APPENDIX D.7.4
2016 INAC INSPECTION REPORTS
AND BAFFINLAND REPONSES

Indigenous and Northern Affairs Canada | Affaires autochtones et du Nord Canada

WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Baffinland Iron Mines Corporation (BIMC)	Jim MILLARD/Allan KNIGHT
Licence No. / Expiry	**Representative's Title**
2AM-MRY1325	Environmental Manager
Land / Other Authorizations	**Land / Other Authorizations**
8BC-MRY1416, 2BE-MRY1421	N2014X0012, N2014Q0016, N2014C0013
Date of Inspection	**Inspector**
May 18-20, 2016	Justin HACK

Activities Inspected

☒ Camp ☐ Drilling ☒ Mining ☒ Construction ☐ Reclamation ☒ Fuel Storage
☒ Roads/Hauling ☐ Other: ☐ Other:

Conditions: **A - Acceptable** **C - Concern** **U - Unacceptable** **NA – Not Applicable** **NI – Not Inspected**

Water Use	Condition	Comment	Site Conditions	Condition	Comment	Haz/Mat Management	Condition	Comment
Intake/Screen	NI		Water Management Structures	U	1,2,4,8 10,11, 12	Storage	NI	
Flow Measure. Device	NI		Culverts / Bridges	U	7	Spills	NI	
Source:	A		Drainage	C	1,4	Spill Plan	A	
Water Use:	A		Erosion / Sediment	U	6,7			
Recirculation (y /n)	NA		Mitigation Measures	C	1,2,6,7	**Administrative**		
			Reclamation Activities	A		Records	NI	
			Materials Storage	C	13	Reports	A	
Waste Disposal			Signage	A		Plans	A	
Waste Water	A					Notifications	A	
Solid Waste	A		**Monitoring**			**Other**		
Hazardous Waste	A		Sample Collection / Analysis	NI		Follow-up from previous inspection	U	

**The number in the comments field will correspond with specific comments provided below.*

Samples taken by Inspector:	Location(s): (1) Sheardown Lake Tributary 1 before it enter Sheardown Lake, and (2) small Camp Lake tributary, downstream of exploration camp, before it enters Camp Lake
☒ Yes ☐ No	

SECTION 1 ☒ **Comments** ☐ **Non-Compliance with Act or Licence** ☐ **Action Required**

Inspectors Statement

On May 18-20, 2016, a water licence inspection was conducted at the Mary River Project, Qikiqtani Region, Nunavut. Sites inspected included the Mary River Mine Site, the Tote Road and related infrastructure, and the Milne Port area.

Weather Conditions on Site

The site remained largely snow covered at the time of the inspection; however, due to unusually warm weather freshet had just begun causing significant snowmelt to enter watercourses.

Summary of Report

At the time of inspection, the Licensee was undertaking activities related to the operation of an open-pit iron ore mine at the Milne Port (Milne Inlet), Mine site (Mary River), Tote Road. Most major construction activities have finished and BIMC is primarily mining ore and transporting it to Milne Port in preparation for open water season.

Prior to the Inspection, BIMC has reported high levels of suspended solids are entering watercourses. This has been reported to relevant parties through Spill Report #: 16-158, 16-176, 16-181.

During the inspection, it was evident that sediment entering watercourses was a concern. Water flowing within the water courses at Mary River and along the Tote Road was significantly discoloured, amplified by the effect of iron oxidation. While on site, it was observed that sediment entering water was a consequence of:

- Over winter dust accumulation on the snow from project activities (i.e. crushing ore and material, transporting material on the Tote Road, and storing material in stockpiles). Snow stained with red iron dust is evident throughout the site,
- snowmelt entering watercourses with dust entrained in the snow,
- run-off from the road surface,
- surface water management structures not fully implemented to proactively deal with freshet and manage erosion and sedimentation; and,
- recent and continued construction of infrastructure.

Due to the concerns of sediment entering watercourses, BIMC has committed to implementing a plan to address the sedimentation of watercourses around the site. This plan is to be provided to the Inspector by June 22 2016, and is to outline specific measures to be implemented within the 2016 season to effectively deal with sedimentation entering watercourses and to address freshet 2017.

SECTION 2 ☐ **Comments** ☐ **Non-Compliance with Act or Licence** ☒ **Action Required**

Water Management Structures:

1. Ore Stockpile Pad Diversion Ditches and Ore Stockpile Settling Ponds at Milne Inlet
    a. No snow was contained on the Ore Stockpile Pad; however, significant water was present within the facility.
    b. During this inspection it was noted that the ore stockpile diversion ditches and the ore stockpile settling ponds were still not completed.
    c. BIMC has not met the deadline they committed to in June 2016 whereas diversion ditches and the settling ponds would be properly commissioned prior to freshet 2016.
    d. *INAC* was not informed prior to freshet 2016 that this commitment would not be met.
    e. Following the inspection, BIMC has submitted a plan entitled, "*Milne Stockpile Pad Water Drainage System – Execution Plan and Schedule,*" whereas BIMC has again committed to completing this work prior to July 18, 2016.
2. Water Management Structures along the Tote Road
    a. In previous inspections, it was recommended that BIMC proactively identify areas that are more prone to silt-loading and implement appropriate sedimentation mitigation measures. The location near to David Lake, KM78 to KM86, was identified as a high risk area.
        i. Specifically, BIMC committed to installing armour stone in ditches that receive high levels of flow prior to Freshet 2016.
        ii. At the time of the inspection, appropriate sedimentation mitigation measures were not installed in areas of high risk.
        iii. *INAC* was not informed prior to freshet 2016 that this commitment would not be met.
        iv. BIMC has committed to developing a plan with timelines and measureable deliverable to address their erosion prevention measures on the Tote Road prior to June 22, 2016.
3. Water Management Structures along the Mine Haul Road
    a. BIMC has completed significant work, since the last inspection on the Mine Haul Road, to deal with erosion and sedimentation.
        i. Ditches along this road were armoured with rip-rap.
        ii. Water was being effectively diverted into these ditches and then into small sedimentation ponds before entering culverts.
        iii. Armouring stone was installed downstream of culverts to reduce sedimentation and erosion.
    b. Water accumulating on the road was being diverted to temporary road drainage structures.
4. Ore Crushing Area and associated Sedimentation Ponds
    a. In the previous inspection, there were concerns with the erosion protection deficiencies along the natural drainage edge of this facility as well as minor tear/punctures in the liner.
        i. It was observed during the inspection that the previous concerns noted have been addressed. Rip-rap has been installed along the natural drainage edge and minor punctures have been repaired.
    b. During this inspection, water was pooling in the ore crushing area.
    c. Prior to the inspection, a sinkhole formed within the facility likely from excess water accumulation.
    d. It is recommended that BIMC grade the ore crushing area to properly drain the facility towards the sedimentation ponds.
5. Waste Rock Pile water collection pond
    a. At the time of the inspection, the waste rock pile water collection pond was currently being commissioned.
    b. Interceptor ditches not yet completed.
    c. No major concerns with this structure.

Sedimentation:

6. During the inspection, there were significant sedimentation and erosion events (as indicated by red rust coloured water) actively occurring within watercourses along the Tote Road and entering David Lake, Mural Lake, Kabikok Lake, Sheardown Lake (see *Photo 1*), Camp Lake (*see Photo 2*), Mary River and Phillips Creek.
    a. The cause of this sedimentation and erosion events is likely loose soils becoming suspended during higher flow events, run-off of water from the Tote Road, and from dust entrained within snow (resulting the crusher, the tote road and the ore stockpile) melting and entering the watercourses.
    b. During freshet it was observed that BIMC prioritized sedimentation control measures in certain streams; however, the extent of the sedimentation event was too large to control with reactionary measures.
    c. Significant pre-planned sedimentation control measures prior to sedimentation events are likely required to meet conditions of the Water Licence.

d. Water samples were taken by the Inspector to confirm water quality at Sheardown Lake Tributary 1, and a small tributary entering Camp Lake.
    i. The water quality sample at Sheardown Lake Tributary 1 had a Total Suspended Solid (TSS) result of 50.4mg/L. This level is within the Effluent Quality Limits for Surface Runoff during the Construction phase as construction was occurring directly upstream of this sample location.
    ii. The water quality sample taken at the stream entering Camp Lake near the monitoring location MS-MRY-1 had a TSS result of 114mg/L. This sample exceeded all effluent quality limits within the licence.
    iii. **A letter of Non-Compliance has been issued as a warning to BIMC because previous commitments were not addressed to mitigate the effects of sediment loading to water.**

7. Bridges along Tote Road
    a. During wet conditions on the Tote Road, it was noted that road material is being pushed into all water courses that are crossed by a bridge.
    b. During the inspection, there was significant sediment on snow below the bridge (see *Photo 3*).
    c. It is requested that BIMC address this concern in their plan due June 22, 2016 which is to address sedimentation issues along the Tote Road.

Sites of Concern noted from Previous Inspections:

Water Management Structures:

Mine Site

8. Jetty at Camp Lake
    a. Significant erosion has occurred at the Jetty at Camp Lake. Further erosion and sedimentation is likely to occur if this issue is not addressed.
    b. BIMC has provided a schedule and plan on timelines to address this concern:
        i. In Late June 2016: install silt curtains around the facility.
        ii. In July 2016: complete work on the structure.
9. Jet Fuel Tank Farm Containment at Aerodrome
    a. During a previous inspection, it was noted that the crest and profile of the embankments were not maintained.
    b. During the May 2016 inspection the berms/ embankments appeared to be well maintained.
10. Bulk Fuel Storage Facility Containment.
    a. The embankment crest and some side slopes were not maintained to the design profile as required.
    b. During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.
11. Hazardous Waste Containment
    a. During a previous inspection, it was noted that the crest width and profiles of some of these facilities near the aerodrome were not in good shape. There were indications of manoeuvring of tracked machinery over the embankment resulting in a disturbed embankment profile. It is recommended these containments receive maintenance.
    b. During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.

Milne Port Site

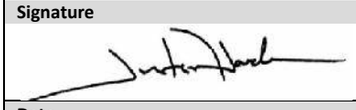
12. Hazardous Waste Containment Facility
    a. During a previous inspection, it was noted that some of the berm crest widths and profiles were not in good shape and there were indications or manoeuvring of tracked machinery over the berms.
    b. It is suggested that these containments be sign-posted warning of the shallow cover material thickness over the liner limiting traffic movements and caution when placing heavy, sharp, or other large objects which may have the potential to puncture the liner.
    c. BIMC has addressed this and said consideration is being given to the strategic installation of barriers and/or signs.
    d. During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.

Materials Storage:

13. Calcium Chloride Storage Area
    a. It is recommended that a perimeter berm/drainage ditch be installed to route the runoff away from the storage and down the slope hill to the drainage ditch along the Tote Road as a preventative measure.
    b. BIMC has committed to visual monitoring and flow mapping of the area during Freshet 2016 and that drainage measures will be implemented as appropriate.
    c. During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.

Waste Water:

14. Accumulated Water at the new maintenance building at KM60 on the Tote Road
    a. During a previous inspection concern was expressed on how BIMC would deal with accumulated wastewater within this facility.
    b. BIMC has provided justification that water will not accumulate within this facility or migrate from this facility. BIMC has committed to monitor this structure.

Inspector's Name	
Justin Hack	
Signature	
	
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June 16, 2016	

Justin Hack
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Photo Log # 1 **Location: Sheardown Lake Tributary #1**

Description: Water laden with sediment entering Sheardown Lake

Photo Log # 2	Location: Camp Lake near Water Intake

Description: Sedimentation entering Camp Lake from small camp lake tributary downstream of exploration camp

Photo Log # 2	Location KM62 Bridge

Description: Road material entering stream at KM62 Bridge

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Licensee	Licensee Representative
Baffinland Iron Mines Corporation (BIMC)	Jim MILLARD/Allan KNIGHT
Licence No. / Expiry	**Representative's Title**
2AM-MRY1325	Environmental Manager
Land / Other Authorizations	**Land / Other Authorizations**
2BE-MRY1421	N2014X0012, N2014Q0016, N2014C0013
Date of Inspection	**Inspector**
July 6-8, 2016	Justin HACK

Activities Inspected

☒ Camp ☐ Drilling ☒ Mining ☒ Construction ☐ Reclamation ☒ Fuel Storage
☒ Roads/Hauling ☐ Other: ☐ Other:

Conditions: **A - Acceptable** **C - Concern** **U - Unacceptable** **NA – Not Applicable** **NI – Not Inspected**

Water Use	Condition	Comment	Site Conditions	Condition	Comment	Haz/Mat Management	Condition	Comment
Intake/Screen	NI		Water Management Structures	C	1-3,7-10	Storage	NI	
Flow Measure. Device	NI		Culverts / Bridges	A	4-5	Spills	NI	
Source:	A		Drainage	A		Spill Plan	A	
Water Use:	A		Erosion / Sediment	A				
Recirculation (y /n)	NA		Mitigation Measures	A		**Administrative**		
			Reclamation Activities	A		Records	NI	
			Materials Storage	A	6, 11	Reports	A	
Waste Disposal			Signage	A		Plans	A	
Waste Water	A					Notifications	A	
Solid Waste	A		**Monitoring**			**Other**		
Hazardous Waste	A		Sample Collection / Analysis	NI		Follow-up from previous inspection	A	

**The number in the comments field will correspond with specific comments provided below.*

Samples taken by Inspector:	Location(s):
☐ Yes ☒ No	

SECTION 1 ☒ **Comments** ☐ **Non-Compliance with Act or Licence** ☐ **Action Required**

Inspectors Statement

On July 6-8 2016, a water licence inspection was conducted at the Mary River Project, Qikiqtani Region, Nunavut. Sites inspected included the Mary River Mine Site, the Tote Road and related infrastructure, and the Milne Port area.

Weather Conditions on Site

Temperatures of approximately 20°C, partially cloudy and no snow remained on site.

Summary of Report

At the time of inspection, the Licensee was undertaking activities related to the operation of an open-pit iron ore mine at the Milne Port (Milne Inlet), Mine site (Mary River), Tote Road. Most major construction activities have finished and BIMC is primarily mining ore and transporting it to Milne Port in preparation for ore transportation.

During the Water Licence Inspection in May 2016, it was observed that commitments made by BIMC to complete the Ore Stockpile Pad Diversion Ditches and commitments to address areas prone to sedimentation along the Tote Road were not met. A Letter of Non-Compliance was issued to BIMC outlining deadlines to complete this work and a warning that further enforcement measures may be taken if reasonable diligence towards meeting the requirement of their licence, Part D, are not addressed.

Since the May inspection, significant work has been completed related to addressing the sedimentation issues around site and completing the Ore Stockpile Diversion ditches. BIMC has committed, until the submission of the Tote Road and Mine Haul Road Mitigation Action Plan on September 30, 2016 to submit bi-weekly updates regarding work related to this concern.

SECTION 2 ☐ **Comments** ☐ **Non-Compliance with Act or Licence** ☒ **Action Required**

Water Management Structures:

1. Waste Rock Pile Sedimentation Pond
    a. At the time of the inspection, it was observed that run-off at the Waste Rock Pile Sedimentation pond was not being properly diverted to the sedimentation pond.
    b. BIMC committed to addressing the surface water run-off concern of this facility by July 22, 2016.

c. Follow-up will be completed at the next inspection.

2. Ore Stockpile Pad Diversion Ditches and Ore Stockpile Settling Ponds at Milne Inlet
    a. A Letter of Non-Compliance was issued regarding the commitments not achieved after the May 2016 Inspection.
    b. In a response provided to the Inspector prior to this inspection, BIMC has submitted a plan entitled, "*Milne Stockpile Pad Water Drainage System – Execution Plan and Schedule*" whereas work was planned to be completed by June 22, 2016.
    c. Completed work was confirmed to have occurred on this structure during the inspection.
3. Water Management Structures along the Tote Road
    a. Due to the significant sedimentation of waterways around the project, a *Letter of Non-Compliance* was issued to BIMC to address this issue.
    b. In response to the Letter of Non-Compliance, BIMC has made significant progress related to mitigating sedimentation events from project activities.
    c. Updates are being provided by BIMC in bi-weekly reports of any new work associated with addressing and mitigating sedimentation of waterways along the Tote Road.
    d. On September 30, 2016 a Tote Road and Mine Haul Road mitigation action plan is due to Environment and Climate Change Canada that will provide an implementation schedule addressing sediment water runoff from the road into culverts, ditchers, and creeks/streams which leads to David Lake, Mural Lake, Kabikok Lake, KM32 Lake, KM27 Lake, Camp Lake, Sheardown Lake, Mary River, and Phillips Creek.

Culverts/Bridges

4. Bridges along Tote Road
    a. In a previous inspection it was noted that road material was being pushed into water courses that are crossed by a bridge.
    b. In the report submitted June 24, 2016 BIMC provided documentation that this issue was addressed.
5. Culverts
    a. Previous concerns related to culverts management and maintenance is being addressed in the Tote Road and Mine Haul Road mitigation action plan due September 30, 2016.

Materials Storage

6. Ore Crushing Area and associated Sedimentation Ponds
    a. This structure was previously identified by BIMC as encroaching onto a nearby stream.
        i. At the time of this inspection, BIMC was conducting work to remove a section of the ore crushing area pad away from the stream.
        ii. Significant erosion and sedimentation control measures were in place during this activity.
    b. Another concern that was noted in a previous inspection was the drainage of the facility.
        i. BIMC has installed culverts and graded the facility to help channel water to the sedimentation pond.

<u>Sites of Concern noted from Previous Inspections:</u>

Water Management Structures:

Mine Site

7. Jetty at Camp Lake
    a. Silt curtain were installed in July to prevent further damage to the structure.
    b. On August 23, 2016 BIMC provided notice that there have been delays in making the required repairs to the jetty due to logistical problems.
    c. BIMC has committed to finalizing the work before freeze-up.
8. Bulk Fuel Storage Facility Containment.
    a. The embankment crest and some side slopes were not maintained to the design profile as required.
    b. During the July 2016 inspection the berms/embankments appeared to be well maintained.
9. Hazardous Waste Containment
    a. During a previous inspection, it was noted that the crest width and profiles of some of these facilities near the aerodrome were not in good shape. There were indications of manoeuvring of tracked machinery over the embankment resulting in a disturbed embankment profile. It is recommended these containments receive maintenance.
    b. During the July 2016 inspection the berms/embankments appeared to be well maintained.

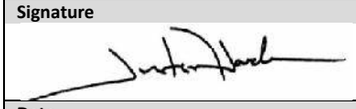
Milne Port Site

10. Hazardous Waste Containment Facility
    a. During a previous inspection, it was noted that some of the berm crest widths and profiles were not in good shape and there were indications or manoeuvring of tracked machinery over the berms.
    b. During the May 2016 inspection this structure was not inspected.
    c. During the July 2016 inspection it was noted that there was evidence of water within the facility close to overtopping at the spillway.

d. Sufficient freeboard must be maintained at this facility.

Materials Storage:

11. Calcium Chloride Storage Area
    a. It is recommended that a perimeter berm/drainage ditch be installed to route the runoff away from the storage and down the slope hill to the drainage ditch along the Tote Road as a preventative measure.
    b. BIMC has committed to visual monitoring and flow mapping of the area during Freshet 2016 and that drainage measures will be implemented as appropriate.
    c. This facility was inspected and no concerns were noted.

Inspector's Name	
Justin Hack	
Signature	
	
Date	
September 13, 2016	

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Indigenous and Northern Affairs Canada | Affaires autochtones et du Nord Canada

WATER LICENCE INSPECTION FORM

☒ Original
☐ Follow-Up Report

Licensee	Licensee Representative
Baffinland Iron Mines Corporation (BIMC)	Jim MILLARD/William BOWDEN
Licence No. / Expiry	**Representative's Title**
2AM-MRY1325	Environmental Manager
Land / Other Authorizations	**Land / Other Authorizations**
2BE-MRY1421	N2014X0012, N2014Q0016, N2014C0013
Date of Inspection	**Inspector**
Sept 28-29, 2016	Justin HACK

Activities Inspected

☒ Camp ☐ Drilling ☒ Mining ☒ Construction ☐ Reclamation ☒ Fuel Storage
☒ Roads/Hauling ☐ Other: ☐ Other:

Conditions: **A - Acceptable** **C - Concern** **U - Unacceptable** **NA – Not Applicable** **NI – Not Inspected**

Water Use	Condition	Comment	Site Conditions	Condition	Comment	Haz/Mat Management	Condition	Comment
Intake/Screen	NI		**Water Management Structures**	**C**	**5**	Storage	NI	
Flow Measure. Device	A		Culverts / Bridges	A		Spills	NI	
Source:	A		Drainage	A		Spill Plan	A	
Water Use:	A		**Erosion / Sediment**	**A**	**16**			
Recirculation (y /n)	NA		Mitigation Measures	A		**Administrative**		
			Reclamation Activities	A		Records	NI	
			Materials Storage	A		Reports	A	
Waste Disposal			Signage	A		Plans	A	
Waste Water	A					Notifications	A	
Solid Waste	A		**Monitoring**			**Other**		
Hazardous Waste	A		Sample Collection / Analysis	NI		Follow-up from previous inspection	A	

**The number in the comments field will correspond with specific comments provided below.*

Samples taken by Inspector:	Location(s):
☐ Yes ☒ No	

SECTION 1 ☒ **Comments** ☐ **Non-Compliance with Act or Licence** ☐ **Action Required**

Inspectors Statement

On September 28-29 2016, a water licence inspection was conducted at the Mary River Project, Qikiqtani Region, Nunavut. Sites inspected included the Mary River Mine Site, the Tote Road and related infrastructure, and the Milne Port area.

Weather Conditions on Site

Temperatures were approximately -2°C with snow cover. Large water bodies remained unfrozen, while smaller streams and water in containment was frozen.

Summary of Report

At the time of inspection, the Licensee was conducting activities related to the mining of iron ore, which includes blasting, crushing and transporting ore to Milne Port to an awaiting ship.

Due to the significant snow cover on site and the frozen conditions it was difficult to conduct a thorough inspection. All major activities related to the use of water and deposits of waste were inspected.

Baffinland has submitted a Dust Mitigation Action Plan and a Sedimentation Mitigation Action Plan to address the ongoing concerns with dust, sedimentation and erosion on site.

No major concerns are noted in this report

SECTION 2 ☐ **Comments** ☐ **Non-Compliance with Act or Licence** ☒ **Action Required**

Water Management Structures:

1. Waste Rock Pile Sedimentation Pond and Surface Water Management Ditches
    a. BIMC explained that proper diversion ditches for this facility were constructed as noted in a previous inspection.
    b. During inspection, snow cover prevented proper inspection of this facility.
    c. Follow-up will be conducted when snow melts.
2. Crusher Pad Construction

   a. A recent expansion of this facility was completed.
   b. It was noted previously that BIMC had installed mitigation measures to address sedimentation during construction.
   c. At the time of this inspection, BIMC left the mitigation measures in place to address possible sedimentation during spring melt.
3. Crusher Pad Sedimentation Pond
   a. Significant snow cover prevented proper inspection of this facility; however, no signs of leaks were apparent.
4. Ore Stockpile Sedimentation Pond West
   a. During the Jul 2016 Geotechnical Inspection, it was identified that there is concern over the stability of the liner in this pond.
   b. Furthermore, culvert inlet is possibly allowing water to flow under the liner. This must be repaired during the next construction season.
5. Ore Stockpile Sedimentation Pond East
   a. At the time of the inspection, the water within the pond was approximately 30cm from overtopping. It was recommended to BIMC that this pond be decanted to prevent uncontrolled discharge from this facility.
6. Hazardous Waste Berms (MS-HWB1 to 6, and MP-HWB-1, MP-HWB-3 to 5)
   a. All hazardous waste berms were inspected.
   b. All waste was contained within the facility and no signs of leaks were apparent.
7. Polishing Waste Stabilization Ponds (Three Ponds at Mary River and One Pond at Milne Port)
   a. Significant snow cover prevented a proper inspection; however, no signs of leaks in the berm walls or tears in the liner were apparent.
8. Ore Stockpile Pad Diversion Ditches
   a. No concerns related to this infrastructure.
9. Contaminated Snow Containment Facility
   a. Significant snow cover prevented proper inspection of this facility; however, no signs of leaks were apparent.
10. Landfarm Facility
   a. Significant snow cover prevented proper inspection of this facility; however, no signs of leaks were apparent.
11. Bulk Fuel Storage Facility at Mine Site, Aerodrome, and Milne Port
   a. No concerns with these structures.

Water Use:

12. Records for water use were in good order at the time of the inspection at both Milne Port and Mary River Mine Site.
13. At the time of the inspection, water was primarily being used to support camp functions.

Waste Discharges:

14. BIMC was discharging sewage waste as intended. No other discharges of wastes were occurring during the inspection.
15. Records of sewage discharges were in good order.

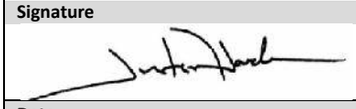
Erosion and Sedimentation

16. General Site Comment
   a. Due to the significant sedimentation of waterways around the project, a *Letter of Non-Compliance* was issued to BIMC to address this issue.
   b. In response to the Letter of Non-Compliance, BIMC has made significant progress related to mitigating sedimentation events from project activities.
   c. On September 30, 2016 a Dust Mitigation Action Plan and a Sedimentation Mitigation Action Plan was submitted by BIMC to address the concerns over Dust and Sedimentation on site.
17. Jetty at Camp Lake
   a. The construction of this structure was complete at the time of the inspection.
   b. Proper sedimentation measures were installed during construction.

Culverts/Bridges

18. Bridges along Tote Road
   a. In a previous inspection it was noted that road material was being pushed into water courses that are crossed by a bridge.
   b. BIMC has developed a plan to minimize the amount of road material entering major water courses.
   c. This will be monitored during future inspections.

Inspector's Name	

Justin Hack	
Signature	
	
Date	
November 9, 2016	

Justin Hack
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November 14, 2016

Justin Hack, Resource Management Officer
Nunavut Field Operations
Indigenous and Northern Affairs Canada
Iqaluit, NU X0A 0H0

Re: Response to INAC June, July, and September 2016 Inspection Findings for Mary River Project, Type A Water Licence 2AM-MRY1325 Amendment No.1, Type B Water Licence 2BE-MRY1421, and Land Use Permits N2014X0012, N2014Q0016, N2014C0013

Dear Mr. Hack:

This letter provides Baffinland Iron Mines Corporation's (Baffinland) response to Indigenous and Northern Affairs Canada (INAC) Inspections that were conducted on the following dates under the above referenced Water Licences and Land Use Permits: May 18 to 20, July 6 to 8, and September 28 to 29.

We attach Tables A.1, A.2, and A.3 which provide Baffinland's responses to concerns and comments provided in the Inspection Reports received by Baffinland on June 16, September 13, and November 9, 2016, respectively.

Please do not hesitate to contact us should you have any further comments or questions.

Sincerely,

James Millard
Environmental Manager

Attach:

Table A.1 - Baffinland Response to INAC Water Licence Inspection Report, Dated June 16, 2016 (four pages)
Table A.2 - Baffinland Response to INAC Water Licence Inspection Report, Dated September 13, 2016 (three pages)
Table A.3 - Baffinland Response to INAC Water Licence Report Dated November 9, 2016 (three pages)
INAC Inspection Reports (11 pages)

Cc: Erik Allain, Scott Burges, Sarah Forte, Jonathan Mesher (INAC)
Todd Burlingame, Wayne McPhee, Sylvain Proulx, Robert Gagne (Baffinland)

Table A.1 - Baffinland Response to INAC Water Licence Inspection Report, Dated June 16, 2016 (Inspection Dates May 18 to May 20)

ITEM No.[1]	Observation or Item of Concern	Baffinland Responses
Waste Management Structures:		
1	***Ore Stockpile Pad Diversion Ditches and Ore Stockpile Settling Ponds at Milne Inlet*** *- significant water within the Ore Stockpile Pad* *- diversion ditches and the ore stockpile settling pond still not completed* *- not met the deadline committed to in June 2015 whereas the diversion ditches and the settling ponds would be properly commissioned prior to freshet 2016* *- INAC was not informed prior to freshet 2016 that this commitment would not be met*	Following the inspection, BIMC submitted a plan entitled, "*Milne Stockpile Drainage System - Execution Plan and Schedule* " (May 23, 2016). The construction of the diversion ditches commenced in late May and was substantially completed in mid-June.
2	***Water Management Structures along the Tote Road*** *- BIMC committed to installing armour stone in ditches that receive high levels of flow, specifically location near David Lake, Km78 to Km86, prior to freshet 2016.* *- Appropriate sedimentation mitigation measures were not installed in areas of high risk* *- INAC was not informed prior to freshet 2016 that this commitment would not been met*	Following the inspection, BIMC retained OPC North in late May to manage the implementation of sedimentation mitigation measures along the Tote Road, including check dam construction, roadside ditch armouring using rip-rap and geotextile, silt fence installation and the reinforcement of erosion prone slopes. The majority of the work was completed between km 77 - 100 of the Tote Road and focused on the concerns identified during the May inspection. Additional details are provided in the biweekly update reports and completion report provided to Environment and Climate Change Canada (ECCC) and INAC in response to the Fisheries Act Direction and INAC Letter of Non-Compliance. Moreover, as part of the Sedimentation Mitigation Plan submitted to ECCC and INAC on September 29, 2016, BIMC is currently finalizing a Tote Road Earthworks Execution Plan (TREEP) to address outstanding concerns along the Tote Road. The TREEP will outline timelines and measurable deliverables and will discuss the planned road upgrades and sedimentation mitigation measures to be completed along the Tote Road in the future.
4	***Ore Crushing Area and associated Sedimentation Ponds*** *- water pooling in the ore crushing area* *- sinkhole formed within the facility likely from excess water accumulation* *- recommend that BIMC grade the ore crushing area to properly drain the facility towards the sedimentation ponds*	During early July, the Mine Site Crusher Pad was recontoured to optimize surface water drainage on the pad. Moreover, in accordance with the facility design intent a perimeter ditch was completed around the crusher pad to redirect runoff to the crusher pad sedimentation pond.
5	***Waste Rock Pile water collection pond*** *- waste rock pile water collection pond currently being commissioned* *- intercept ditches not yet completed* *- No major concerns with this structure*	The Waste Rock Settling Pond was completed in May 2016. Modifications were made to the ditching and diversion structures throughout the summer to ensure effective direction of surface water drainage. Nuna East was contracted to recontour and modify the water management infrastructure (sedimentation pond, drainage ditching, diversion berms) associated with the waste rock stockpile and pond. These modifications were effective in directing most runoff originating from the waste rock stockpile to the sedimentation pond.

Sedimentation:		
6	***Significant sedimentation and erosion events during the inspection*** *- indicated by red rust coloured water actively occurring within water courses along the Tote Road and entering David Lake, Murial Lake, Katiktok Lake, Sheardown Lake, Camp Lake, Mary River and Phillip's Creek.* *- likely caused by loose soils becoming suspended during higher flow events, runoff of water from the Tote Road, and from dust entrained within snow melting and entering watercourses.* *- during freshet it was observed sedimentation control measures prioritized in certain streams; however, the extent of the sedimentation event was too large to control with reactionary measures.* *- significant pre-planned sedimentation control measures prior to sedimentation events are likely required to meet conditions of the Water Licence.* *- Water samples taken by the Inspector at Sheardown Lake Tributary 1 had a TSS result of 50.4 mg/L. - within the Effluent Quality Limits for Surface Runoff.* *- Water sample taken at the stream entering Camp Lake had a result of 114 mg/L - exceeded effluent quality limits within the licence.* *- A letter of Non-Compliance has been issued as a warning to BIMC because previous commitments were not addressed to mitigate the effects of sediment loading to water.*	Refer to the biweekly update reports and completion report submitted by BIMC to Environment and Climate Change Canada and INAC in response to the Fisheries Act Direction and INAC Letter of Non-Compliance.
7	***Bridges along the Tote Road*** *- during wet conditions on the Tote Road, it was noted that road material is being pushed into all water courses that are crossed by a bridge.* *- during the inspection, there was significant sediment on the snow below the bridges.* *- it is requested this concern be addressed in the plan due June 22, 2016 which is to address sedimentation issues along the Tote Road.*	Following the inspection, attempts were made to clear snow under the bridges along the Tote Road, and the surface of the bridges were cleared of muddy material by means of manual methods. Additional details are provided in the biweekly update reports and completion report provided to Environment and Climate Change Canada (ECCC) and INAC in response to the Fisheries Act Direction and INAC Letter of Non-Compliance. Material is not be deliberately pushed into the water, rather material that falls off the trucks and other equipment drops through gaps in the bridge. The issue was addressed in so far as road materials that fell on the ice below the bridges were scraped up prior to freshet. The design of each bridge is such that some road material will fall through the gaps, however, the gaps are an integral design feature of the bridges. More study of this design challenge is required. Baffinland will keep you notified of our work in this regard.

Sites of Concern from Previous Inspections		
Water Management Structures:		
Mine Site		
8	***Jetty at Camp Lake*** *- Significant erosion has occurred at the Jetty at Camp Lake. Further erosion and sedimentation is likely to occur it the issue is not addressed.* *- BIMC has provided a schedule and plan on timelines to address this concern:* *- In Late June: install silt curtains around the facility* *- In July 2016: complete work on the structure.*	Silt curtains were installed around the perimeter of the Camp Lake Water Jetty during mid-July. In mid-September, the jetty was repaired and armoured along its perimeter in order to prevent similar erosion events from occurring in the future.
9	***Jet Fuel Tank Farm Containment at Aerodrome*** *- During a previous inspection, it was noted that the crest and embankments were not maintained.* *- During the May 2016 inspection the berms and embankments appeared to be well maintained.*	Noted.
10	***Bulk Fuel Storage Facility Containment*** *- The embankment crest and some side slopes were not maintained to the design profile as required* *- During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection*	The embankment crest and slide slopes of the Mine Site Bulk Fuel Storage Facility have been recontoured to reflect the design profile.
11	***Hazardous Waste Containment*** *- During a previous inspection, it was noted that the crest width and profiles of some of these facilities near the aerodrome were not In good shape. There were indications of maneuvering of tracked machinery over the embankments resulting in a disturbed embankment profile. It is recommended these containments receive maintenance* *- During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.*	The issue has been brought up by supervisors to their team members and the berms are monitored to ensure no further disturbance. In some cases, barriers and signs have been posted. The berm walls have been recontoured to reflect the berm design profiles.
Milne Port Site		
12	***Hazardous Waste Containment Facility*** *- During a previous inspection, it was noted that some of the berm crest widths and profiles were not In good shape and there were indications of maneuvering of tracked machinery over the berms.* *-It is suggested that these containments be sign-posted warning of the shallow cover material thickness over the liner limiting traffic movements and caution when placing heavy, sharp, or other large objects which may have the potential to puncture the liner.* *- During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.*	The issue has been brought up by supervisors to their team members. BIMC will continue to monitor the berms to ensure no further disturbance. In some cases, barriers and signs have been posted. The berm walls have been recontoured to reflect the berm design profiles.
Materials Storage:		

13	***Calcium Chloride Storage Area*** *-It is recommended that a perimeter berm / drainage ditch be installed to route runoff away from the storage and down the slope hill to the drainage ditch along the Tote Road as a preventative measure.* *- BIMC has committed to visual monitoring and flow mapping of the area during freshet 2016 and that drainage measures will be implemented where appropriate.* *- During the May 2016 inspection this structure was not inspected, INAC will follow up in the next inspection.*	No runoff or water flow was observed at this location during 2016. BIMC will continue to monitor the area for runoff and will implement drainage measures where required.
Waste Water:		
14	***Accumulated water at the new maintenance building at KM60 on the Tote Road*** *- During a previous inspection, concern was expressed on how BIMC would deal with accumulated wastewater within this facility.* *- BIMC has provided justification that water will not accumulate within this facility or migrate from this facility. BIMC has committed to monitor this structure.*	During 2016, no significant water accumulation was observed within this structure. BIMC will continue to monitor this structure for surface water drainage.

Notes:

[1] Item No. as referenced in AANDC Water Licence Inspection Report May 18-20, 2016

Table A.2 - Baffinland Response to INAC Water Licence Inspection Report, Dated September 13, 2016 (Inspection Dates July 6 to 8)		
ITEM No.[1]	**Observation or Item of Concern**	**Baffinland Responses**
Water Management Structures		
1	***Waste Rock Pile Sedimentation Pond*** *- Runoff at the Waste Rock Pile was not being properly diverted to the sedimentation pond* *- BIMC committed to addressing the surface water runoff concern of this facility by July 22, 2016* *- Follow-up will be completed at the next inspection*	The Waste Rock Settling Pond was excluding the ditching, was completed in May 2016. Modifications were made to the ditching and diversion structures throughout the summer to ensure effective direction of surface water drainage. Nuna East was contracted to recontour and modify the water management infrastructure (sedimentation pond, drainage ditching, diversion berms) associated with the waste rock stockpile and pond. These modifications were effective in directing most runoff originating from the waste rock stockpile to the sedimentation pond.
2	***Ore Stockpile Diversion Ditches and Ore Stockpile Settling Ponds at Milne Inlet*** *- A Letter of Non-Compliance was issued regarding the commitments not achieved after the May 2016 Inspection* *- In a response provided to the Inspector prior to this inspection, BIMC has submitted a plan entitled, "Milne Stockpile Pad Water Drainage System – Execution Plan and Schedule" whereas work was planned to be completed by June 22, 2016.* *- Completed work was confirmed to have occurred on this structure during the inspection*	Noted.
3	***Water Management Structures along the Tote Road*** *- Due to the significant sedimentation of waterways around the project, a Letter of Non-Compliance was issued to BIMC to address this issue.* *- In response to the Letter of Non-Compliance, BIMC has made significant progress related to mitigating sedimentation events from project activities.* *- Updates are being provided by BIMC in bi-weekly reports of any new work associated with addressing and mitigating sedimentation of waterways along the Tote Road.* *- On September 30, 2016 a Tote Road and Mine Haul Road mitigation action plan is due to Environment and Climate Change Canada that will provide an implementation schedule addressing sediment water runoff from the road into culverts, ditches, and creeks/streams which leads to David Lake, Mural Lake, Kabikok Lake, KM32 Lake, KM27 Lake, Camp Lake, Sheardown Lake, Mary River, and Phillips Creek.*	On September 29th, 2016, BIMC submitted the Completion Report to Environment and Climate Change Canada and INAC in response to the Fisheries Act Direction and INAC Letter of Non-Compliance. Included in the Completion Report was the Sedimentation Mitigation Action Plan which outlines sedimentation mitigation measures to be taken at the Mary River Project, including the Tote Road and Mine Haul Road. As part of the Sedimentation Mitigation Action Plan, BIMC is currently finalizing a Tote Road Earthworks Execution Plan (TREEP) to address outstanding concerns (culverts, embankment erosion, etc.) along the Tote Road. The TREEP will outline timelines and measurable deliverables and will discuss the planned road upgrades and sedimentation mitigation measures to be completed along the Tote Road in the future.
Culverts/Bridges		
4	***Bridges along Tote Road*** *- In a previous inspection it was noted that road material was being pushed into water courses that are crossed by a bridge.* *- In the report submitted June 24, 2016 BIMC provided documentation that this issue was addressed.*	Noted. Material is not be deliberately pushed into the water, rather material that falls off the trucks and other equipment drops through gaps in the bridge. The issue was addressed in so far as materials that fell on the ice below the bridges were scraped up prior to freshet. The design of each bridge is such that some road material will fall through the gaps, however, the gaps are an integral design feature of the bridges. More study of this design challenge is required. Baffinland will keep you notified of our work in this regard.

5	***Culverts*** *- Previous concerns related to culverts management and maintenance is being addressed in the Tote Road and Mine Haul Road mitigation action plan due September 30, 2016.*	See response to Item 3.
Materials Storage		
6	**Ore Crushing Area and associated Sedimentation Ponds** **a.** T*his structure was previously identified by BIMC as encroaching onto a nearby stream.* *- at the time of this inspection, BIMC was conducting work to remove a section of the ore crushing area pad away from the stream.* *- significant erosion and sedimentation control measures were in place during this activity.* ***b.** Another concern that was noted in a previous inspection was the drainage of the facility.* *- BIMC has installed culverts and graded the facility to help channel water to the sedimentation pond.*	During early July, the Mine Site Crusher Pad was recontoured to optimize surface water drainage on the pad. Moreover, in accordance with the facility design intent a perimeter ditch was extended around the crusher pad to intercept and redirect runoff to the crusher pad sedimentation pond.
Sites of Concern from Previous Inspections		
Water Management Structures:		
Mine Site		
7	***Jetty at Camp Lake*** *- Silt curtain were installed in July to prevent further damage to the structure.* *- On August 23, 2016 BIMC provided notice that there have been delays in making the required repairs to the jetty due to logistical problems.* *- BIMC has committed to finalizing the work before freeze-up.*	Silt curtains were installed around the perimeter of the Camp Lake Jetty during mid-July. In mid-September, the jetty was repaired and armoured along its perimeter in order to prevent similar erosion events from occurring in the future. All work was completed prior to freeze-up.
8	***Bulk Fuel Storage Facility Containment*** *- The embankment crest and some side slopes were not maintained to the design profile as required.* *- During the July 2016 inspection the berms/embankments appeared to be well maintained.*	Noted.
9	***Hazardous Waste Containment*** *- During a previous inspection, it was noted that the crest width and profiles of some of these facilities near the aerodrome were not in good shape. There were indications of manoeuvring of tracked machinery over the embankment resulting in a disturbed embankment profile. It is recommended these containments receive maintenance.* *- During the July 2016 inspection the berms/embankments appeared to be well maintained.*	Noted.
Milne Port Site		

10	***Hazardous Waste Containment Facility*** *- During a previous inspection, it was noted that some of the berm crest widths and profiles were not in good shape and there were indications or manoeuvring of tracked machinery over the berms.* *- During the May 2016 inspection this structure was not inspected.* *- During the July 2016 inspection it was noted that there was evidence of water within the facility close to overtopping at the spillway. Sufficient freeboard must be maintained at this facility.*	Following the inspection, the contaminated water contained in Hazardous Waste Berm MP-HWB-1 was transferred to the Milne Port Contaminated Snow Storage Berm for treatment. Water contained within the Contaminated Snow Storage Berm was treated using the onsite oily water treatment plant and discharged to the receiving environment during late August 2016. Effluent discharged to the receiving environment met the water quality criteria outlined in the Type A Water Licence (2AM-MRY1325). Prior to freeze-up, Hazardous Waste Berm MP-HWB-1 did not contain pooled water.
11	***Calcium Chloride Storage Area*** - It is recommended that a perimeter berm/drainage ditch be installed to route the runoff away from the storage and down the slope hill to the drainage ditch along the Tote Road as a preventative measure. - BIMC has committed to visual monitoring and flow mapping of the area during Freshet 2016 and that drainage measures will be implemented as appropriate. - This facility was inspected and no concerns were noted.	Very little to no runoff or water flow was observed at this location during 2016. BIMC will continue to monitor the area for runoff and will implement drainage measures where appropriate.

Notes:

[1] Item No. as referenced in AANDC Water Licence Inspection Report July 6 - 8, 2016

Table A.3 - Baffinland Response to INAC Water Licence Report Dated November 9, 2016 (Inspection Dates Sept 28and 29)		
ITEM No.[1]	**Observation or Item of Concern**	**Baffinland Responses**
Water Management Structures		
1	***Waste Rock Pile Sedimentation Pond and Surface Water Management Ditches*** *- BIMC explained that proper diversion ditches for this facility were constructed as noted in a previous inspection.* *- During inspection, snow cover prevented proper inspection of this facility.* *- Follow-up will be conducted when snow melts.*	The Waste Rock Settling Pond was completed in May 2016. Modifications were made to the ditching and diversion structures throughout the summer to ensure effective direction of surface water drainage. Nuna East was contracted to recontour and modify the water management infrastructure (sedimentation pond, drainage ditching, diversion berms) associated with the waste rock stockpile and pond. These modifications were effective in directing most runoff originating from the waste rock stockpile to the sedimentation pond. Monitoring of effectiveness of the ditching will be ongoing.
2	***Crusher Pad Construction*** *- A recent expansion of this facility was completed.* *- It was noted previously that BIMC had installed mitigation measures to address sedimentation during construction.* *- At the time of this inspection, BIMC left the mitigation measures in place to address possible sedimentation during spring melt.*	Noted.
3	***Crusher Pad Sedimentation Pond*** *- Significant snow cover prevented proper inspection of this facility; however, no signs of leaks were apparent.*	Noted.
4	***Ore Stockpile Sedimentation Pond West*** *- During the July 2016 Geotechnical Inspection, it was identified that there is concern over the stability of the liner in this pond.* *- Furthermore, culvert inlet is possibly allowing water to flow under the liner. This must be repaired during the next construction season.*	Tires, serving as ballast, have been placed on the exposed areas of the liner in accordance with the instructions provided by Baffinland's geotechnical consultant. Concerns associated with the liner at the inlet of the West Ore Stockpile Sedimentation Pond will be addressed by May 31, 2017, assuming ground conditions are sufficiently thawed to allow for the keying in of the liner at that time. The work will proceed in accordance with instructions provided by Baffinland's geotechnical inspection engineer. In the interim prior to final repair, contingency measures will be in place to direct the water appropriately.
5	***Ore Stockpile Sedimentation Pond East*** *- At the time of the inspection, the water within the pond was approximately 30 cm from overtopping. It was recommended to BIMC that this pond be decanted to prevent uncontrolled discharge from this facility.*	The water contained in the East Ore Stockpile Sedimentation Pond is currently frozen. The water level in the sedimentation pond will be monitored closely and discharged to the receiving environment during the spring melt in 2017. A pre-discharge sample was taken just prior to freeze-up. The results of the sample met effluent requirements for this location. Discharge from the Ore Stockpile Sedimentation Ponds in Milne Port will meet the water quality criteria outlined in the Type A Licence (2AM-MRY1325).

6	**Hazardous Waste Berms (MS-HWB1 to 6, and MP-HWB-1, MP-HWB-3 to 5)** *- All hazardous waste berms were inspected.* *- All waste was contained within the facility and no signs of leaks were apparent.*	Noted.
7	***Polishing Waste Stabilization Ponds (Three Ponds at Mary River and One Pond at Milne Port)*** *- Significant snow cover prevented a proper inspection; however, no signs of leaks in the berm walls or tears in the liner were apparent.*	Noted.
8	***Ore Stockpile Pad Diversion Ditches*** *- No concerns related to this infrastructure.*	Noted.
9	***Contaminated Snow Containment Facility*** *- Significant snow cover prevented proper inspection of this facility; however, no signs of leaks were apparent.*	Noted.
10	***Landfarm Facility*** *- Significant snow cover prevented proper inspection of this facility; however, no signs of leaks were apparent.*	Noted.
11	***Bulk Fuel Storage Facility at Mine Site, Aerodrome, and Milne Port*** *- No concerns with these structures.*	Noted.
Water Use		
12	*Records for water use were in good order at the time of the inspection at both Milne Port and Mary River Mine Site.*	Noted.
13	*At the time of the inspection, water was primarily being used to support camp functions.*	Noted.
Waste Discharges		
14	*BIMC was discharging sewage waste as intended. No other discharges of wastes were occurring during the inspection.*	Noted.
15	*Records of sewage discharges were in good order.*	Noted.
Erosion and Sedimentation		
16	***General Site Comment*** *- Due to the significant sedimentation of waterways around the Project, a Letter of Non-Compliance was issued to BIMC to address this issue.* *- In response to the Letter of Non-Compliance, BIMC has made significant progress related to mitigating sedimentation events from project activities.* *- On September 30, 2016 a Dust Mitigation Action Plan and a Sedimentation Mitigation Action Plan was submitted by BIMC to address the concerns over Dust and Sedimentation on site.*	Noted. We will endeavor to provide periodic updates on the progress made in the implementation of the Action Plans over the course of the winter.

17	***Jetty at Camp Lake*** *- The construction of this structure was complete at the time of the inspection.* *- Proper sedimentation measures were installed during construction.*	Silt curtains were installed around the perimeter of the Camp Lake Water Jetty during mid-July. In mid-September, the jetty was repaired and armoured along its perimeter in order to prevent similar erosion events from occurring in the future. All work was completed prior to freeze-up.
Culverts/Bridges		
18	***Bridges along Tote Road*** *- In a previous inspection it was noted that road material was being pushed into water courses that are crossed by a bridge.* *- BIMC has developed a plan to minimize the amount of road material entering major water courses.* *- This will be monitored during future inspections.*	Noted.

Notes:

[1] Item No. as referenced in AANDC Water Licence Inspection Report September 28 - 29, 2016