference, there was no monitoring scheduled for 2015 as per the final HCMP Version 2 submitted on June 6th, 2013 to comply with Condition 6.3 NU 03-0191.3 and NU 03-0191.4. AEM submitted the HCMP version 2 which included changes to the monitoring frequency, following discussions with DFO in 2012 and a meeting with DFO on February 19, 2013 in Ottawa; at this time AEM believed that DFO was amenable to these updates. The plan was submitted by AEM in June, reviewed by DFO and NIRB in the months following. By the time we had feedback, the field season had passed and changes in the Fisheries Act were rolled out. In December 2013, DFO advised AEM that the changes in monitoring frequency would prompt a complete review of the authorization under the new act and would likely require AEM to overhaul the Meadowbank NNLP, which was just revised and accepted by DFO in 2012. As a result, AEM withdrew the request and re-revised the HCMP to align with the original monitoring schedule and submitted the HCMP, Version 3 on March 20, 2014. As per follow-up conversations with DFO, it is AEM's intention to remain in compliance with the conditions of the DFO authorizations and therefore AEM will conduct the next round of fisheries monitoring according to the HCMP Version 3.

   Condition 2 of Authorization re: mitigation measures – AEM, please clarify whether any construction took place in 2013 to which the mitigation measures apply.

   No construction took place in 2013 related to Authorization NU-03-191.3.

As DFO understands according to the Nov 2013 NNLP Construction Schedule, in basin habitat improvements are to be constructed ongoing until reflooding – AEM, please clarify as to why this was not yet initiated?

All of the in basin habitat improvements (i.e. boulder garden platforms, roads and caps) were completed ahead of schedule in 2012. No new in basin construction was completed in 2013 as much of the focus of habitat construction was in the backfilling of the Portage central pit. In the future, AEM will improve the clarity in reporting of constructed features as requested by DFO.

DFO notes that AEM exceeded the blast limit on 12 occasions for lakes near the mine during egg incubation period.

AEM notes DFO's comments. Of the 12 exceedances during eggs incubation, 4 were in Vault, 1 in Portage Pit South and 7 in Goose Pit. The 4 exceedances in Vault occur in winter from November to December 2013 when Vault Lake was dewatered and fishout completed, so the exceedance did not have any impact on the egg incubation. The other exceedances at Goose Pit and Portage Pit South station were close to the 13mm/s and are not expected to cause any effects based on Faulkner et al. (2006).

4. **Authorization NU-03-0191.4 Vault Lake / 2.3-2.5 Mitigations Measures**

DFO is uncertain if any activities took place to which the mitigation measures would apply as no monitoring reporting on Vault Lake operations was provided to DFO. AEM, please confirm/clarify.

All of the information is presented in the annual report. In summary, Wally Lake water quality monitoring was not required during the Vault Dike construction because the dike was constructed under frozen conditions to reduce any potential impacts to fish and fish habitat. In 2013, AEM proceeded to the dewatering of Vault Lake into Wally Lake to permit the beginning of the mining operation in 2014. The mitigation measures taken in 2013 regarding the dewatering were to respect the criteria limit associated to the NWB Water License Part D, Item 6 and the MMER Regulation. During the fishout, mitigation measures were to follow the "2014 Vault Lake Fishout Work Plan" as approved by DFO and to decrease mortality rates by transferring as many fish as possible to Wally Lake. AEM also made sure that all materials and equipment used for the purpose of site preparation are operated and stored in a manner that prevents any erosion or any deleterious substance from entering the Vault (during the fishout) and Wally waterbodies.

5. **Authorization NU-03-0191.4 Vault Lake / 4.1 Compensation reflooding Vault Pit and Phaser Basin; access for ARCH to Wally Lake and channel to Dogleg Pond**

According to NNLP Construction schedule and most recent version of the Habitat Compensation Monitoring Plan (V.3 March 2014), construction of NP-2 Channel and Dogleg North Pond were to begin in 2013 and continue until closure. Was this not yet started? Please confirm/clarify.

The construction of the connection channel between NP-2 and Dogleg North Pond was completed at the end 2012 (see Photo 1 and 2 below).

Photo 1: Channel between NP-2 Lake and Dogleg North Pond

Photo 2: Channel entering in Dogleg North pond

6. **Habitat Compensation Monitoring Plan V.3 March 2014:**

Cover Page of Version 3 states Version 2 June 2013 when it should state Version 3 March 2014. Page iii also references an effective date of June 2013. As Version 2 was not agreed upon by DFO, please reference scheduling as per the conditions of the Authorizations. Please correct to clarify between versions for accurate referencing.

AEM appreciates the feedback and the thoroughness of DFO's review. Attached in Appendix A is version 3 with corrections. Version 3, March 2014, submitted in the annual report is the latest version of the HCMP. The scheduling conforms with the original Habitat Compensation Plan (Version 1).

Table 3 indicates monitoring scheduling as follows: 2015, 2017, 2019, 2021 and 2025 with reflooding in 2023. This leaves only one season of monitoring interstitial water quality, periphyton, fish use and structure for the east dyke, Bay Goose dyke and finger dykes. For Central dyke, Table 3 indicates sampling to start after flooding (2023), so monitoring 2025 and 2030. Essentially one monitoring season following the completion of such major construction activities seems inadequate to prove successful creation and use of end pit lakes. Please elaborate on this choice and how AEM feels they can successfully meet habitat compensation requirements.

The habitat compensation monitoring plan consists of confirming physical structures that AEM has built based on specifications outlined in the NNLP (i.e. depth and substrate type – coarse, mixed or fine which are related through a model to fish habitat requirements), evaluating metal leaching potential to ensure habitat is suitable for fish life histories, confirm periphyton growth as a primary food source and confirmation of fish use. The habitat compensation monitoring plan is designed to confirm that the structures are designed and functioning as outlined in the NNLP. This was the intent of the original HCMP (version 1), stated in the authorization and therefore was carried forward in the latest HCMP version 3. Given the successful results of the first 2 sampling years along the East dike (completed in 2009 and 2011), where water quality was suitable for fish, periphyton growth increased and adult and juvenile fish were collected, AEM believes the methods and frequency of sampling presented in the HCMP version 3 are rigorous and meet the condition of the authorization.

As outlined in Table 3 columns "completed sampling" and "sample schedule" AEM intends to complete a total of 6 monitoring events of the East Dike, 6 monitoring events of Bay Goose Dike and 5 monitoring events of the Finger Dikes. Based on the preliminary data, AEM is confident the structures will continue to perform as intended and AEM will continue to build a data set, for which a comparisons can be made with newer structures. Overall, the newer structures will follow a similar structural design (e.g. interior of the dikes will be similar to the exterior and boulder gardens will be akin to finger dikes) and therefore should follow similar trends. AEM will monitor all of the new structures in 2025 and 2030 and will consult with the DFO to ensure the structures that are built to provide suitable fish habitat, are functioning as intended. AEM believes the 2025 and 2030 sampling events (similar to our findings along the East dike, see AEM, 2011 annual report) will confirm that "all fish habitat compensatory works shall be completed and functioning according to the Meadowbank NNLP" Condition 5 of NU 03-0191.3 and NU 03-0191.4.

Table 4, 5 and 6 indicate an estimated dyke breach in 2025, and sampling in 2025 and 2030 for fish use. Assuming the dyke is breached in 2025, this leaves only one season to monitor fish use following. While angling, cameras and nets may uncover fish presence within the reflooded basin in 2030, can AEM elaborate on how use will be confirmed? What parameters will be established and why does AEM feel one season will be sufficient?

As stated above, AEM will monitor all of the reflooded structures to determine if all fish habitat compensatory works are completed and functioning in 2025 and 2030, compare these results to the broader data set and will consult with the DFO to ensure the structures are built according to the NNLP. AEM is confident the 2 events will provide confirmation that the structures are functioning as intended; but if not, will consult with the DFO to determine the next steps as per the authorization. Furthermore, water quality monitoring in the reflooded pits will occur during the open water season according to the CREMP to ensure pit water quality is suitable for aquatic life prior to breaching. The CREMP monitoring will

continue in the open water season until 2040 and will provide additional assurance that the fish habitat is functional both inside and outside of the breached area.

7. **AEM should have notified DFO prior to the August 2013 site visit when they had knowledge of the leak of waste water from the TSF/Waste Rock pile into fish bearing NP2. Should AEM have any questions about their requirements for compliance under the Fisheries Act, please contact the undersigned.**

   AEM acknowledges DFO's comments and will take necessary action to notify DFO if a similar situation occurs in the future.

AGNICO EAGLE

APPENDIX A
Habitat Compensation Monitoring Plan, Version 3 March 2014

AGNICO EAGLE

MEADOWBANK GOLD PROJECT

Habitat Compensation Monitoring Plan

In Accordance with Fisheries Authorization NU- 03.0190, NU-03-0191.3 and NU-03-0191.4

Prepared by:
Agnico-Eagle Mines Limited – Meadowbank Division

Version 3
March 2014

EXECUTIVE SUMMARY

General Information

This Habitat Compensation Monitoring Plan (HCMP) defines the sampling methods and criteria for success of the fish habitat compensation features described in Meadowbank's No Net Loss Plan (October 2012). In consultation with DFO, this HCMP is designed to meet DFO authorizations: All Weather Road NU 03.0190 (Condition 5 –monitoring), Meadowbank Mine Site Authorization NU 03.0191.3 (Condition 3 and 6 – monitoring and reporting) and Meadowbank Mine Vault Area Authorization NU 03.0191.4 (Condition 3 and 6 – monitoring and reporting).

Record of Changes

A record will document all significant changes that have been incorporated in the HCMP subsequent to the latest annual review. The record will include the names of the persons who made and approved the change, as well as the date of the approval.

Distribution List

Agnico-Eagle Mines Limited will maintain a distribution list for the HCMP, providing information about all parties that receive the plan including mine personnel, departments, and outside agencies.

IMPLEMENTATION SCHEDULE

As required by the original Meadowbank Fisheries Authorizations (NU-03-0191 and NU-03-0190), and in the updated Fisheries Authorizations (2013; NU-03-0191.3 and NU-03-0191.4), the implementation schedule for this plan is effective immediately (March 2014) subject to any modifications proposed by DFO as a result of the review and approval process.

DISTRIBUTION LIST

AEM - Environmental Superintendent

AEM – Environmental Coordinator

AEM – General Mine Manager

AEM – Site Services Superintendent

AEM – Field Services Supervisor

AEM – Engineering Superintendent

DFO Arctic Region Representative

DOCUMENT CONTROL

Document Control

Version	Date (YMD)	Section	Page	Revision
1	05/08			Initial document (Azimuth Consulting Group Inc.)
	26/03/09			Further detail by technical memorandum (Azimuth Consulting Group Inc.)
2	06/13	All	All	Document re-written to reflect updated NNLP (AEM, 2012b)
3	03/14	Added Section 4.3	15, 22-29	In consultation with DFO, AEM changed timing and frequency of monitoring back to the original DFO authorization timing.

Version 3

Prepared By: Meadowbank Environment Department

Approved By: _____

Kevin Buck
Environmental Superintendent

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SECTION 1 • INTRODUCTION

1.1 BACKGROUND

Agnico Eagle Mines Limited (AEM) Meadowbank Division currently operates an open pit gold mine located on Inuit-owned land in the Kivalliq Region of Nunavut. The mine site is approximately 70 km north of the hamlet of Baker Lake. Mining rights for this site were obtained by AEM from Cumberland Resources Ltd. in 2007.

Since mining activities at this site result in the harmful alteration, disruption and destruction of fish habitat, a DFO Fisheries Authorization application was required. In 2006, Cumberland Resources Ltd. developed a No Net Loss Plan (NNLP) in support of this application. This plan quantified losses to fish habitat that were expected to occur, and described the habitat gains that would be achieved through compensation measures.

The first DFO Fisheries Authorization (NU-03-0190) issued was for the All Weather Access Road, in 2007. Shortly thereafter, a Habitat Compensation Monitoring Plan was developed by Azimuth Consulting Group Inc. on behalf of AEM in order to describe a specific program for monitoring the effectiveness of the fish habitat compensation features identified in the NNLP.

In May 2008, the Habitat Compensation Monitoring Plan for the mine site was developed by Azimuth Consulting Group Inc. on behalf of AEM, and at the request of DFO. A DFO Fisheries Authorization (NU-03-0191) was then issued for the Portage lakes area (main mine site) on July 30, 2008.

As a result of discrepancies between the original NNLP and the issued mine site Authorization, as well as changes to construction feasibility and mine site designs, Meadowbank's NNLP was updated in October, 2012. An updated Fisheries Authorization for the Portage lakes area was provided in March, 2013 (NU-03-0191.3), and a new Authorization for the Vault Lake area was provided in May, 2013 (NU-03-0191.4).

Since changes in compensation features are included in the updated NNLP, the HCMP is required to be updated, as described in NU-03-0191.3, Condition 6.3, which states:

"The stability and successful utilization of all fish habitat compensation features shall be assessed according to the methodology and schedule detailed in the Habitat Compensation Monitoring Plan, version 4, dated May 2008 and the No Net Loss Implementation Cost Estimate & Construction Schedule – Meadowbank Gold Mine Project, Revision 1, dated July 08, 2008 to be updated by June 1, 2013."

and NU-03-0191.4, Condition 6.1 which states:

"The Proponent shall conduct monitoring of the compensation habitat according to the Habitat Compensation Monitoring Plan, version 4, dated May 2008 and the No Net Loss Implementation Cost Estimate & Construction Schedule – Meadowbank Gold Mine Project, Revision 1, dated July 08, 2008", and will be updated in June 2013.

1.2 OBJECTIVES

The development of onsite, like-for-like fish habitat is the method of compensation preferred by DFO. In general, habitat gains at Meadowbank are achieved through constructed features such as dike faces and roads that act as reefs, access enhancements for isolated fish populations, and land-to-lake conversions. Based on the conditions in the Authorizations described above, assessment of the structure and successful utilization of these features by fish are the primary goals of the monitoring program.

This work will be carried out as a targeted monitoring plan under the Meadowbank Aquatic Effects Monitoring Program (AEMP).

The objectives of this plan are:

1. To provide an overview of habitat compensation features at Meadowbank
2. To summarize the habitat compensation monitoring conducted to date
3. To describe the physical and ecological monitoring methods for each feature
4. To describe the quality assurance and control measures to be included in the monitoring program
5. To define the criteria for success
6. To present the monitoring frequency and reporting schedule

SECTION 2 • HABITAT COMPENSATION FEATURES

In the 2006 NNLP, habitat gains for the Meadowbank site were largely to be obtained from re-flooding of dewatered basins and excavated pits. The construction of boulder gardens, reef and shoal features within the dewatered basins were proposed to increase habitat value. In addition, large (19 ha) finger dikes and habitat mounts were planned for in-water construction in Second and Third Portage Lakes (outside the dikes) to provide supplementary habitat gains pre-closure.

Re-flooding of the dewatered areas remains the primary compensation measure to be implemented at Meadowbank (AEM, 2012b). However, based on the experience of AEM with in-water dike construction, the supplementary compensation projects proposed previously were found to be technically challenging to construct without possible short-term impacts on the aquatic system. The updated habitat compensation plan therefore includes

similar features, with modifications for improved constructability and reduced potential for impact to the receiving environment. A current schedule of completion for the habitat compensation features is provided in Table 1.

2.1 RE-FLOODING OF DEWATERED BASINS AND PITS

As previously stated the major compensation measure proposed for the Meadowbank site is the re-flooding of dewatered basins and associated pits following mining activities. In order to provide the greatest gain:loss ratio possible, considerations for improving fish habitat have been incorporated into the basin and pit designs (e.g. boulder gardens, backfilling of deep pits).

2.1.1 Portage Lakes Area (DFO Authorization NU 03-0191.3)

Post-closure, the Bay-Goose dike will be breached and the impounded area will be gradually re-flooded to re-gain the temporarily lost habitat. The portion of Second Portage Lake between the East Dike and the Central Dike will become part of Third Portage Lake, due to the land-to-lake conversion resulting from the Portage Pit construction. The East Dike will not be breached in order to maintain the current 1 m difference in elevation between Second Portage and Third Portage Lakes.

Prior to re-flooding, a number of habitat improvement measures will be implemented to increase the productive capacity of this area (Figure 1). Construction of a boulder garden feature along the west side of the soft-sediment Bay-Goose Basin will increase habitat suitability in this area. This feature will consist of at least 2.97 ha of heterogeneous, coarse substrate habitat in the <4 m depth zone, just west of the Goose Island Pit. Further, construction of mine-related features (pit caps, roads and dikes) from coarse rock material throughout the basin will create shoals and reefs after re-flooding. In addition, approximately 30% of the area of Portage Pit will be backfilled to a depth of 4-10 m during the construction phase, reducing the amount of ultra-deep water areas, and increasing habitat suitability in this area.

2.1.2 Vault Lake Area (DFO Authorization NU 03-0191.4)

After mining, Vault Pit will connect Vault Lake (and if mined Phaser Lake) to Wally Lake, and the Vault Dike will be breached to allow both lakes to gradually re-fill. Post-closure alterations to Vault and Phaser Lakes[1] will result from construction of pits, pit caps, roads and dikes. Both lakes will be expanded as a result of land-to-lake conversion in the Vault Pit (as shown in Figure 2). Backfilling of a portion of the pit (3.94 ha) in Phaser Lake to 2-4 m depth will reduce the amount of ultra-deep areas. However, the un-filled portion of the pit will provide improved overwintering habitat, which is limited in these relatively shallow lakes.

[1] Although Phaser Lake is not authorized nor part of the most recent Life of Mine, consideration was made in AEM (2012b) to include a conceptual Vault Pit extension that includes a likely HADD of Phaser Lake. As a result, compensation monitoring of the Vault area (including Phaser Lake habitat losses) are considered

Further habitat improvements in these lakes will be made through development of shoals due to permanent roadway construction, areas of mixed substrate from temporary haul roads, and the improvement of the connecting channels between Vault and Wally Lakes, and Vault and Phaser Lakes, to allow fish movement. In particular, the connection to Wally Lake will provide access for arctic char (after further connection to W3 – see Section 2.4), which currently are not present in Vault and Phaser Lakes. Improvement of the connection to Wally Lake will involve deepening the channel inside the Vault Dike to a depth of at least 3 m, while the lake is dewatered, to allow fish passage year-round after removal of the dike.

2.1.3 Dogleg System (DFO Authorization NU 03-0191.3)

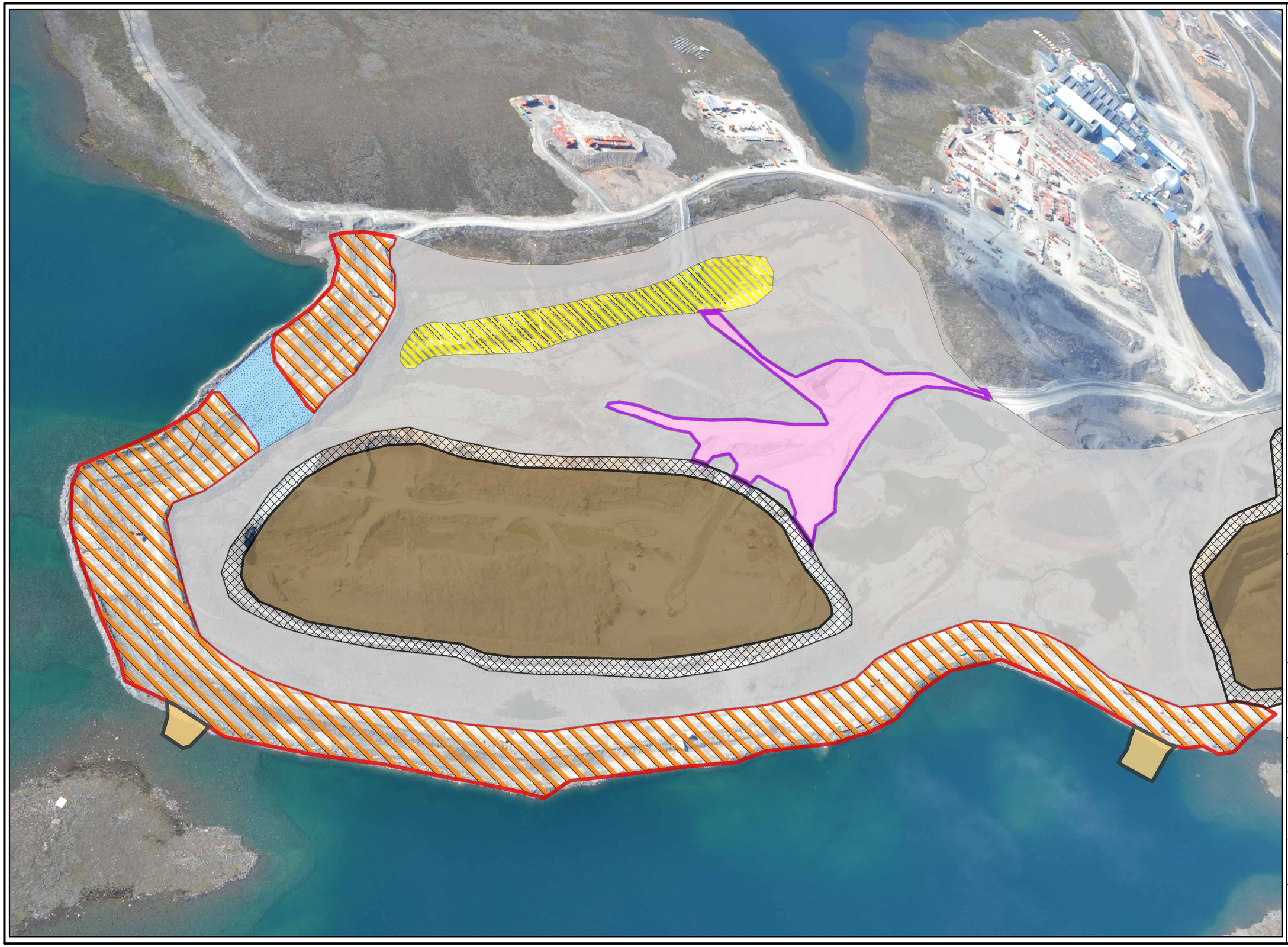
Dogleg Pond and the "North Portage" ponds, Dogleg North Pond and NP-2, are isolated ponds located near the waste rock area, just north of Second Portage Lake. They are shallow ponds, with a maximum depth of 11 m in Dogleg Pond. Dogleg North Pond reaches about 3.8 m in depth, and NP-2 has a small area of about 5 m depth. The project described below was not specifically developed as compensation, but has integrated habitat compensation with water management to result in a small net gain of fish habitat.

NP-2 formerly drained into the TSF area of Second Portage Lake, while Dogleg and Dogleg North drain towards the main body of Second Portage Lake. Since drainage of NP-2 became blocked by the waste rock pile on the northern edge of the TSF, a connecting channel was excavated to direct flow from NP-2 to Dogleg North, effectively increasing the drainage area of Dogleg and Dogleg North Pond. The accompanying increase in wetted area is estimated at 5% for Dogleg Pond, 15% for Dogleg North Pond, and 5% for NP-2.

Through construction of the diversion channel, connectivity between the ponds has been improved, and previously inaccessible habitat in Dogleg North Pond will be available for use by lake trout and round whitefish currently inhabiting Dogleg Pond and NP-2. Eventually these ponds may be seasonally accessible from Second Portage Lake. This connection would theoretically provide access for arctic char to the Dogleg system, but because it is deemed unlikely due to the shallow, ephemeral nature of the connections, access for char is conservatively excluded from habitat gain calculations.

2.2 FINGER DIKES (TAILINGS STORAGE FACILITY- MMER)

In keeping with the original NNLP, a number of finger dikes are proposed to be built, extending from the Bay-Goose Dike into Third Portage Lake. While the original NNLP proposed 19 ha of finger dikes, AEM has found that the method described for construction to pose safety concerns, as well as potential concerns with elevated TSS during settling of material. Therefore, the new finger dikes will be 1 ha in total at their base. Potential locations for each finger dike are shown in Figure 1. Specific locations will be chosen prior to construction. These changes will not alter the monitoring techniques described in Section 4 and 5.



Legend

Post-Closure Features

- Capped roadways
- Dike to remain
- Finger dike
- Breach in dike
- Free dump boulder garden
- Mixed substrate basin
- Pit
- Pit capping

Bay Goose Basin
Conceptual Drawings

POST-CLOSURE FEATURES

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PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

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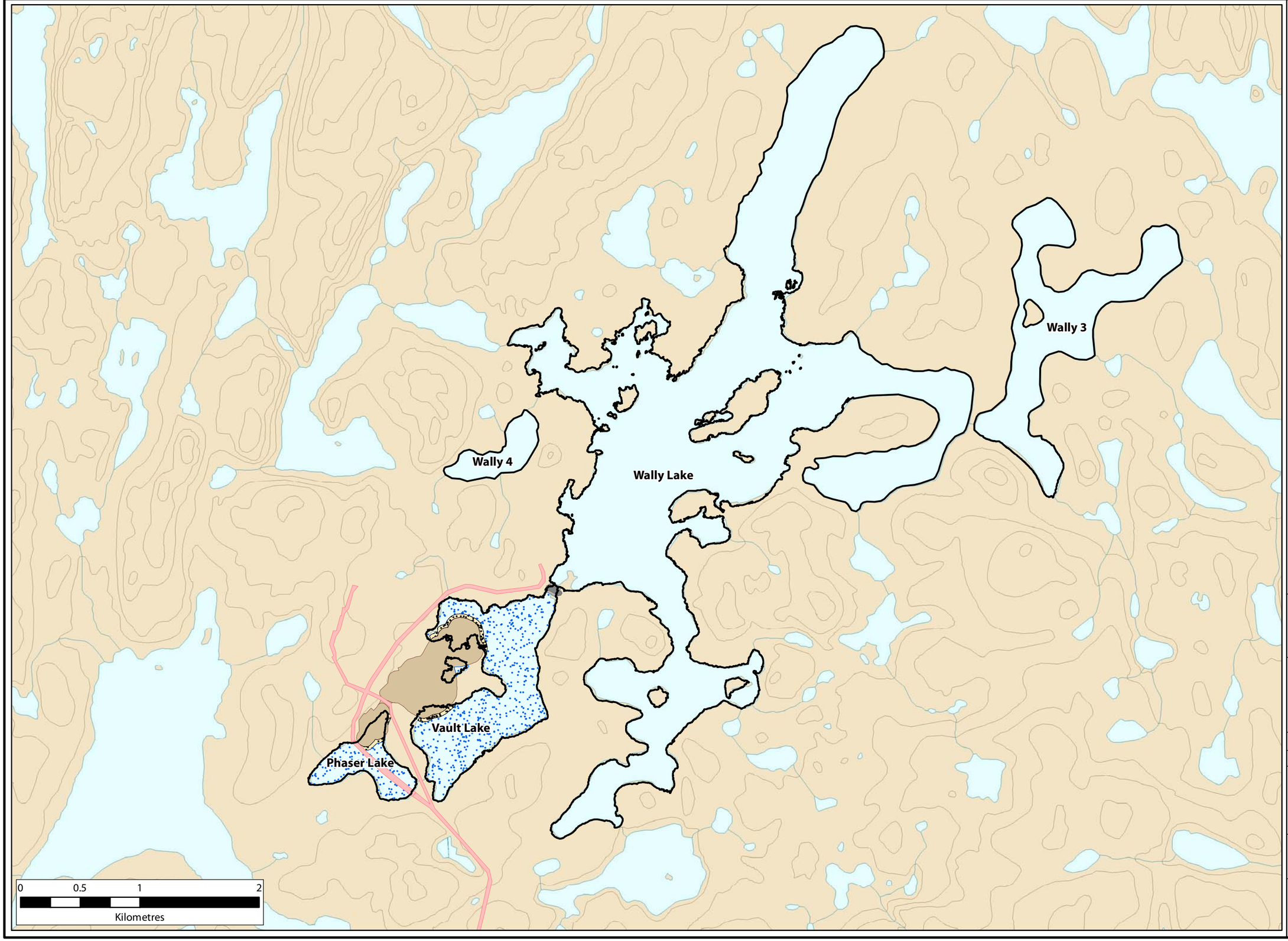

Legend

- Study Lakes
- Dike
- Dike Base
- Roads
- Pit
- Pit Cap
- Lake Basin

Features
Vault Lake Area

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CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

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2

2.3 WALLY LAKE ACCESS (DFO AUTHORIZATION NU 03-0191.4)

Wally Lake is a 532 ha lake connected to Vault Lake (see Figure 2) via a seasonally passable channel. Fish movement between these lakes is currently almost nil and this channel will be diked prior to de-watering of Vault Lake. Information in baseline studies indicates that the only large bodied fish in Wally, Vault and Phaser Lakes are lake trout and round whitefish. In 2012, follow-up studies were completed which confirmed these results.

Wally 3 (W3) is a smaller lake (approximately 100 ha), which seasonally is hydraulically connected to Wally Lake via an impassable channel. No fish were found to use this corridor in baseline studies. Follow-up studies conducted in 2011 used fine mesh index gill nets to quantitatively determine the species composition, size and catch-per-unit-effort in the southern basin. Lake trout, round whitefish and arctic char were found to inhabit this relatively small but deep lake.

Topographical surveys conducted in this area indicated that water levels in Wally Lake and W3 are similar (within cm), and therefore slight deepening of the connecting channel through selective substrate removal and excavation during winter would provide access to Wally Lake for the isolated arctic char population in W3.

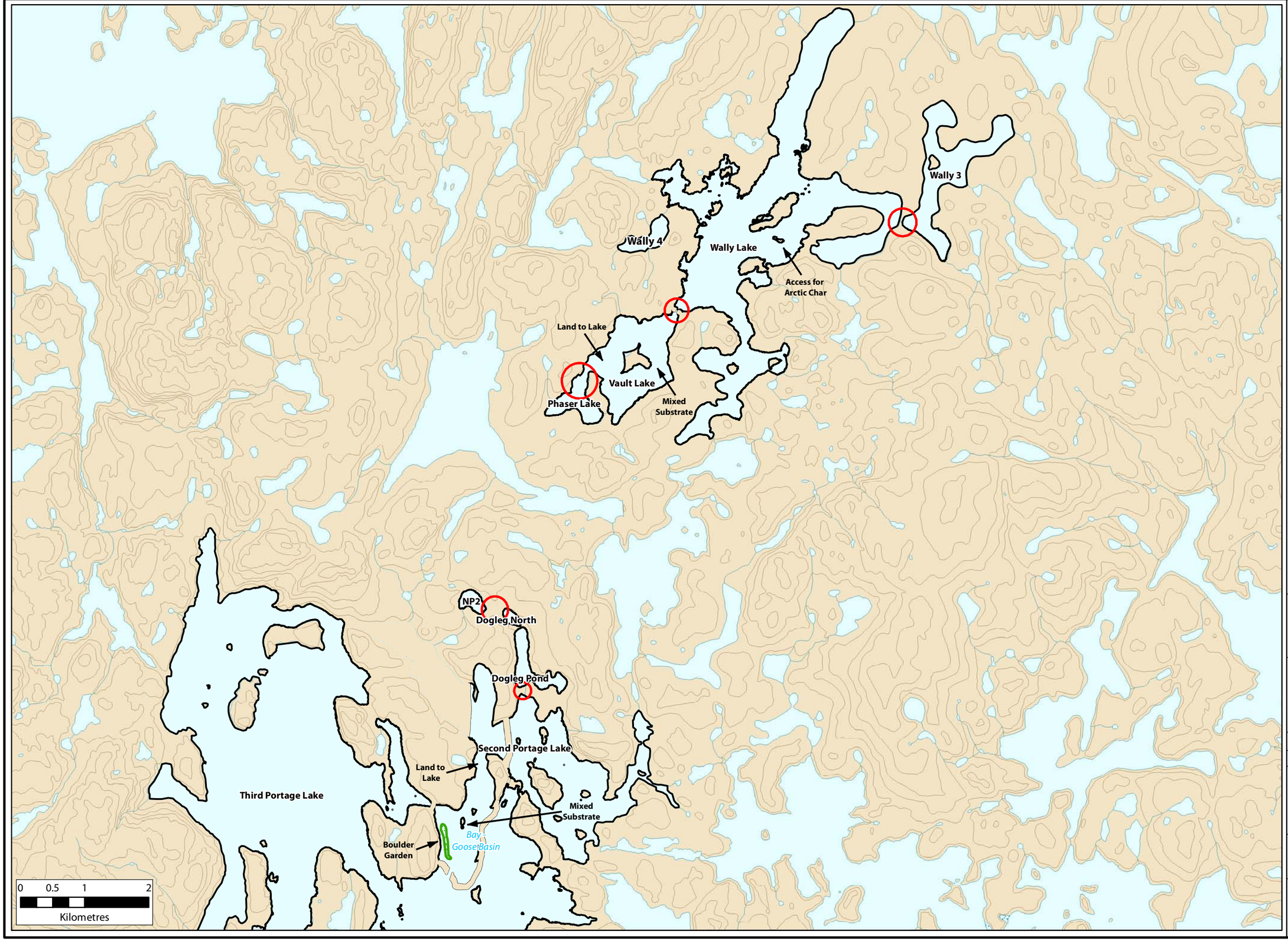
In addition, improvement of the channel between Wally Lake and Vault Lake, post-closure, would further allow movement of char into Vault and Phaser Lakes (as Phaser Lake will be connected to Vault Lake through the Vault Pit). In order to make this channel passable year-round and provide access to newly created deep habitat in the Vault Pit, a passage will be excavated while Vault Lake is dewatered.

As discussed in the NNLP, it is suspected that the lack of char in Wally, Vault and Phaser Lakes is due to historical isolation and the lack of deep-water habitat, which is preferred by this species. Pit development in the Vault Lake area will provide a significant quantity (approximately 45 ha) of this deep-water habitat, which is limited in the Vault Lake Area, but is prevalent in all nearby char-bearing lakes.

2.4 AWAR FISHERIES COMPENSATION

As part of the habitat compensation plan for construction of the roadway between Baker Lake and the mine site, a spawning pad was constructed in 2009 near bridge crossing R02 (Figure 3). This habitat compensation project was constructed according to design specifications that met biological criteria aimed at enhancing arctic grayling productivity in this stream system. The construction focused on creating high value spawning and nursing habitat to compensate for the loss of the low and medium value habitat affected by bridge abutment construction at the four crossings. An overview of the Meadowbank area post-closure, incorporating all compensation features, is shown in aerial photo below.

Figure 3- Aerial Photo of R02 Habitat Compensation Feature- Taken in September 2009



Legend

- Study Lakes (Post-Closure)
- Improved Access

Meadowbank Minesite
Post-Closure

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PROJECT: DA11-062-02

CLIENT: Agnico-Eagle Mines Ltd., Meadowbank Div.

N W E S
UTM Zone 14 NAD83

DATE: OCTOBER 2012

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FIGURE:

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SECTION 3 • HISTORICAL MONITORING

Until now, monitoring has proceeded according to the 2008 HCMP (Azimuth, 2008). Based on construction to date, this includes monitoring of the East and Bay-Goose Dikes. Since construction of the East Dike in 2008, two rounds of monitoring have been reported (Azimuth 2010a, AEM 2012a). One round of monitoring has been reported since completion of the Bay-Goose Dike in 2010 (AEM 2012a). These monitoring reports focus on the ecological components of the HCMP. Although monitoring the structural integrity of the compensation features is a component of the 2008 HCMP, results of this analysis are detailed in the as-built reports, sent to NWB on December 17, 2009 (East Dike), May 14, 2013 (Bay-Goose Dike) and June 12, 2009 (AWAR).

3.1 INTERSTITIAL WATER QUALITY

Water samples were collected from between the rocks of the dike face using a tube sampler and electronic pump, and were analyzed for conventional parameters (hardness, conductivity, pH, and total dissolved and suspended solids), anions (alkalinity, chloride and sulfate), nutrients (ammonia, nitrate, nitrite, total Kjeldahl nitrogen, orthophosphate and total phosphate), organic parameters (chlorophyll-a, dissolved and total organic carbon) and total and dissolved metals at an accredited facility. While TSS was elevated in 2009, this was likely due to sediment re-entrainment during sampling. The dissolved aluminum guideline was exceeded in one sample in 2009 due to marginally low pH, but this trend did not recur with additional sampling. Total phosphorus concentrations exceeded CCME guidelines in both years, but since orthophosphate was at or below detection, no potential ecological concerns were identified.

3.2 PERIPHYTON COMMUNITY

Density, biomass and composition of the periphyton community were measured in the shallow zone by collecting a sample from the rock face with a specialized scrubber. Underwater video imagery was used to qualitatively examine periphyton growth in the deep zone. Periphyton was found to colonize rocks in shallow areas in the first year after construction of both dikes, and increasing likeness to reference stations (in both density and composition) was evident year over year.

3.3 FISH USE

In 2009, a variety of methods were tested to monitor fish use of the dike face, including hydroacoustic surveys, minnow traps, gill nets and visual observation. Only gill nets were found to be effective, and this method alone was used in 2011. Fish use of the dike faces

was documented at rates no lower than reference stations, even in the first year after construction.

3.4 AWAR MONTORING

Length and weight measurements and maturity identifications of adult fish captured in hoopnets have been recorded at AWAR crossings since 2005 (prior to construction). Nets are set to capture both upstream and downstream movements, and are set as soon as ice conditions allowed. Flow speed and water temperature measurements are also conducted at each crossing. Additionally, larval drift catches have been collected at crossing R02 since 2005, where the compensation feature was constructed in 2009.

Generally, condition factors of adult fish, population size distributions and timing of upstream and downstream movements did not change pre- and post-construction of the AWAR crossings. Flow speeds at all crossings were within published arctic grayling sustained or prolonged speeds, indicating the bridge structures likely are not physically affecting ability of grayling to move upstream. It is suspected that the primary upstream migration occurs below ice cover or immediately at ice-off, since arctic grayling larval drift has been consistently caught within 1-3 days of study initiation.

An examination of the history of arctic grayling populations at R02 indicates that the constructed spawning pad may be allowing an increase in successful spawning runs, with increasing larval drift collected at all drift trap locations beginning in 2009. The increasing proportion of immature arctic grayling since that time also suggests that more fish are being recruited into the population than pre-construction.

SECTION 4 • MONITORING COMPONENTS AND METHODS

Habitat gains at Meadowbank are derived through both physical improvements to existing habitat (e.g. creation of reefs), and the facilitation of access to new habitat (e.g. previously fishless or underutilized areas). As per the original fisheries authorization, regardless of the type of compensation, both physical and ecological components are included in the monitoring plan, to record whether each feature is constructed and is functioning as intended.

This updated monitoring program maintains the major elements of the 2008 version (structure, water quality, periphyton and fish use), while modifying timelines and methods based on past experience, new compensation features (AEM, 2012b), current life-of-mine designs and to meet the conditions of the updated Fisheries Authorizations.

4.1 PHYSICAL COMPONENTS

Since the habitat evaluation procedure focuses on quantifying losses and gains to habitat, based on physical characteristics (area, depth and type of substrate), physical structure is arguably the most important component to monitor in cases where habitat compensation is derived from constructed features (such as reefs or boulder gardens).

All compensation structures will be assessed post-construction to determine whether they meet the assumptions of the 2012 NNLP. These include area, depth and substrate characteristics. For each feature, a comparison will be made to the specifications described for these characteristics in the NNLP, to determine whether expected habitat gains are achieved in the as-built state. This analysis is separate to as-built reports, which are required under NU-03-0191.4, Condition 6.3, but may make use of information provided in those reports. Analysis reported under the HCMP report will, however, include the photographic evidence (pre-, during and post-construction) of compensation features, as described under NU-03-0191.3, Condition 6.4 and NU-03-0191.4, Condition 6.2. Photographic evidence for the AWAR compensation feature has previously been included in annual AWAR monitoring reports (e.g. AEM, 2010).

In addition to the analysis of depth, area and substrate in the dry basins, structural integrity will be qualitatively assessed after re-flooding for features in the de-watered basins, to record any movement occurring during this process.

Methods of evaluation will depend on the specific compensation feature, as detailed in Tables 3 - 7. In general, methods will include:

On-the-ground photos – photos will be taken of the compensation feature pre-, during and post-construction and included in HCMP reports.

Air photos – will be taken of dry basins just prior to re-flooding, to compare areal extents of compensation features with NNLP predictions. Differences will be estimated visually or by GIS.

Visual observation – conducted to ground-truth substrate types for confirmation in air photos.

Field survey – conducted in the dry to determine depth-below-surface of compensation features.

Bathymetric survey – conducted to determine the final depth contours of compensation features that are constructed in-water.

Underwater video – conducted post-flooding to qualitatively examine structural integrity of constructed features.

Results will be recorded for each compensation feature and compared to the 2012 NNLP estimate in an annual HCMP report, as in the example in Table 2.

The proposed schedule of monitoring is described for each feature in Tables 3 - 7. Analysis of the physical components will occur in the dry for features constructed in de-watered basins, in order to facilitate ground-truthing of substrate and total area. This analysis will occur just prior to re-flooding, such that features are in their final condition. As-built reports will first be consulted to determine if the required information is available. For features constructed in-water (finger dikes, access enhancements), analysis of the physical components will be conducted in the years after construction.

4.2 ECOLOGICAL COMPONENTS

Since successful utilization of the compensation features is also a component of the monitoring requirements under Meadowbank's Fisheries Authorizations, ecological monitoring elements are included for both constructed features and access enhancements.

The major constituents and basic sampling methods for the main components of the monitoring program are maintained from the 2008 HCMP, with some modifications based on field experience. Ecological monitoring components include interstitial water quality, open basin water quality, periphyton community biomass and fish use.

4.2.1 Interstitial Water Quality

Modeling during the EIA process indicated that metals leaching from quarried rock would not significantly impact the aquatic environment. Nevertheless, interstitial water quality of constructed habitat compensation features will be assessed through the HCMP to verify these predictions.

In order to collect a representative sample from the bioactive zone between the rocks, an electric diaphragm pump with food-grade silicon tubing will be used, as in previous years. Samples will be taken at depths between 1 and 4 m, and analyzed in an accredited laboratory for total suspended solids, and total and dissolved metals. Results will be compared to background concentrations and CCME guidelines where available.

4.2.2 Open Basin Water Quality

Modeling during the EIA process indicated that water quality in re-flooded pits and basins would support healthy fish populations. Because the re-flooded areas form part of Meadowbank's habitat compensation, water quality will be monitored as part of the HCMP and in conjunction with the Core Receiving Environmental Monitoring Program (CREMP) in order to determine when breaching of the dike to allow fish access is appropriate. Sampling will be based on procedures and parameters analyzed in the CREMP (Azimuth, 2010b). Analyses will generally be repeated once per sampling event in each pit basin (Goose

Island, Portage and Vault pits), with specific locations determined by experienced field technicians. Analyses will include vertical depth profiles of temperature, DO and conductivity to a representative depth. Secchi depth and surface pH will also be determined at each sampling location. Water samples will be collected from approximately 3 m depth by pumping lake water using weighted flexible (food-grade silicone) tubing, and a diaphragm pump connected to a 12 volt battery. A depth of 3 m is chosen for consistency across all basins and seasons (i.e., sampling at 3 m is still possible in the winter under ice). The lakes are never thermally stratified and are well mixed; given the uncertainty in the end pit water quality, varying depths of samples will be taken. An inline filter is connected to the end of the outflow tube when filling bottles for dissolved metals and dissolved organic carbon analyses.

Water samples will be analyzed by an accredited facility for conventional parameters (hardness, conductivity, pH, turbidity, and total dissolved and suspended solids), anions (alkalinity, bromide, chloride, fluoride, silicate and sulfate), nutrients (ammonia, nitrate, nitrite, total Kjeldahl nitrogen, orthophosphate and total phosphate), organic parameters (chlorophyll-α, dissolved and total organic carbon) and total and dissolved metals. Results will be compared to background concentrations, CREMP trigger or threshold levels and CCME guidelines where available.

4.2.3 Periphyton Community

The periphyton community consists of a collection of microorganisms, including algae, that grow attached to or in very close proximity to submerged substrate. Colonization of the community occurs over time, with rates depending on nutrient and light availability. Periphyton is an important food source for benthic invertebrates, so colonization will be monitored to ensure that quarried rock substrate provides habitat that is as suitable at this level of the food chain as natural substrate.

A specialized scrubber will be used to collect periphyton samples from a prescribed area of rock face, in order to calculate biomass ($\mu g/cm^2$). Results will be compared to baseline data, and historical monitoring programs.

4.2.4 Fish Use

4.2.4.1 Mine Site Monitoring

The ultimate goal of NNL planning is to provide suitable habitat for fish populations. Although fish use of a specific feature may be difficult to determine quantitatively, the presence of fish around habitat features would indicate no behavioural tendency to avoid these areas. Fish presence in the vicinity of constructed dikes, in re-flooded basins and in connecting channels of access enhancement projects will therefore be verified.

Since the use of gill nets has historically been found to result in elevated incidences of mortality, angling and underwater motion camera techniques will be used to establish fish presence around the constructed compensation features and in open basins. Catch per unit effort and physical characteristics (species, length, weight, maturity) will be recorded. If

these techniques are not successful, a DFO representative will be contacted and the use of gill nets may need to be included. Hoopnets, which consist of either a 4 ft (1.22 m) or 3 ft (0.9 m) diameter front hoop will be deployed in the W3 connecting channel to determine whether Arctic char are moving into Wally Lake, and at dike breaches to assess fish movement into the re-flooded basins. Hoopnets have interior hoops and traps that prevent fish from escaping but provide enough space in the cod end for fish to survive. Wings are attached to the front hoop to direct fish into the hoopnet.

4.2.4.2 AWR R02 Compensation Monitoring

Monitoring fish use of the compensation structure at R02 will continue as previously. This monitoring program consists of sampling adult fish populations using hoopnets, and assessing reproductive activity using larval drift traps.

As described above, hoopnets consisting of either a 4 ft (1.22 m) or 3 ft (0.9 m) diameter front hoop will be used to target arctic grayling. The captured fish are gently removed by field technicians from the nets using dip nets, placed in large tubs filled on location with stream water for biological processing and then placed in a recovery tub. The fish are released up or downstream of the hoopnets (depending on the fish's migration direction) following handling. Biological processing includes measurement of fork length, weight and maturity.

Hoopnets are placed adjacent to the habitat compensation area, in a riffle/ side channel area upstream of the bridge and downstream of the compensation area, and immediately upstream of the culverts. Nets are set with the goal of capturing the maximum number of fish moving beyond the R02 bridge crossing, but also to assist in determining effectiveness of the R02 habitat compensation area.

Larval drift traps were placed in representative, high to moderate flow sections of the stream, both upstream and downstream of the habitat compensation feature. These traps consist of a square sided cone with a ridged frame that funnels into a 0.5 mm nitex mesh bag. Attached at the back of the nitex bag was a Nalgene®-type container where the drift is collected. The frame is submerged at least halfway under water and secured by poles on each side. Drift traps will be checked at least every other day. Larval drift will be identified in the field and preserved in vials of diluted formalin.

4.3 FREQUENCY

Previously, monitoring for interstitial water quality, periphyton growth and fish use was proposed for years 1, 3, 5 and 10 post-construction of each feature (Azimuth, 2008). Under the current plan, the frequency of these monitoring events is proposed for every other year following construction, until 2021, with additional sampling in 2025 (all areas) and 2030 (Vault area and central dike only). The sampling schedule and general locations are

described in Tables 3 - 7. Specific sampling locations will be determined in the field by a qualified environment technician or biologist.

SECTION 5 • QA/QC AND CRITERIA FOR SUCCESS

5.1 LABORATORY QA/QC

Water Quality – Data Quality Objectives (DQOs) are numerically definable measures of analytical precision and completeness. Analytical precision is a measurement of the variability associated with duplicate analyses of the same sample in the laboratory. Completeness for this study is defined as the percentage of valid analytical results. Duplicate results will be assessed using the relative percent difference (RPD) between measurements.

The laboratory DQOs for this project are:

Analytical Precision = 25% RPD or less for concentrations that exceed 10x the method detection limit (MDL).

Completeness = 95% valid data obtained.

Periphyton Community – Laboratory analyses for periphyton samples will be conducted by experienced scientists following a standardized procedure (i.e., quality assurance), internal quality control samples (e.g., duplicate counts) will be included to document analytical variability.

5.2 FIELD QA/QC

Water Sampling – Field QA/QC standards during water sampling will be maintained for every sample. The standard QA/QC procedures include thoroughly flushing the flexible tubing and pump to prevent cross-contamination between stations and thoroughly rinsing the sample containers with site water prior to sample collection. Trip blanks and field duplicates will be collected (approximately 1 per 10 samples). Field duplicates assess sample variability and sample homogeneity; a RPD of 50% or less for concentrations that exceed 10x the MDL is considered acceptable.

Periphyton Community – Standard procedures will be used to collect biota samples. All sampling gear will be thoroughly rinsed between sampling stations to ensure that there was no inadvertent introduction of biota from one station to another. A field duplicate will be collected for phytoplankton at one sampling station per sampling event to assess sampling variability and sample homogeneity. Due to large natural variability and the qualitative

nature of this component, no specific RPD acceptability criterion is recommended for density and biomass.

Fish Use – These study components will be conducted in accordance to the general practices listed previously. All relevant spatial and depth information will be recorded. Fish biological data will be recorded as will reference spatial information. Field notebooks or field sheets will be used to compile notes and observations relevant to the studies. Fishing will be carried out by experienced technicians or biologists who are very familiar with this kind of work. Video/photo survey data will be conducted carefully to provide representative images of target communities. All relevant spatial and depth information will be recorded and identified by the time stamp (or photo number) and tape number (or memory card number).

5.3 CRITERIA FOR SUCCESS

The intent of NNL planning is to replace HADD-related habitat losses and to maintain the productive capacity of the system. Consistent with the original habitat compensation monitoring plans, since lakes in the Meadowbank area are ultra-oligotrophic and productivity is nutrient-limited rather than habitat-limited, criteria for success will be focused primarily on capability to support fish, rather than on actual use.

The following success criteria will be used to evaluate this capability.

5.3.1 Physical Structure

In order to provide the required habitat gains, constructed features should meet the specifications described for area, depth and substrate in the NNLP. Where specifications are not met, the total habitat units afforded by the feature in its as-built state should be calculated. If there is a deficiency in habitat units site-wide, DFO will be consulted.

5.3.2 Interstitial Water Quality

Water chemistry results will be compared to reference locations, CCME water quality guidelines. Since analysis of large in-water features (dikes) to date has not indicated any significant adverse effects on water quality, success criteria are expected to be met in the future. However, if necessary, follow-up sampling will be conducted as soon as practical (next ice-free season). If water quality criteria do not meet background or CCME guidelines after two monitoring events, risk-based toxicity reference values will be compared, and additional testing, such as laboratory toxicity tests will be considered. Because onsite experience indicates that adverse effects are unlikely, any additional testing would be determined in consultation with DFO in the unlikely situation that it is required.

5.3.3 Open Basin

Long-term water quality predictions made during the initial planning phase of the project (Cumberland, 2005) indicated that although some water quality parameters in the Vault and

Portage Pit lakes may exceed CCME criteria in year 10 post-closure, they would be within the same order of magnitude, which was recognized as the sensitivity limit of the modelling exercise. In particular, CCME exceedances were predicted for cadmium, zinc and arsenic in the Bay-Goose/Portage area, and for aluminum, arsenic, cadmium, copper, fluoride, mercury, and unionized ammonia (NH_3) in the Vault area. In addition, a temporary chemocline was predicted to occur 100 m below water surface in the Portage pit. Since pit backfilling is now prescribed for that area, this may not be a factor.

Since the pits are to be flooded with water from adjacent lakes, chemistry is expected to be similar. During HCMP monitoring of the re-flooded basins, water chemistry results will be compared to reference locations, CREMP trigger/ threshold levels, and CCME guidelines where available. The dike will be breached to allow mixing with adjacent lakes and fish entry once water quality meets these criteria during three sequential sampling events.

5.3.4 Periphyton Community

Since lakes in the Meadowbank region are ultra-oligotrophic and ice-covered for the majority of the year, periphyton development is expected to be slow and no specific criteria are provided for this monitoring component. However, based on experience to date, the periphyton community is expected to be visible on new substrate within the first year after deposition.

5.3.5 Fish Use

5.3.5.1 Mine site monitoring

The premise of NNL planning is that habitat compensation will increase the productive capacity of water bodies. Since it is recognized that factors other than habitat quantity or quality may limit fish population growth, no specific criteria for success are prescribed for this metric. Observations of the East and Bay-Goose Dikes have indicated fish presence around these features is no lower than in reference areas, so this trend is expected to continue.

5.3.5.2 AWR R02 Compensation Monitoring

As above, no specific criteria are established for determining success of the spawning pads constructed at R02 based on fish use metrics (hoopnet catch, larval drift). Based on results to date, however, the number of successful spawning events has increased in this reach relative to pre-construction.

SECTION 6 • REPORTING AND PLAN REVIEW

As required according to Table 3, Habitat Compensation Monitoring Plan reporting will be included in the annual AEMP report for the monitoring events occurring in the previous year.

The HCMP will be reviewed as required by the Meadowbank Environment Superintendent in consultation with the Mine General Manager, and updated as necessary based on changes to mine site designs. All changes will be provided to DFO for approval.

SECTION 7 • REFERENCES

Azimuth, 2008. Habitat Compensation Monitoring Plan, Meadowbank Gold Project. Prepared by Azimuth Consulting Group Inc. for Agnico-Eagle Mines Ltd. May, 2008.

Azimuth. 2010a. Aquatic Effects Monitoring Program – Habitat Compensation Monitoring 2009, Meadowbank Gold Project. Report prepared by Azimuth Consulting Group Inc. for Agnico-Eagle Mines Ltd. January 2010.

Azimuth, 2010b. Core Receiving Environment Plan Monitoring Program. 2010 Plan Update. Prepared for Agnico-Eagle Mines Ltd. June, 2010

AEM, 2010. 2009 All Weather Private Access Road Fisheries Report. Agnico-Eagle Mines Ltd. January 2010.

AEM. 2012a. Aquatic Effects Monitoring Program – Habitat Compensation Monitoring 2011, Meadowbank Gold Project. Report prepared by Azimuth Consulting Group Inc. for Agnico-Eagle Mines Ltd.

AEM, 2012b. No Net Loss Plan. Agnico-Eagle Mines – Meadowbank Division. October 15, 2012.

Cumberland, 2005. Meadowbank Gold Project - Water Quality Predictions. October, 2005.

TABLES

Table 1. Estimated timeline for the construction of fish habitat structures (adapted from Table 4-10 in AEM, 2012b).

Lake	Feature Name	Date of Completion
Second and Third Portage Lakes	In-basin habitat improvements	Ongoing until re-flooding
	Re-flooded basins and pits	2014- closure
	Finger dikes	2015- closure
Vault and Phaser Lakes*	In-basin habitat improvements	2014 until re-flooding
	Re-flooded basins and pits	Closure and reclamation (2018 – 2023)
	Access for arctic char	Closure and reclamation (2018 – 2023)
Dogleg System	NP-2 channel	2013
	NP-2 (increase in area)	2013- closure
	Dogleg North Pond (increase in area and access)	2013- closure
	Dogleg Pond (increase in area)	2015- closure
Wally Lake	Access for arctic char	2016- closure

Table 2. Example comparison of NNLP designs and as-built physical properties of habitat compensation features.

Feature	Assessment Metric*	Method	Design	As-Built
Boulder garden	Area	Air photo	2.97 ha	3.5 ha
	Substrate	Visual observation	Coarse	Coarse
	Depth	Field survey	> 4 m	> 4 m
	Stability	Underwater video	-	Minor movement

*Area, depth, substrate type or stability

Table 3. Summary of monitoring methods, analytical parameters, sampling frequency and number of samples for dike faces and finger dikes (under MMER Schedule II TSF and DFO NU-03-0191.3). *Dike as-built designs were incorporated into the 2012 NNLP. Flooding is estimated to be completed in 2023

Compensation Feature	Component	Reason	Method	Parameters	Completed Sampling	Number of Samples	Sampling Schedule
East Dike	Interstitial water	Possible metals leaching	Tube sampler	TSS Total and dissolved metals	2009 2011	2 locations (exterior) and 2 locations (interior, post-flooding)	2015, 2017, 2019, 2021 (Odd-numbered years until 2021) 2025
	Periphyton	Base of food chain	Periphyton sampler	Biomass	2009 2011	2 locations (exterior) and 2 locations (interior,	As above

Compensation Feature	Component	Reason	Method	Parameters	Completed Sampling	Number of Samples	Sampling Schedule
						post-flooding)	
	Fish use	Confirm use by fish	Angling Underwater motion camera	CPUE, physical characteristics	2009 2011	2 locations (exterior) and 2 locations (interior, post dike breach)	As above
	Structure	Design intent met	As-built designs	Area, substrate, depth zone	2012*	-	-
		Stability	Underwater camera	Qualitative observations	2009 2011	Vertical transects at 5 locations	-
Bay Goose Dike	Interstitial water	Possible metals leaching	Tube sampler	TSS Total and dissolved metals	2011	3 locations (exterior) and 3 locations (interior, post flooding)	Odd-numbered years until 2021; 2025
	Periphyton	Base of food chain	Periphyton sampler	Biomass	2011	3 locations (exterior) and 3 locations (interior, post flooding)	As above
	Fish use	Confirm use by fishing	Angling Underwater motion	CPUE Physical characteristics	2011	3 locations (exterior) and	As above

Compensation Feature	Component	Reason	Method	Parameters	Completed Sampling	Number of Samples	Sampling Schedule
			camera			3 locations (interior, post flooding)	
	Structure	Design intent met	As-built designs	Area, substrate, depth zone	2012*	-	-
		Stability	Underwater camera	Qualitative observations	2011	Vertical transects at 10 locations	-
Finger Dikes	Interstitial water	Possible metals leaching	Tube sampler	TSS Total and dissolved metals	-	2 locations	Odd-numbered years until 2021 2025
	Structure	Design intent met	Photos Field survey	Area, substrate, depth zone	-	-	Upon construction
		Stability	Underwater camera	Qualitative observations	-	One vertical transect of each dike	Upon construction
Central Dike	Interstitial water	Possible metals leaching	Tube sampler	TSS Total and dissolved metals	-	2 locations	After flooding, odd-numbered years until 2021 2025 2030
	Structure	Design intent	As-built	Area, substrate,	-	-	Prior to

Compensation Feature	Component	Reason	Method	Parameters	Completed Sampling	Number of Samples	Sampling Schedule
		met	designs	depth zone			flooding
		Stability	Underwater camera	Qualitative observations	-	Vertical transects at 5 locations	2025 (post flooding)

Table 4. Summary of monitoring methods, analytical parameters, sampling frequency and number of samples for compensation features constructed in the Portage basin (Under MMER Schedule II and DFO NU-03-0191.3). Year of re-flooding completion est. 2023 (F). Year of dike breach est. 2025.

Compensation Feature	Component	Reason	Method	Parameters	Number of Samples	Sampling Schedule
Basin	Structure	Design intent met	Air photos Field survey	Area, substrate, depth zone	-	Prior to flooding
	Open basin water quality*	Possible metals leaching, anoxia	Tube sampler Grab samples Depth profiles	Conventional parameters; Anions; Nutrients; Organic parameters; Total and dissolved metals	1 per pit area	3 x yr from F until dike breach Afterwards, as per CREMP
	Fish use	Confirm use (re-flooded basin and at dike breach)	Angling Underwater motion camera Hoopnets	CPUE Physical characteristics	TBD by field staff	2025 2030
Roads	Structure	Design intent met	Air photos Field survey	Area, substrate, depth zone	-	Prior to flooding
		Stability	Underwater camera	Qualitative observations	Representative transects TBD by field staff	2025 (post flooding)
Pits	Structure	Design intent met	Air photos	Area, substrate, depth zone	-	Prior to flooding

Compensation Feature	Component	Reason	Method	Parameters	Number of Samples	Sampling Schedule
			Field survey			
Boulder garden	Structure	Design intent met	Air photos Field survey	Area, substrate, depth zone	-	Prior to flooding
		Stability	Underwater camera	Qualitative observations	Representative transects TBD by field staff	2025 (post flooding)

*Monitoring and sampling protocols will be developed and conducted in-line with CREMP sampling

Table 5. Summary of monitoring methods, analytical parameters, sampling frequency and number of samples for compensation features constructed in the Vault and Phaser basins (Under DFO NU-03-0191.4). Year of re-flooding completion est. 2023 (F). Year of dike breach est. 2025.

Compensation Feature	Component	Reason	Method	Parameters	Number of Samples	Sampling Schedule
Basin	Structure	Design intent met	Air photos Field survey	Area, substrate, depth zone	-	Prior to flooding
	Open basin water quality*	Possible metals leaching, anoxia	Tube sampler Grab samples Depth profiles	Conventional parameters; Anions;Nutrients; Organic parameters;Total and dissolved metals	1 per basin	3x yr from F until dike breach Afterwards, per CREMP
	Fish use	Confirm use (re-flooded basin and at dike breach)	Angling Underwater motion camera Hoopnets	CPUE Physical characteristics	TBD by field staff	2025 2030
Roads	Structure	Design intent met	Air photos Field survey	Area, substrate, depth zone	-	Prior to flooding
		Stability	Underwater camera	Qualitative observations	Representative transect TBD by field staff	2025 (post flooding)
Pits	Structure	Design intent met	Air photos Field survey	Area, substrate, depth zone	-	Prior to flooding

*Monitoring and sampling protocols will be developed and conducted in-line with CREMP sampling

Table 6. Summary of monitoring methods, analytical parameters, sampling frequency and number of samples for access enhancement compensation features (Under DFO NU-03-0191.3 and DFO NU-03-0191.4).

Feature	Component	Reason	Method	Parameters	Number of Samples	Sampling Schedule
Dogleg Ponds	Structure	Design intent met (monitor water levels, especially access to Dogleg North)	Bathymetric survey	Area of ponds, depth of access channels	All three ponds and connecting channels	2015, 2017, 2019, 2021 (Odd-numbered years); 2025
	Fish use	Confirm use by fish	Angling Underwater motion camera	CPUE Physical characteristics	TBD by field staff	Odd-numbered years until 2021; 2025
W3 Access	Structure	Design intent met (W3 passage constructed as intended)	Bathymetric survey	Width, depth of excavation	-	Upon completion
	Fish use	Confirm movement of Arctic char into Wally Lake	Hoopnets at channel	CPUE Physical characteristics	TBD by field staff	Odd-numbered years after completion 2025 2030

Table 7. Summary of monitoring methods, analytical parameters, sampling frequency and number of samples for All Weather Private Access Road R02 (bridge 1) habitat compensation features.

Feature	Component	Reason	Method	Parameters	Completed Sampling	Sampling Schedule
Spawning pads	Structure	Design intent met	As-built report	Area, substrate	2009	-
		Stability	Visual observation	Qualitative observations	2010 2011 2013	Every-other year (Odd-numbered years) until 1 year after the road is decommissioned (last monitoring estimated in 2031)
	Fish use	Confirm use by Arctic grayling	Hoopnets set downstream and upstream Larvae traps	CPUE Physical characteristics	2009 2010 2011 2013	As above