Baffinland Iron Mines Corporation

Response to Nunavut Tunngavik Incorporated

Motion to Adjourn of November 6, 2019

November 29, 2019

Baffinland

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I. EXECUTIVE SUMMARY

1. Baffinland Iron Mines Incorporated ("**Baffinland**" or "**the Company**") provides the following to the Nunavut Impact Review Board ("**NIRB**" or "**the Board**") in response to Nunavut Tunngavik Incorporated's ("**NTI**") Motion to adjourn and delay the public hearing for the assessment of the Phase 2 Development Project Proposal (the "**Phase 2 Proposal**") made at the public hearing which took place November 2-6, 2019 in Iqaluit, Nunavut.

2. Baffinland would like to thank the Board, Board staff, community representatives, Qikiqtani Inuit Association ("**QIA**") and NTI, all intervenors, and members of the public for their participation in the public hearing for the Phase 2 Proposal.

3. Baffinland has reviewed all intervenor written submissions on this matter that were submitted to the Board. Baffinland used the extension to the deadline for this response granted by the Board on November 22, 2019 to discuss its response with community representatives. Baffinland has also taken into account economic considerations related to the Company's financial wellbeing into its deliberation on the Board's request to respond to the NTI motion.

4. Since 2015, Baffinland has been working with the parties to develop the Phase 2 Proposal before the Board. It is a proposal that Baffinland remains confident in. The Phase 2 Proposal is one that has been shaped by purpose and need, technical feasibility and safe operations, Inuit Qaujimajatuqangit and scientific information, and public consultation. These are all necessary facets to ensure that Phase 2 will:

    - deliver significant long term sustained benefits to Inuit (both directly and via the QIA and NTI), the communities of Arctic Bay, Clyde River, Hall Beach, Igloolik, and Pond Inlet (collectively, the "**North Baffin Hamlets**"), and federal and territorial governments;
    - minimize negative impacts on the atmospheric, freshwater, terrestrial, marine, and human environments; and
    - develop a sustainable financial base from which the Mary River Mine can succeed.

5. Throughout this environmental assessment, Baffinland has worked with intervenors, and the North Baffin Hamlets to address concerns and integrate changes and improvements into the

Phase 2 Proposal. These modifications should be viewed in a positive light as they are a direct result of collaboration and public consultation. For instance, as a result of meaningful input for Inuit, Baffinland has changed its proposed rail embankment design and route selection. Baffinland has also abandoned its request for year-round shipping. These are important changes that have strengthened the Phase 2 Proposal.

6. Baffinland remains committed to working with all intervenors, and North Baffin Hamlets to address outstanding concerns relating to technical and other issues regarding the Phase 2 Proposal.

7. The QIA and Baffinland are parties to the Mary River Inuit Impact and Benefit Agreement ("**IIBA**") and a commercial lease for the Mary River property. The QIA represents all Qikiqtani Inuit as the Designated Inuit Organization as defined by Article 39 of the Nunavut Agreement. This relationship is one that Baffinland sincerely values. We know that continued collaboration with the QIA is essential to the success of the Mary River Mine and Baffinland openly welcomes any opportunity to meet, discuss, and confer with the QIA in a solutions oriented manner.

8. Baffinland has worked successfully with the QIA, Government of Nunavut and Government of Canada representatives to resolve a substantial number of technical issues throughout the review process, which is clearly demonstrated in the final written submission disposition table, included as Appendix 1. While some issues remain outstanding, Baffinland will continue to work with interested parties to determine if mutually-acceptable solutions can be developed through collaborative efforts.

9. Ongoing engagement with North Baffin Hamlets has shaped, and will continue to shape, the Phase 2 Proposal. With the additional time available to parties, Baffinland will look to work with the North Baffin Hamlets on the issues raised through their final written submissions and participation in the public hearing. In support of this work Baffinland is open to producing additional translated summaries of documents on a reasonable basis in accordance with the NIRB Rules of Procedure (documents translated to date are listed at Appendix 2), and holding additional meetings and workshops. Baffinland has every intention to meet the request of communities for continued engagement on the Phase 2 Proposal leading up to the continued public hearing. Baffinland remains confident that working together collaboratively will lead to

greater positive relationships between the company and the North Baffin Hamlets. On November 26 and 27, 2019, Baffinland met with representatives from the Hamlet of Pond Inlet and the Mittimatalik Hunters and Trappers Organization ("**MHTO**") to discuss the November 2-6 public hearing and proposed adjournment. Baffinland discussed with both parties its preference for a public hearing in April 2020 and requested their participation in a series of engagements between January and March 2020. Both parties confirmed their availability to continue meeting with Baffinland in advance of the next public hearing. The Hamlet of Pond Inlet is agreeable to Baffinland's proposed schedule while the MHTO would prefer a longer adjournment.

10. During the week of November 25, Baffinland representatives discussed with the Hamlet of Igloolik its preference for an April 2020 hearing date. Baffinland requested participation to build a community work plan to deliver on community needs in advance of the next public hearing. The Hamlet of Igloolik has agreed to work with Baffinland to develop this work plan.

11. Baffinland remains committed to working with all North Baffin Hamlets to build trust and develop mutually beneficial partnerships that allow us to move forward together during the NIRB process. Because of this, Baffinland's proposed timeline relies heavily on processes to address the unresolved issues and desire for further understanding of the Phase 2 Proposal raised by community representatives as intervenors at the public hearing. Baffinland acknowledges that its scope of activities outlined in this submission is primarily focused on working directly with community representatives to resolve issues brought forward by Inuit in this process. However, Baffinland wishes to emphasize that it remains committed to continue working with all intervenors, and is ready to undertake any further technical and other discussions required to move towards resolution.

12. Taking into account all of the submissions of parties as well as Baffinland's need for a timely completion of the NIRB's process relating to the Phase 2 Proposal, Baffinland proposes the following next steps and timelines:

Proposed Next Steps	Proposed Timeline
Baffinland submission to NIRB of: • Project Overview Summary • Phase 2 Commitments Package (includes post-EA commitments, commitments to update management plans, and additional/edited terms and conditions) • North Baffin Community Engagement Plan leading to public hearing, to be focused on key technical issues that require further information and consultation to narrow the scope of unresolved issues (note that specific timing of submission of this document to NIRB is dependant on whether Baffinland has had an opportunity to engage directly with community representatives prior to submission)	On or before Dec. 30, 2019
Each party to file an update to its Final Written Submission (if it wishes), focusing only on any changes to the parties' Final Written Submissions filed with NIRB in September 2019, based on: (a) the additional materials filed by Baffinland with the NIRB on or before December 30, 2019, as described above; or (b) additional technical documents submitted by Baffinland to the NIRB on October 16, 2019, which included a summary of the outcomes of the 2019 marine monitoring program as well as mitigations in place during the 2019 shipping season and a third party review by Hemmera Envirochem Inc. of the Icebreaking Operations Assessment (IOA: Golder 2019a), including proposed mitigation and monitoring measures	On or before January 31, 2020
Written response by Baffinland to the NIRB on any updates to Final Written Submissions, as described above	By February 17, 2020 (or one week prior to technical workshops, if technical workshops are not scheduled starting February 24, 2020)
Technical workshops focusing on marine shipping, terrestrial environment and culture resources and land use mitigation measure options and suggestions for proposed monitoring programs	One week of meetings to be held during the period February 24 to March 13, 2020

Proposed Next Steps	Proposed Timeline
Baffinland to file: • Updated Final Written Submission Disposition Table/ Phase 2 Commitments Package and revised draft Project Certificate No. 005 • Updated Phase 2 Baffinland consultation record, including all additional Inuit and community engagement activities undertaken by Baffinland during the period November 2019 to April 2020 under the North Baffin Community Engagement Plan	By April 10, 2020 (or one week prior to public hearing)
Parties to revise and re-file final hearing presentations to reflect any change in position (if parties wish)	As determined by NIRB, depending on public hearing dates
Circulation by NIRB of draft hearing agenda for comment by parties, in advance of finalizing hearing agenda	As determined by NIRB, depending on public hearing dates
Prehearing teleconference	As determined by NIRB, depending on public hearing dates
Final NIRB hearings and community roundtable for Phase 2 Proposal	Two week hearing occurring during the period mid-April to mid-May 2020 (hearing record to close by mid-May in order to permit NIRB to issue its recommendation to the Minister by the end of June 2020)

13. Baffinland believes its proposal for a five-and-a-half month adjournment to mid-April 2020 represents a reasonable compromise on timing taking into account the full range of submissions of parties, who recommend:

- to reschedule the hearing for the first available dates (unless another party can substantiate why it should be delayed longer);
- to reschedule the hearing to commence within three months;
- to reschedule the hearing to commence within five to six months; and
- delay of up to a period of eight to twelve months (with no substantiated reasons for extended delay).

14. Further information about Baffinland's response to the NTI motion and the approach proposed above are found in this submission.

II. INTRODUCTION

15. At the hearing of Baffinland's Phase 2 Project Proposal before the NIRB which commenced November 2, 2019, all parties arrived ready for the hearing. No party had brought forward a motion prior to the start of the hearing indicating that, in its opinion, additional technical materials were required to be produced by Baffinland before proceeding to an oral hearing. All parties came to the hearing ready to proceed based on the technical materials that had been filed to that date, and the hearing proceeded as scheduled.

16. As the hearing progressed, it became apparent that there would be insufficient time to complete the hearing, especially in light of the significant amount of time spent addressing motions. As a result, an adjournment of the hearing was necessary – there was simply not enough time scheduled to complete the hearing agenda.

17. On the afternoon of November 6, the final day scheduled for the technical session of the oral hearing of Baffinland's Phase 2 Proposal, NTI brought a motion to immediately adjourn the hearing and introduce a delay of the hearing for a period of eight months (it is acknowledged that NTI's written submissions filed on November 15, 2019 later recommended a deferral of the public hearing to nine to 12 months). This motion was brought without advance notice to Baffinland. NTI did not put forward any specific basis describing why, in its view, eight months

was required for an adjournment or any suggestions for what would be accomplished in that timeframe.

18. At the hearing, in response to NTI's motion, Baffinland stated that it would be necessary for the parties to reconvene because the parties had not been able to complete the hearing agenda. However, Baffinland's position was that a period of eight months for an adjournment was unnecessarily long. Baffinland stated that all parties had come to the hearing prepared to proceed.

19. In response to the motion, the Board asked parties to provide submissions on the motion, and include in their submissions their position on the following two issues:

    1. the basis for the adjournment; and
    2. the required length for the adjournment.

20. Baffinland has reviewed the submissions of the following participants: NTI, the QIA, the Hamlet of Pond Inlet, the Igloolik Phase 2 Working Group, the MHTO, the Igloolik Hunters and Trappers Organization, the Hamlet of Arctic Bay, the Government of Nunavut, the Government of Canada, Oceans North, WWF, and the Nunavut Independent Television Network.

21. Baffinland has carefully considered the comments of those parties on this motion. Baffinland has addressed some of these comments directly in its submissions below. In the interest of being as brief as possible, Baffinland has chosen not to address and respond to all of the points made in each party's submission, but instead has chosen to focus on those most commonly raised. The fact that a given party's submissions are not addressed specifically should not be taken to indicate that Baffinland necessarily agrees with those submissions, or that it did not consider those submissions carefully.

22. In Baffinland's submission, the only decisions the Board is required to make on this motion are the following: (1) the appropriate amount of time for the adjournment (which was necessary regardless of NTI's motion), and (2) any procedural directions with respect to how the time prior to the resumption of the hearing might be spent.

23. While parties have indicated their preferred length for an adjournment, and a generalized set of issues to be addressed, no party has specifically put forward a work plan to address those issues, or justified why any suggested steps would take the time period suggested or require an extended delay. To further a solutions-oriented approach, in this submission Baffinland has considered the issues that parties are seeking to have addressed, and has proposed a number of steps to address those issues.

24. Baffinland suggests that the NIRB should consider scheduling a two week long public hearing when the hearing re-commences.

25. Baffinland understands and respects the Hamlet of Pond Inlet's reasons for the suggested timing of a hearing over the first two weeks of April, however, notes that since the Easter long weekend is from April 10 to April 13, 2020, it may prove difficult to engage participants and arrange travel if the hearing is held just prior to or over this timeframe. For this reason, Baffinland's view is that the technical hearing and community roundtable session should resume on the next practically available date in April 2020, following the Easter holiday. Baffinland requests that the NIRB record close by mid-May 2020 so that the NIRB is in a position to submit its report and recommendation to the Minister by the end of June 2020. Assuming an April 18 start date, this would represent an adjournment of five and a half months from the close of the oral hearing session on November 6, 2019. In our view, this lengthy adjournment period provides a reasonable compromise considering the range of hearing dates suggested by intervenors and would permit sufficient time to address the concerns raised, prior to resuming the hearing.

26. This submission outlines Baffinland's detailed rationale for this proposal. This includes a summary of the work Baffinland proposes to undertake to address parties' concerns (these suggestions are also summarized in the Executive Summary and Introduction section above). Baffinland has also provided its position on the QIA's concerns regarding consultation and accommodation and related legal submissions. Finally, Baffinland addresses the serious harm and constraints the Mary River Mine, employees and the region will face if the NIRB determines that the public hearings should be subject to an extended delay. Baffinland's suggested timing supports its ability to obtain financing, procurement and logistics for the 2021 construction

season. As emphasised by Baffinland during the public hearing, a trucking operation is not a mid or long term financially viable option for the Mary River Mine and certainty on the timing of the regulatory path forward is essential to the project.

III. THE BOARD'S JURISDICTION OVER THE ADJOURNMENT

27. Baffinland agrees with the submissions of various parties that, pursuant to the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 ("***NuPPAA***"), the Board has been granted broad jurisdiction to control its own process, and this includes determining the appropriate length of time for a hearing, and any procedural directions regarding use of that time prior to a resumption of the hearing. The Board's *Rules of Procedure* provide that it may grant an adjournment on any terms it considers appropriate (s. 31.1).

28. In this case, it is evident the issue is not whether to grant the adjournment – all parties, including Baffinland, agree that the parties must reconvene the hearing in the future. The issue is instead the appropriate length of time for the adjournment period.

29. While the Board has broad jurisdiction to control its process, including consideration of adjournments, it must also uphold common law principles of procedural fairness: it is well established that, at common law, administrative decision makers such as the Board have a general duty of fairness.[1] The QIA cites *Baker v. Canada (Minister of Citizenship and Immigration),* [1999] 2 S.C.R. 817, and suggests that in determining whether to grant an adjournment or suspend the hearing, the NIRB should primarily focus on the ability of intervenors to participate in the NIRB's process.

Baffinland agrees that, pursuant to the Crown's constitutional obligation to discharge the duty to consult, as well as administrative law requirements to ensure procedural fairness, Inuit must be afforded sufficient information to enable meaningful participation in the assessment of the Phase 2 Proposal – that principle is not at issue. However, it is important to note that procedural fairness also dictates that the Board consider the effect of a decision to adjourn, and in particular the length of the adjournment, on Baffinland as the applicant and project proponent.

[1] *Matsqui Institution Disciplinary Board*, [1980] 1 S.C.R. 602 at p. 628, 106 D.L.R. (3d) 385.

An extended delay or suspension of the NIRB process as suggested by some parties would result in serious and negative effects to Baffinland as well as its employees.

30. Determining whether delay is disproportionately long or excessive is a contextual inquiry and includes an examination of the impact the delay has on the parties to the proceeding. Baffinland submits that, in principle, in order to safeguard against the risk that a procedural delay could be disproportionately long or excessive, an adjournment of an administrative hearing should be for as short a time as necessary to achieve the specific purpose of the adjournment.

IV. BASIS FOR ADJOURNMENT

A. Summary of Parties' Submissions

31. As requested by the Board, the other parties to this proceeding have outlined various reasons why an adjournment period is appropriate before the Phase 2 Proposal hearing resumes. Those concerns fall into three broad categories: (1) concerns relating to the hearing process, (2) concerns related to the sufficiency of the technical record, and (3) concerns relating to the desire for further discussions on specific topics.

A high level and general summary of the various reasons why intervenors have said they are seeking an adjournment is as follows:

Concerns Related to Hearing Process

(a) to allow for the five North Baffin Hamlets to meet and consider the project together;

(b) to provide time for parties to review additional information submitted by Baffinland with its October 16, 2019 Response to Final Written Submissions to NIRB;

(c) to allow further time for meaningful consultation;

Concerns Related to Sufficiency of Technical Record

(d) to allow Baffinland to provide greater clarity on the scope of the project, including certainty about what level of operational flexibility is being requested;

(e) to allow for finalization of the rail route selection and justification for the selection/determination;

(f) to allow for translation of certain Baffinland submissions; and

(g) to allow for additional information on culture, resources and land use ("**CRLU**");

Concerns Related to Desire for Further Discussions on Specific Topics

(h) to allow for further discussion regarding mitigation measures, monitoring and adaptive management;

(i) to allow parties to have further discussion on issues related to Baffinland's environmental assessment methodology (determinations with respect to significance of impacts, cumulative effects);

(j) to allow for further discussion regarding the integration of Inuit Qaujimajatuqangit in the assessment and a framework to address Inuit Qaujimajatuqangit going forward; and

(k) to allow for further discussion regarding socio-economic effects and benefits to Inuit.

B. Baffinland's Response to Parties' Submissions

Concerns Related to Hearing Process

32. With respect to the intervenors' concerns regarding the hearing process, Baffinland agrees that the adjournment period should provide for sufficient time to achieve the stated goals.

33. With respect to Paragraph 31, item (a), Baffinland's understanding is that representatives from most North Baffin Hamlets have had an initial chance to meet to discuss the Phase 2 Proposal during the week of November 18, 2019. We further understand that representatives from the North Baffin Hamlets are currently making arrangements to meet collectively in the new year. During the week of November 22, Baffinland had the opportunity to meet with or speak to representatives from the North Baffin Hamlets as well as the MHTO. Baffinland wishes to thank

the NIRB for granting the extension for filing this Reply to November 29 to permit time for additional discussions between Baffinland and the Hamlets of Arctic Bay, Clyde River, Hall Beach, Igloolik, Pond Inlet and the MHTO.

34. With respect to Paragraph 31, item (b), Baffinland suggests that NIRB invite parties to file an updated Final Written Submission that takes into consideration the materials filed with NIRB on October 16, 2019. Baffinland's suggested timing of January 31, 2020 for this submission would provide an additional comment period of three and a half months on these documents, which should be adequate to address this concern.

35. With respect to Paragraph 31, item (c), Baffinland respects and supports the request for further meaningful consultation. Baffinland believes the timeline and steps put forward by Baffinland in this submission as well as the North Baffin Engagement Plan that will be developed over the next month with representatives of the North Baffin Hamlets will help address these concerns. However, with respect to the specific comments and legal submissions of QIA on the sufficiency of NIRB's process, the NIRB process has provided for Inuit consultation at every step and has afforded Inuit meaningful opportunities to participate in the decision-making process around the Phase 2 Proposal. The legal decisions cited by the QIA for the proposition that consultation has been less than adequate – *Clyde River (Hamlet) v. Petroleum Geo-Services Inc.*, 2017 SCC 40 [*Clyde*], and *Gitxaala Nation v. Canada*, 2016 FCA 18 [*Gitxaala*] – are based on entirely different administrative processes that do not have the same level of Inuit involvement and participation in the decision making that is built into the Board's process and which have been employed in this review process to date. Further points responding to the QIA's legal submissions on *Clyde River* and *Gitxaala* are outlined at Part VI of this submission.

36. In summary, Paragraph 31, items (a) to (c) request additional time to facilitate a fair process. In Baffinland's submission, it is appropriate for an adjournment to remedy these process-based concerns. In addition, while Baffinland's view is that there has been deep and meaningful consultation to date, Baffinland agrees that time for further consultation with Inuit would be of assistance. Baffinland states that an adjournment of five and a half months is a sufficient amount of time for these purposes. Further detail on the tasks that Baffinland proposes to complete during this period is provided in Part III of these submissions, below.

Concerns Related to Sufficiency of Technical Record

37. The second broad reason for requesting an adjournment (set out at Paragraph 31, items (d) to (g)) relates to the suggestion that there is an insufficient technical record and parties are not ready to proceed to a hearing due to "gaps" in the assessment. Baffinland submits that, with respect, the decision of whether sufficient technical information has been put forward by a proponent such that a project is ready to proceed to hearing is for the Board to decide, and the Board had already decided the technical record was sufficient to proceed to hearings as of November 2, 2019.[2]

38. Further, it remains Baffinland's position that it has provided a comprehensive package of technical information regarding its Phase 2 Proposal, sufficient to proceed to public hearings. This has included a thorough assessment, responses to information requests, updated monitoring data on the project, and a comprehensive suite of mitigation measures. Baffinland had fulfilled all commitments made during the two NIRB technical meetings to provide further information by the time of its submission to NIRB of October 16, 2019. Attached to these submissions at Appendix 3 is a list of all additional technical information that was requested by parties which Baffinland agreed to provide, and the dates the information was filed on the NIRB registry.

39. While Baffinland is confident its technical information is comprehensive, Baffinland recognizes that parties have indicated further clarification on the technical materials it has filed would be beneficial, and it therefore proposes to address parties' concerns in the following manner:

    (a) With respect to the request for an extended adjournment on the basis that Baffinland provide greater clarity on the scope of the project (see Paragraph 31, item (d)), Baffinland will provide a "Project Overview Summary" which would be intended to answer specific questions raised by intervenors during the public hearings on the scope of the project it is proposing, including on operational flexibility. Baffinland would ensure this document would be translated.

[2] See the Board's Rules of Procedure, s. 16.1.

On a related topic, Baffinland wishes to respond directly to the suggestion by Oceans North that "evidence at the hearing indicates that core aspects of the project proposal have been verbally modified by the proponent". This is not accurate. The Phase 2 Proposal Project Description has not changed significantly over the course of the assessment, but rather Baffinland has made appropriate modifications to its proposal as is encouraged through the NIRB process and as a result of the introduction of mitigation and design changes from feedback received through intervenors.

(b) With respect to the request for an extended adjournment on the basis that Baffinland provide greater clarity on finalization of the rail route selection and justification for the selection/determination (see Paragraph 31, item (e)), Baffinland is open to continuing to discuss the proposed alternative alignment options (Routes 2 and 3) for the railway deviation. To facilitate discussions on this topic as well as on other potential mitigation and monitoring measures, Baffinland will be engaging further directly with community representatives over the coming months through its North Baffin Community Engagement Plan and also proposes NIRB schedule a technical workshop on the terrestrial environment to occur in late February/early March 2020.

(c) With respect to the request for an extended adjournment on the basis that more time is needed for translations (see Paragraph 31, item (f)), since the public hearings ended on Nov. 6, 2019, Baffinland has arranged to have translated its October 15, 2019 written response to the MHTO and the Hamlet of Pond Inlet Final Written Submissions as well as the Rail Alignment Summary Report. In addition, translations of the 2019 Marine Monitoring Memo, 2019 Mitigation Memo and Draft Shipping Communication Protocol filed with NIRB on October 16, 2019 will be provided as part of Baffinland's end of season shipping meeting for 2019. Once available, these additional translated documents will be posted to the NIRB registry. A list of documents translated to date is attached at Appendix 2.

(d) With respect to the request for an extended adjournment on the basis that more time is needed to address QIA's information request on CRLU (see Paragraph 31, item (g)), while Baffinland is of the view that the approach it presented in its October 16, 2019

Response to Final Written Submissions presents a reasonable path forward to address QIA's outstanding concerns, Baffinland is willing to discuss this topic further with QIA and the North Baffin Hamlets and report back to NIRB on the outcome of these discussions.

Concerns Related to Desire for Further Discussions on Specific Topics

40. The third broad reason for requesting an adjournment (set out at Paragraph 31, items (h) to (k)) relates to the suggestion that parties need an opportunity to continue to have technical and other discussions on topics such as environmental assessment methodology (significance determinations), mitigation measures, monitoring and adaptive management, integration of Inuit Qaujimajatuqangit and further development of the Inuit Qaujimajatuqangit framework, cumulative effects and socio-economic effects and benefits to Inuit.

41. Baffinland agrees with parties that further discussions on all of these topics would be helpful and suggests that over the next five and a half months, further discussions on these topics can proceed within two primary venues: the North Baffin Community Engagement Plan and two technical workshops (on terrestrial and marine) that would be facilitated by NIRB occurring for a one week period within the timeframe of February 24 to March 13, 2020. In addition, Baffinland plans to directly engage with parties over the period leading up to the rescheduled hearings in order to permit additional opportunities for discussion on these important topics.

42. In order to provide an opportunity to discuss the topics raised at Paragraph 31, items (h) to (k) in more depth with the North Baffin Hamlets, leading up to the recommenced Phase 2 public hearing, Baffinland will be following a focused engagement plan to help better communicate with the communities and to understand and address concerns, and to serve to better prepare all parties to participate in a reconvened public hearing. Baffinland is hopeful that these additional engagement activities will help serve to address some of the parties' noted concerns. Details of the North Baffin Community Engagement Plan are under active discussion with community representatives, but may include subject-specific workshops, increased public participation and communication through community radio shows and drop-in engagement sessions (as examples). Baffinland will also be requesting that communities provide Baffinland with their priorities for discussion over the coming months leading to the public hearing.

43. To address the topics outlined at Paragraph 31, item (h), Baffinland suggests that during the period February 24 to March 13, 2020, the Board hold one week of further technical workshops to allow for focused discussions on mitigation and monitoring. It is suggested that two workshops during that week be held: one on marine shipping and one on the terrestrial environment, with the focus of such workshops on mitigation measure options and suggestions for the proposed monitoring programs. The proposed technical workshops occurring over the period February 24 to March 13, 2020 would be available for parties to discuss potential mitigation measures and monitoring programs relevant to any potential cumulative impacts in relation to the terrestrial and marine environments.

44. With respect to the issues raised at Paragraph 31, item (i) respecting environmental assessment methodology, one of Baffinland's goals in further engagement with the North Baffin Hamlets as well as parties over the coming months is to better explain how its findings took into account the stringent existing and proposed mitigation measures, many of which were developed in close consultation and collaboration with the North Baffin Hamlets, the QIA, and federal and territorial regulatory authorities. Baffinland wishes to emphasize that its methodology followed the October 5, 2015 amended version of the EIS Guidelines and the requirements of *NuPPAA,* and that Baffinland's significance findings were made by third party professional experts with experience working in Nunavut, the Arctic and the Canadian North. Baffinland's professional experts took into account the best available scientific information and research as well as Inuit Qaujimajatuqangit and the high value Inuit place on the Local Study Area and on wildlife, using standard environmental assessment methodology that has been previously accepted by NIRB in respect of the Mary River Project in 2012 and 2014. This methodology has also been accepted by numerous other Canadian environmental assessment regulatory authorities. It is a misunderstanding to suggest that Baffinland has relied on its findings of "no significance" as a reason not to implement mitigation and monitoring measures or investigate and consider implementation of further measures. The development of suitable mitigation and monitoring measures has been a central focus of Baffinland since the beginning of the Phase 2 Proposal process, and will continue to be a central focus leading up to the reconvened public hearing.

45. With respect to the issues raised at Paragraph 31, item (j), Baffinland is committed to use the period leading up to the rescheduled public hearing to work with the North Baffin Hamlets and

the QIA to continue to develop the Inuit Qaujimajatuqangit framework and work together to ensure that Inuit Qaujimajatuqangit is properly integrated in the Phase 2 Proposal and the Mary River Mine going forward.

46. With respect to the issues raised at Paragraph 31, item (k), Baffinland plans to engage further with the North Baffin Hamlets and QIA over the coming months on the topic of Phase 2 benefits to Inuit. With respect to concerns regarding socio-economic effects, Baffinland's position is that its socio-economic assessment is comprehensive. In addition, Baffinland and the QIA entered into an Inuit Impact Benefit Agreement (the "**IIBA**") in 2013, which was recently amended in October 2018. One of the purposes of the IIBA is to "address the impacts on Inuit and provide for the benefits and opportunities to Inuit, arising from the Mary River Project." The strong and comprehensive IIBA, together with the additional commitments that Baffinland has made to the communities as well as the estimated $2 billion Canadian dollars in royalties that will be collected by NTI and QIA in respect of the project will help ensure that Inuit meaningfully benefit from the Phase 2 Proposal. This is in addition to any direct or indirect employment, or contracting opportunities, which Inuit may benefit from throughout the life of the Mary River Mine.

47. In summary, Baffinland recognizes that, as outlined above, some intervenors have lingering concerns or a lack of clarity regarding the work it has undertaken. As a result, Baffinland agrees that it is beneficial for it to undertake the steps outlined above in rendering the assessment more accessible to participants, and to engage with intervenors in a dialogue to further refine and attempt to find ways to address identified lingering concerns and enhance understanding of the work that Baffinland has done.

48. It is Baffinland's position that such work can be accomplished in a timeframe of five and a half months. Taking these objectives into account, Baffinland's proposal for use of the adjournment period is outlined below.

V. LENGTH OF TIME REQUIRED FOR ADJOURNMENT AND PROPOSED SCHEDULE

A. Overview

49. As noted, Baffinland submits that adjourning the public hearing to the next practically available date after the Easter holiday in April 2020 (and completing by mid-May 2020 so that the NIRB is able to issue its report and recommendation to the Minister by the end of June, 2020) will be sufficient time to meet the concerns relating to process and technical information.

B. Provision of Additional Written Materials to NIRB

50. Baffinland proposes to provide the following additional written materials to NIRB by December 30, 2019 for parties to review to assist in addressing some of the concerns raised. As described above, these materials would include the following:

- A "Project Overview Summary" which would be intended to provide clarity on the scope of the project Baffinland has proposed, including addressing operational flexibility. Baffinland would ensure this document would be translated and provided to NIRB as soon as possible following submission of the English version.
- A final North Baffin Community Engagement Plan which would be developed in discussion with representatives of each North Baffin Community (note however the proposed submission date to NIRB of December 30, 2019 is subject to ongoing discussions with community). Baffinland would ensure this document would be translated and provided to NIRB as soon as possible following submission of the English version.
- Phase 2 Commitments Package (includes post EA commitments, commitments to update management plans, and additional/edited terms and conditions). Baffinland would ensure this document would be translated and provided to NIRB as soon as possible following submission of the English version

C. Revised Final Written Submissions

51. Baffinland proposes that other parties be granted until January 31, 2020 to provide an update to parties' Final Written Submissions, focusing only on any changes to the parties' Final Written Submissions filed with NIRB in September 2019, based on: the technical documents that were

submitted to the NIRB by Baffinland on October 16, 2019 as well as the additional materials filed by December 30, 2019. Baffinland would then respond in writing by February 17, 2020.

D. Further NIRB Technical Workshops

52. Baffinland suggests that during the period February 24 to March 13, 2020, the Board hold one week of further technical workshops. It is suggested that two workshops during that week be held: one on marine shipping and one on the terrestrial environment, with the focus of such workshops on mitigation measure options and suggestions for the proposed monitoring programs. Mitigation measures to be discussed could include mitigation by design, including options for the finalization of the rail alignment.

E. Further Updates to Presentations

53. Baffinland suggests parties should be afforded the opportunity to adjust and re-file their final hearing presentations in advance of the hearings to reflect any change in position.

F. Hearing Agenda

54. Baffinland suggests that the NIRB circulate a draft agenda to parties in advance of the hearing. Baffinland and other parties can then provide their suggestions regarding an effective use of hearing time.

G. Length of Time for Hearing

55. Baffinland suggests that a period of 14 days be reserved for the oral hearing. Baffinland takes no position on the location of the hearing, acknowledging there may be logistical challenges to having the full hearing in Pond Inlet for a period of two weeks. Baffinland is supportive of the entire hearing or the community roundtable sessions in Pond Inlet, as outlined below.

56. A potential reasonable schedule for the hearing could be designed for most hearing days to be in session from 9:00 am to 5:30 pm, so that participants have an opportunity to meet in the evenings during the hearing, if beneficial. If possible, the hearing schedule should also plan for at least one day off from hearing days per week.

H. Determining Hearing Readiness and Supporting an Efficient Public Hearing

57. Baffinland submits that it would support the hearing readiness of all parties to schedule a prehearing teleconference in the weeks before the recommencement of the public hearings.

58. While it is preferable to try to reach consensus, and Baffinland has strived to do that, NIRB's process recognizes that this may not be achievable in all instances. For example, s. 7.11 of the NIRB's October 6, 2015 Amended EIS Guidelines discusses the assessment of impact significance. In that section of the Guidelines, NIRB states the following:

> In the process of significance determination, the Proponent is expected to communicate with potentially-affected communities, including relevant individuals and organizations to solicit input and incorporate their views regarding the value it placed on a VEC or VSEC, as well as associated significance of impacts. The Proponent shall describe how it will ascertain the significance that different parties assigned to each impact, and how it will proceed if different parties ascribe varying significance to VECs, VSECs or the associated impacts. If it is impossible to attain a consensus on significance of certain impacts, the Proponent shall present the range of viewpoints expressed and shall present and justify its preference, if any. [Emphasis added].

59. In Baffinland's submission, the NIRB process recognizes that parties may have differing final views on aspects of the project. Even if differences and a lack of consensus remains at that time, it would still be appropriate for the Phase 2 Proposal to proceed to a hearing starting in mid-April 2020.

VI. SUBMISSIONS ON LEGAL ARGUMENTS MADE BY QIA REGARDING CONSULTATION AND ACCOMMODATION

60. In its legal submissions, the QIA argues that the consultation in respect of the Phase 2 Proposal has been inadequate and that an adjournment is necessary to remedy this deficiency. In support of this argument, the QIA cites the *Clyde River* and *Gitxaala* cases. Respectfully, Baffinland's view is that the QIA's submissions misinterpret those important cases. Their argument fails to take into account the difference between the structure of the National Energy Board's process

(the "**NEB**") and that of the NIRB and the participation by Inuit in the review of the Phase 2 Project proposal to date.

61. The *Clyde River* case dealt with an application before the NEB to conduct seismic testing in Baffin Bay. In *Clyde River*, the Supreme Court of Canada considered several questions, including the question of whether the NEB's process in considering the application could fulfill the Crown's duty to consult to Inuit, and whether the consultation undertaken was adequate. After closely examining the processes undertaken and the ability of Inuit to participate in the decision-making with respect to the application, the Court found that the NEB's process in *Clyde River* did not fulfill the Crown's duty to consult.

62. Importantly, there were a number of factors in *Clyde River* that resulted in the NEB's process being found inadequate to discharge the duty to consult, and it was not just a failure on the part of the proponent to ensure certain documents were translated to Inuktitut. The record of engagement between the proponent and the affected Inuit communities in *Clyde River* was limited. While there had been an in-person meeting between the affected communities and the proponent, the proponent's representatives were unable to answer any questions at that meeting. The proponent then proceeded to attempt to answer those questions by way of written submissions, but there was little translation available. It was not the lack of translation alone that resulted in a failure to discharge the duty to consult. Instead, the entire process was examined to determine whether it could be said that Inuit were afforded a meaningful ability to participate in the decision-making process.

63. In *Clyde River,* the Court's decision turned on the limited opportunities for Inuit participation and consultation as a whole, and in particular, the lack of an oral hearing, lack of participant funding, and lack of an opportunity to present evidence and final argument. The Court remarked that "While these procedural protections are characteristic of an adversarial process, they may be required for meaningful consultation and do not transform its underlying objective: fostering reconciliation by promoting an ongoing relationship" (at para. 47).

64. The Court contrasted the process in *Clyde River* with the process in the companion case, *Chippewas of the Thames First Nation v. Enbridge Pipelines Inc.*, 2017 SCC 41 [*Chippewas*]. In that case, procedural processes before the NEB included oral hearings, participant funding and

opportunities to present evidence and a final argument. In *Chippewas*, the Supreme Court of Canada determined that the duty to consult had been upheld.

65. Baffinland does not wish to dispute the importance of providing information that has been translated. Baffinland takes the issue of ensuring meaningful participation very seriously, and in addition to every Baffinland community meeting presentation being translated, Baffinland has translated 41 documents (either in their entirety or a summary thereof) into Inuktitut to further this goal (see attached Appendix 2). Baffinland remains open to further reasonable requests to translate summaries of technical information, per NIRB's Rules of Procedure. However, the principle at issue is not translation *per se*, but ensuring that Inuit participants have had a meaningful opportunity to understand and participate in decision-making with respect to the Phase 2 Proposal.

66. The QIA also cites *Gitxaala* for the proposition that there are risks in proceeding with an assessment process in the absence of sufficient information or substantive answers to Indigenous concerns. In *Gitxaala*, the focus was on the Crown, that is, Canada's ability to answer questions for Indigenous groups and their inability to provide certain information during the Phase IV of consultation after the NEB had issued its report and prior to the Governor in Council making a decision on the project. Baffinland does not agree that the situation here is parallel. There has not been a lack of technical information put before parties or the NIRB – the parties did not indicate at the start of the public hearing that there was a sufficient technical gap that the hearing should not proceed.

67. Unlike in *Gitxaala*, where the claim was that consultation efforts by the Crown was merely "note taking" rather than a two-way dialogue, Inuit parties in the Phase 2 Proposal have been engaged in a dialogue – there has been concerted effort to ensure their questions are answered and Phase 2 Proposal changes have resulted from consultation. Further, the NIRB hearing itself serves as an important aspect of consultation where the Crown is able to provide Inuit with answers to questions, and we have not yet proceeded to that point in the Phase 2 hearing process. Baffinland's position is that the situation in *Gitxaala* is not parallel, and it is therefore not appropriate to weigh on the adequacy of consultation and compare this proceeding to the situation in *Gitxaala*.

68. In contrast to the NEB's procedures in *Clyde River* and the consultation process in *Gitxaala*, it is clear that the NIRB's processes to date are far superior in terms of providing for Inuit participation in the decision-making process with respect to the environmental assessment of projects. The Nunavut Agreement established NIRB for the very purpose of facilitating Inuit participation in environmental assessment of projects. The NIRB's processes are designed to further that objective and do so effectively.

69. The Nunavut Agreement, which, pursuant to s. 12.2.1, provided for the establishment of the NIRB, sets out as one of its objectives:

> "to provide for certainty and clarity of rights to ownership and use of lands and resources, and of rights for Inuit to participate in decision-making concerning the use, management and conservation of land, water and resources, including offshore."[3]

70. The Nunavut Agreement created a structure whereby Inuit manage the decisions relating to the environmental assessment of projects. The jurisdiction and framework of the NIRB under *NuPPAA* and the Board's own established procedures for project assessment further this objective. Inuit are engaged in the review process at every step, and directly participate in the decision-making process as intended under the Nunavut Agreement.

71. The NIRB has a vitally important role to play in respect of the duty to consult. As the Supreme Court of Canada has recently stated:

> "…while ultimate responsibility for ensuring the adequacy of consultation remains with the Crown, the Crown may rely on steps undertaken by a regulatory agency to fulfill the duty to consult."[4]
>
> "The Crown may rely on a regulatory agency in this way so long as the agency possesses the statutory powers to do what the duty to consult requires in the particular circumstances."[5]

[3] See Nunavut Agreement, preamble.
[4] *Clyde River*, at para. 30.
[5] *Chippewas of the Thames First Nation v. Enbridge Pipelines Inc.*, [2017] 1 SCR 1099, 2017 SCC 41 at para. 32.

72. The Supreme Court of Canada has commented on some of the indicia that are relevant to consider whether a particular agency's statutory duties and powers enable it to do what the duty requires in the particular circumstances. They include:

- powers to conduct hearings;
- broad discretion to make orders or elicit information ;
- powers to impose conditions or preconditions to approval;
- establish participant funding programs to facilitate public participation;[6]
- powers to accommodate the concerns of Indigenous groups where necessary; and
- powers to attach terms and conditions to an authorization.[7]

73. NIRB has similar powers. In addition, the NIRB has also

> …developed considerable institutional expertise, both in conducting consultations and in assessing the environmental impacts of proposed projects. Where the effects of a proposed project on Aboriginal or treaty rights substantially overlap with the project's potential environmental impact, the [NIRB] is well situated to oversee consultations which seek to address these effects, and to use its technical expertise to assess what forms of accommodation might be available.[8]

74. NIRB also prepares detailed written reasons in its recommendations to the Minister. This is also an important part of the consultation process:

> Engagement of the honour of the Crown does not predispose a certain outcome, but promotes reconciliation by imposing obligations on the manner and approach of government (*Haida*, at paras. 49 and 63). Written reasons foster reconciliation by showing affected Indigenous peoples that their rights were considered and addressed (*Haida*, at para. 44). Reasons are "a sign of respect [which] displays the requisite comity and courtesy …" (*Kainaiwa/Blood Tribe v. Alberta (Energy)*, 2017 ABQB 107, at para. 117. Written reasons also promote better decision making (*Baker v. Canada (Minister of Citizenship and Immigration)*, [1999] 2 S.C.R. 817, at para. 39).[9]

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[6] *Clyde River*, at para. 31.
[7] *Clyde River*, at para. 32.
[8] *Clyde River*, at para. 33.
[9] *Clyde River*, at para. 41.

75. In the case of the Phase 2 Proposal, QIA, on behalf of Qikiqtani Inuit have participated at each of the following stages of the project's review by NIRB. They have:

- provided commentary on the draft EIS Guidelines;
- provided input on NIRB's conformity review;
- asked Baffinland information requests;
- participated in technical meetings;
- commissioned and filed written expert reports;
- provided final written submissions prior to hearing; and
- participated at the oral hearing, including by providing oral evidence as well as participation through cross-examination of Baffinland's witnesses.

In addition to QIA's participation throughout, other Inuit parties have had substantial participation in various aspects of the hearing procedure. The Hamlet of Pond Inlet, Igloolik Working Group, Hall Beach HTO and MHTO have all received intervenor funding, and some have hired their own professional consultants to support their participation. Baffinland has engaged and responded to questions and concerns from Inuit throughout the process. Baffinland submits that the consultation record in the Phase 2 proceeding to date has been robust, and there is no basis upon which it should be compared to the NEB processes in *Clyde River* or *Gitxaala*.

76. In its submissions, the QIA has made reference to the importance of participant funding in the context of the *Clyde River* decision. As the NIRB is aware, the QIA and other parties to this proceeding have received participant funding, as outlined in letters from Crown-Indigenous Relations and Northern Affairs Canada ("**CIRNAC**") dated March 6, 2019 and May 23, 2019. To date, the QIA has received more than $70,000 in participant funding from CIRNAC. The Hamlet of Igloolik, the Hamlet of Pond Inlet, the MHTO, Hall Beach HTO and Nunavut Independent Television Network have also received participant funding.

77. In addition to participant funding provided by CIRNAC, under the IIBA Article 15.10.8, Baffinland provides the QIA with funding to indemnify it for its costs associated with its participation in the NIRB assessment process, including technical support.

78. Baffinland's position is that the NIRB process, as it is designed to do, encourages and effectively enables Inuit participation throughout the decision-making process for the assessment of a project. This is what has occurred in the assessment of the Phase 2 Proposal to date. Inuit participation in the NIRB process has resulted in meaningful changes to the Phase 2 Proposal. Specifically, Inuit concerns around year-round shipping have led Baffinland to abandon that part of the proposal. In addition, the deviation along the rail route has changed and was the result of Baffinland consideration of North Baffin Community concerns. Inuit engagement through the NIRB process has had a direct effect on the manner in which the process has been designed – this is meaningful consultation.

79. The processes for consultation experienced by Inuit in *Clyde River* and the various Indigenous groups in *Gitxaala* before the NEB are obviously inferior to the NIRB's process, and are not instructive in assessing the adequacy of consultation in this process.

80. QIA has suggested a suspension of the assessment under s. 143 of *NuPPAA*. Baffinland submits that the NIRB process should be allowed to continue after a brief adjournment (to carry out the five-and-a-half month suggested timeline and steps), and should not be suspended as QIA suggests is an option. We have addressed the issue of a reasonable delay in this submission, and there is simply no justification for an indefinite suspension of this Phase 2 NIRB process.

VII. CONSTRAINTS TO PROJECT SUCCESS WITH EXTENDED ADJOURNMENT

81. As noted in the Executive Summary and Introduction, timely completion of the Phase 2 NIRB review is essential to the long term future of the Mary River Project. As has been widely reported, Baffinland has had to suspend certain works of the 2019 work plan on site due to economic circumstances created by the hearing delay. The contractor demobilization has affected 586 individuals and their families, 96 of whom are Inuit. Although these contractors were set to demobilize in December 2019, they would have been brought back to site to complete works on the 2020 work plan and subsequently the Phase 2 Proposal should a Project Certificate have been granted in the first quarter of 2020.

82. Baffinland, as well as other parties, had been proceeding with the Phase 2 Proposal assessment on the basis that the NIRB's process would be completed by the end of 2019, with a Ministerial

decision likely in early 2020. In fact, the Ministerial approval for the Production Increase Proposal of 6 mtpa, which expires on December 31, 2019, takes into account and relies on this timeline. Based on the timeline the parties had been working towards, if the Phase 2 Proposal had been approved, Baffinland's expectation was that it would start construction in 2020. As a result of the adjournment, Baffinland has already lost the 2020 construction season.

83. Construction of a project of this magnitude requires a significant amount of financing. Much of that financing depends on a proponent's ability to present potential investors with a project schedule based on a predictable regulatory process. Baffinland's experience is that a regulatory environment with uncertainty will present significant challenges to Baffinland's ability to secure financing for the construction of Phase 2. A failure to schedule public hearings commencing in mid-April 2020 (and completing in time for NIRB to issue its report and recommendation to the Minister at the end of June 2020) will challenge Baffinland's ability to engage with potential investors and may result in lost financing opportunities for the project. Scheduling a timely resumption of the Phase 2 Proposal public hearings in the near term will help mitigate against the significant harm to the company that has already occurred as a result of the delay.

84. Baffinland will be seeking an extension to the 6 mtpa production increase due to expire on December 31, 2019 in a separate application (and will be asking all parties to make this decision on a timely basis), but as described in detail during the public hearings extension of the 6 mtpa production increase alone will not be sufficient to bring the necessary financial stability to the Mary River Project.

85. Baffinland has proposed that the public hearings be scheduled for mid-April 2020 to mid-May 2020 so that NIRB is able to issue its report and recommendation to the Minister by the end of June 2020. This is a reasonable timeframe to accomplish what parties have requested additional time for – to allow for further discussions on already completed work and to address unresolved issues on key topics. There will likely be further constraints to the Mary River Mine and serious negative consequences for Nunavut's economy as well as Baffinland's workforce if the adjournment is, as certain parties have advocated, any later than mid-May 2020. A delay of eight months or more, as suggested by NTI and QIA, would have a profound and sustained negative impact to Baffinland's operations.

VIII. CONCLUSION

86. Baffinland submits that the proposal put forth in these submissions for a five-and-a-half month delay in the recommencement of the NIRB public hearings is reasonable, taking into account the range of timing suggested by the parties in their various submissions on the NTI's motion to adjourn.

87. Baffinland has carefully considered the concerns of the parties, and has put forth a road map to a productive and successful resumption of the hearing and completion of the Phase 2 Proposal NIRB process. Baffinland has confidence that an adjournment of the technical hearings until mid-April 2020 together with the additional work outlined above will be beneficial in assisting the parties to address some of the concerns raised at the recent hearing and to provide an opportunity for collaboration with respect to Phase 2.

88. Baffinland is committed to continuing to work with parties in good faith to assess, and if approved, build Phase 2 in a precautionary manner that is consistent with and respects Inuit values and knowledge and that provides significant positive benefits to Inuit, the Qikiqtani region, Nunavut, Canada and to Baffinland and its shareholders for generations to come. Baffinland thanks the parties for their contributions, and looks forward to working with them further in the near future on this next phase in the assessment.

Appendix 1 – Final Disposition Table

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
CIRNAC-01	CIRNAC	A regional seismic assessment was performed for the South Railway embankment, the Mine site, Steensby Port and Milne Port expansion; however a seismic assessment was not carried out for the North Railway alignment. A seismic assessment of the North Railway alignment was needed to evaluate the potential risks to the Project and the potential environmental impacts.CIRNAC recommended Baffinland perform a seismic analysis taking into consideration the major geological structures along the North Railway alignment and incorporate findings into the detailed facility engineering design.Baffinland obtained additional seismic parameters along the railway from the National Building Code of Canada (2015). These seismic data were used for slope stability analyses of the North railway alignment, embankment cuts and fills. Stability analyses were completed using a pseudo-static seismic coefficient of 0.06, based on peak ground acceleration (PGA) of 0.090 g for 1:2500-year return period (2% probability of exceedance based on design life of 50 years).CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	
CIRNAC-02	CIRNAC	Geotechnical characteristics of the Project area were not fully described in the FEIS Addendum and could present risks that have not been identified. Geotechnical investigations are required to be cold regions/permafrost specific and should include thaw consolidation/thaw strain assessments. CIRNAC requested Baffinland provide, as per the EIS guidelines, a detailed description of the geology and geomorphology aspects in the Project area and consideration of their effects on the major Project components. In response, Baffinland provided Geotechnical recommendations for the Northern Railway, April 26, 2019. The report includes creep and thaw settlement estimates and thermal analysis. This is additional information to the previously submitted reports (Geotechnical Design Criteria, Hatch, March 2019 and Geotechnical investigations along the North railway alignment conducted from 2016 to 2018, Hatch October 5, 2018). This document includes: sampling and laboratory test results supporting the permafrost forecast, geochemical results and borehole data, acid base accounting results of potential quarry locations. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
CIRNAC-03	CIRNAC	The Railway Management Plan should describe how the mitigation measures will be carried out during construction of the rail embankment in the portions of the alignment where potential geotechnical issues have been identified. It was unclear from the review of the Railway Management Plan, how Baffinland intends to monitor any settlement issues that may be encountered. Geotechnical characteristics were not fully described which may present risks that have not been identified. CIRNAC requested Baffinland update the existing Railway Management Plan to include regular monitoring of potential settlement of the North Railway embankment.In response, Baffinland provided the draft document North Railway Operation and Maintenance Management Plan, May 13, 2019. The plan includes infrastructure inspection and maintenance strategy for the North Railway that considers the identified issues.CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	
CIRNAC-04	CIRNAC	As acknowledged by Baffinland, the potential for permafrost warming due to a warming climate increases the risk of permafrost degradation. Comprehensive geotechnical site investigations help identify areas where the risk associated with excessive settlement is the greatest. Geotechnical site investigations were completed along the North Railway alignment in 2010, 2016 and 2017 (AMEC, 2010a, Hatch, 2017a, Hatch, 2017b, and Hatch, 2018) and the North Railway embankment designs were established as part of a feasibility study completed for the Phase 2 Proposal (Hatch, 2017c). However, they did not include thaw settlement tests or thaw strain assessment. CIRNAC requested Baffinland to: 1) describe how they intend to deal with areas that are prone to excessive settlement that cannot be avoided and 2) commit to performing additional geotechnical assessments which will include thaw settlement tests or a thaw strain assessment.IQALUIT#1260889 - v7 11 In response, Baffinland provided report titled Geotechnical Recommendations for Northern Railway, Hatch, April 26, 2019. The Report provides creep and thaw settlement estimates and a thermal analysis. The impacted depth with the railway development is shallow and thermal modelling has been carried out including climate change scenarios. Geotechnical data basis, including ice content andground temperature measurements, have been updated. Ground temperatures below -8 ^{o}C and -10 ^{o}C at 10 m depth have been reported. Design measures and ongoing adaptive	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
		mitigation measures are identified to minimize any cumulative impacts of the Project on permafrost.CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.				
CIRNAC-05	CIRNAC	CIRNAC recommends the following Terms and Conditions be included in the amended Project Certificate, should the Project be approved: Baffinland shall complete thermal modeling of the WRF and include the results in the Waste Rock Management Plan prior to the conclusion of Water Licence Amendment process, subject to NWB requirements. Baffinland shall develop a detailed site wide program to monitor the thaw consolidation and strain prediction under the structures/embankments constructed as part of the Project. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.	Baffinland instituted a thermal monitoring program at the Waste Rock Facility (WRF) in December 2018, the preliminary results of which were presented in the March 2019 Interim Waste Rock Management Plan. Further analysis of the data, including evaluation of freeze/thaw cycles (spring and fall datasets) is required to adequately evaluate the thermal condition of the WRF and development of the thermal model for the WRF. Preliminary data downloaded from thermistor installations in the WRF in July and September 2019 demonstrate the active layer of the WRF is limited to approximately 1.5 metres below the top of pile. These results were presented to CIRNAC, ECCC, NrCan and the QIA on October 10, 2019. The presentations are included in this submission as Appendix E. As the update to the Phase 1 Waste Rock Management Plan was initiated under the current Type A Water Licence 2AM-MRY1325 Amendment No. 1, and the plan is regulated under the Type A Water Licence, a Project Certificate condition is not required to ensure regulator review and approval of the updated Phase 1 Waste Rock Management Plan is achieved. Furthermore, the update to the Phase 1 Waste Rock Management Plan will be completed in December 2019, prior to any Ministerial approval of an amended Project Certificate Term and Condition, thereby making any associated conditions redundant. With respect to thermal monitoring and modelling of structures associated with the Phase 2 Proposal (i.e. the rail embankment, material handling infrastructure at Milne Port), a program will be developed and implemented prior to the initiation of construction. Evaluation of this data will be incorporated into the geotechnical investigations and reported under the conditions of the existing Type A Water Licence 2AM-MRY1325 Amendment No. 1, Schedule B, Item 1(e). As a result, Baffinland maintains that a Term and Condition associated with thermal monitoring is not required.	Terrestrial	Resolved	Commitment: Baffinland shall complete thermal modeling of the Waste Rock Facility and include the results in the Waste Rock Management Plan prior to the conclusion of Water Licence Amendment process, subject to NWB requirements. Term and Condition: Baffinland shall develop a detailed site program to monitor the thaw consolidation and soil deformation under the structures/embankments constructed as part of the Phase 2 Project. The monitoring results shall be compared with the Final Environmental Impact Statement Addendum predictions and appropriate mitigation measures shall be identified and incorporated into the adaptive management approach.
CIRNAC-06	CIRNAC	CIRNAC noted that the mine closure plan and waste rock management plan have not been updated to reflect the proposed production increase and update on ARD/ML issues. Generation of ARD/ML associated with the WRF may affect water quality and soils in the Project area and should be considered in the mine closure strategy.CIRNAC requested Baffinland provide an update of the closure plan presented in the TSD-28 Appendix C-ICRP, March 31, 2016 to include the Northern Railway and the Waste Rock Management Plan, as well as the environmental mitigation strategy.In response, Baffinland provided the updated	Baffinland understand that CIRNAC is satisfied with the response provided, however the proposed Term and Condition for Comment #8 is relevant to that comment (which deals specifically with PAG identification criteria), not Comment #6, which was a request for Baffinland to provide an update of the closure plan to include the North Railway and the Waste Rock Management Plan, as well as the environmental mitigation strategy.	Terrestrial	Resolved	See Term and Condition re. CIRNAC-08

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
		Interim Closure and Reclamation Plan (ICRP) – Draft, dated May 1, 2019. The ICRP included all aspects of the North Railway and residual effects of the Project have been evaluated. In the ICRP, Baffinland states that a revised Waste Rock Management Plan to address WRF over the next five years, based on recent geochemistry results, is under preparation. The mine closure plan will be updated to take into consideration the revised Waste Rock Management Plan. Phase 2 Marginal Closure and Reclamation Financial Security Estimate were included in the updated ICRP Appendix I, May 1, 2019. In the Water Licence - Management Plans_Concordance_20190502 - Concordance Table, Baffinland states that they will submit a revised version of the ICRP within 60 days following approval of the requested water licence amendment, and in accordance with Part IQALUIT#1260889 - v7 15 C of the Licence for the Annual Security Review process. CIRNAC is satisfied with the provided response for the purposes of the EA process. Please refer to the CIRNAC proposed Term and Condition for Comment #8.				
CIRNAC-07	CIRNAC	CIRNAC recommends the following Terms and Conditions be included in the amended Project Certificate, should the Project be approved: Baffinland shall undertake test work to confirm to the NWB the origin of elevated concentrations of aluminum, mercury and copper in SFE forrock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.	Shake Flask Extraction is an aggressive test that provides conservative metal leaching results, and as such, they should not be treated as representative of field results in regard to the metals referenced as elevated in the SFE results: • Mercury - There was a single CCME exceedance of Hg for QMR2 in the data reported. Otherwise, 13 of the 15 samples had Hg concentrations at or below the minimum detection limit (MDL) of 0.00001 mg/L. • Copper - The results were compared to CCME freshwater aquatic life guidelines, and there were 4 copper exceedances: 0.00637, 0.00876, 0.00299, and 0.01076 mg/L. The discharge limit for copper in Table 10 of the water licence (Effluent Quality Discharge Limits for Open Pit, Stockpiles, and Sedimentation Ponds) is 0.5 mg/L for Cu. The results that exceeded the CCME guideline are one to two orders of magnitude less than the water licence discharge limit. • Aluminum: 14 of the 15 samples contained total aluminum concentrations ranging from 0.122 to 1.05 mg/L, above the CCME guideline value of 0.005 mg/L. if pH <6.5, or 0.1mg/L if pH ≥ 6.5. Previous sampling of the surface water in the Project area, has demonstrated that aluminum concentrations are naturally high. The average concentration of aluminum in Phillips Creek is 1.65 mg/L (see Attachment 1 of Baffinland's January 31, 2019 response to information request / advanced technical comment ECCC 12; Knight Piésold's December 12, 2018 Memo Ref. No. NB18-00854). Other than the single exceedance of Hg, the SFE data does not demonstrate concern regarding the metal leaching potential of the borrow material. Additional testing is not required to confirm the origin	Corporate	Resolved	Commitment: Baffinland shall confirm the origin of elevated concentrations of aluminum, mercury and copper in Shake Flask Extraction test results for rock materials sourced from quarry and borrow pits for road / railway construction, and develop and implement an appropriate water quality monitoring and management strategy for railway corridor rock quarries as part of water licensing. The monitoring results shall be compared with the FEIS Addendum predictions and appropriate mitigation measures shall be identified and implemented.

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			of the elevated concentrations. Baffinland already has requirements for weekly water quality monitoring at quarries in the Type A Water Licence, which is reflected in the existing Borrow Pit and Quarry Management Plan. This Plan also provides a comprehensive set of water management measures. Baffinland does not believe a Term and Condition is necessary to ensure the subject is addressed through the water licensing process.			
CIRNAC-08	CIRNAC	To assess the potential significant adverse effects associated with ARD/ML, CIRNAC is requesting Baffinland provide the following information associated with the derivation of PAG identification criteria before the conclusion of the NIRB review process for the Project: Demonstration of how the absence of Ca/Mg carbonate mineral content has been considered in the PAG identification criteria. If the NPR is lessthan 2 criteria and associated 0.2 wt % total sulphur content is retained, there shall be clear demonstration of neutralization capacity to maintain non-acidic conditions.Demonstration of how the influence of soluble sulphate minerals has been incorporated into PAG identification criteria.Demonstration of the variation and uncertainty in ARD/ML behaviour of the different types of waste rock at Deposit 1 and how this has beenincorporated into PAG identification criteria. Should the Project be approved, CIRNAC suggests the following Term and Condition be included in the project certificate: Baffinland shall revise the PAG identification criteria and incorporate the new criteria in an updated Waste Rock Management Plan and Interim Closure and Reclamation Plan.	Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% total sulphur cutoff for PAG classification, irrespective of the Phase 2 Proposal approvals process. Preliminary results from the geochemistry program completed in 2019 were communicated to CIRNAC, ECCC, NRCan and the QIA in a teleconference on October 10, 2019 (Appendix E). Preliminary results from the small data set indicate that use of the 0.2% cutoff would potentially mis-categorize 5% of samples (3 of 55 non-PAG based on 0.2% cutoff) as non-PAG, where shake flash extraction (SFE) results indicated a pH less than 6. If analysis of paste pH was considered in addition to the total sulphur results, the mis-categorization is reduced to 1.8% (1 of 55). If a 0.1% total sulphur cutoff was used, 1.8% of samples would be mis-categorized as non-PAG (1 of 55) with SFE result of pH less than 6. Baffinland is evaluating the addition of paste pH analysis for integration into the current analytical suite for waste rock determination. Based on evaluation of the preliminary results of the geochemistry program, the addition of this test would reduce the potential for misclassification of potentially acid generating rock, and in particular would address short term release of acid leachate from materials that would otherwise be considered non-acid generating. Based on the preliminary results, this secondary screening (in addition to the evaluation of waste placement strategies as a result of the thermal modelling) would achieve the goal of reducing or eliminating ARD at the waste rock facility. Further evaluation is required, and a fulsome update will be provided in the December 2019 update to the Phase 1 Waste Rock Management Plan. As the update to the management plan was initiated under the current Type A Water Licence 2AM-MRY1325 Amendment No. 1, and the plan is regulated under the Type A Water Licence, a Project Certificate condition is not required to ensure regulator review and approval of the updated Phase 1 Waste Rock Management Plan is achieved. Furthermore, the update to the Phase 1 Waste Rock Management Plan will be completed in December 2019, prior to any Ministerial approval of an amended Project Certificate Term and Condition, thereby making any associated conditions redundant.	Terrestrial	Resolved	Term and Condition: Baffinland shall develop effective criteria for identification of potentially acid generating rock following industry best practice. Baffinland shall incorporate these criteria in an updated Waste Rock Management Plan and Interim Closure and Reclamation Plan, to be submitted for review during the Water Licence Amendment process, subject to Nunavut Water Board requirements.
CIRNAC-09	CIRNAC	Baffinland has gained site operations experience over the last number of years and this experience should be referenced. During the technical review of Baffinland's	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	

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		Phase 2 Application, CIRNAC requested that the following items be addressed in each plan:Explosives Management Plan: Update to reflect new quantities of explosives, as well as other required updates to the storage and handling method; and spill response. Waste Management Plan: Include an estimate of waste quantities that will be generated as a result of the Phase 2 proposal and how the waste reuse and recycling principles are implemented. Hazardous Materials and Hazardous Waste Management Plan: The inventory of the types and volumes of hazardous waste generated or produced by Project Activities. Spill Control Plan: Update required to reflect increased volumes of sewage generated during construction and operation of Phase 2, emergency response equipment needed to respond to spills due to increases in fuels and other hazardous materials used/generated throughout the Project as a result of the Phase 2 proposal. Furthermore, CIRNAC requested that Baffinland should demonstrate how they apply the adaptive management principle to manage these materials. In response, Baffinland provided the document titled: DRAFT Hazardous Materials and Hazardous Waste Management Plan, May 1, 2019, and updated the Explosives Management Plan. The plan includes a table outlining the maximum cumulative quantities of explosives and ammonium nitrate as well as the storage location and storage container requirements. The existing management requirements for storage and handling appear adequate. The updated Draft Spill Contingency Plan presents a new Spill Scenario 5, including spills from locomotive during Railway Operation. A new table of explosives and ammonium nitrate was also added. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.				
CIRNAC-10	CIRNAC	A railway maintenance facility/yard at Milne Port Project is presented in the Project Description of the FEIS Addendum. Baffinland was requested to provide a description of forecasted changes in quantities, types of hazardous materials and waste that are expected to be generated under the Phase 2 Proposal. CIRNAC was referred to the Application to Amend Type A Water Licence, 2AM-MRY1325 for this information.A review of the licence application did not provide sufficient information to ascertain whether material and waste associated with this new facility has been considered in determining waste quantities related to Phase 2 and how this would be managed. CIRNAC requested Baffinland provide an	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	

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		inventory of waste types and quantities that would be generated by such a facility indicating additional material/wastes that would require management as a result of this new facility at Milne Port. In response, Baffinland provided the document titled: DRAFT Hazardous Materials and Hazardous Waste Management Plan, # BAF-PH1-830-P16-0011, Revision: Issued for review purposes only, Issue Date: May 1, 2019. The Plan includes information on hydrocarbon waste and hydrocarbon products such as engine oils and filters. Baffinland also provided estimated quantities of wastes and noted these were small in relation to all generated wastes. Table 4.2 of the Plan provides hazardous waste management methods that are appropriate for locomotive maintenance, including the proposed management options.CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.				
CIRNAC-11	CIRNAC	The Application to Amend Type A Water Licence, 2AM-MRY1325, presents quantities of solid waste, sewage effluent and hazardous waste to be generated from the Phase 2 Proposal, as well as the description of waste management capacity to accommodate the increased volume of materials and waste. However no comparison was provided to current volumes of waste under the existing project.In response to the previously submitted on this issue Baffinland requested CIRNAC examine the Application to Amend the Type A Water Licence, specifically Section 4.7, Table 4.3, Attachments 11.2 and 11.4, as well as Figures B.1 and B.5. However, a review of these documents does not fully address the concern and a comparison of the original project and the Phase 2 with regards to these materials is not evident. Baffinland Response to CIRNAC Technical Comment # 12 provided a comparison of the current volumes of waste generated (2016, 2017 and 2018).CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	
CIRNAC-12	CIRNAC	The proposed Snow Management Plan did not provide for estimates of hydrocarbon contaminated snow and ice that will be generated by Phase 2 activities and details on how these will be managed. It was expected that Baffinland should have details of volumes of contaminated snow and ice from its current operational experience. This experience should inform the assessment of current capacities of the snow management areas and any modifications required to meet the management needs for the proposed Phase 2	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Terrestrial	Resolved	

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		activities. Baffinland has updated the Snow Management Plan to include the North Railway, construction and operation phases. The Snow Management Plan indicates the snow piles location at Milne port, mine site and along the Tote Road / North Railway. The plan also includes the position of culverts and guidelines for snow management along the North Railway. However, the plan does not include volumes of contaminated snow and ice estimates for the Phase 2 Project development. In their March 2019 Responses to CIRNAC Technical Comment # 13, Baffinland noted that the volume of contaminated snow and ice managed at the Milne Port snow dump is reported in the Qikiqtani Inuit Association / Nunavut Water Board Annual Report for Operations, expressed as the volume of water treated from the facility. In 2017, Baffinland discharged approximately 187 m^3 of treated water from the snow dump facility. Projected quantities of contaminated snow and ice for the phase 2 of the Project are not available, as the primary source of contamination are unplanned spills. Additional containment for contaminated soils, snow and ice will be addressed on an on-going basis as required by the operation. Baffinland has identified the construction of an additional landfarm facility at the Mine Site in the 2019 Work Plan, which may include additional contaminated snow and ice storage. CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.				
CIRNAC-13	CIRNAC	Section 8.2.7 of the FEIS Addendum describes the socio-economic baseline conditions for eight of the project's ten VSECs but does not mention theadequacy of baseline data. The presented VSECs are:1. Education and Training;2. Livelihood and Employment;3. Economic Development and Self-reliance;4. Benefits, Royalty, and Taxation;5. Community Infrastructure and Public Services;6. Contracting and Business Opportunities;7. Population Demographics; and8. Human Health and Well-being.The Technical Supporting Document on Socio-economic Assessment (TSD 25) briefly discusses baseline information in the assessment methodology subsections for all of the Project's VSECs. Most refer to Appendix C of TSD 25, Updated Socio-economic Baseline Information, which is primarily based on data from Statistics Canada, the Nunavut Bureau of Statistics, and the Nunavut Housing Corporation. However, no discussion is provided on the reliability of data sources or confidence in the updated baseline data.In response to technical comments,	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Human	Resolved	

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		Baffinland explained the adequacy of baseline data presented in support of its phase 2 of the Project. A table was provided (Attachment 1: Table 1: Adequacy of Baseline Data Used for Each VSEC) that includes statements on the adequacy of baseline data used for each VSEC presented in TSD 25 and a rationale for their determination. The response provides reasonable descriptions of adequacy/overcoming limitations; identifies VSECs that have no baseline data (e.g., Royalties); and others that have no quantitative data (e.g., Governance).CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.				
CIRNAC-14	CIRNAC	In response to technical comments, Baffinland adequately explained the incorporation of IQ in TSD 25 and previous assessments conducted for the Approved Project. The response was supplemented by a report on the use of IQ for the Phase 2 Proposal (Appendix 13). This report outlines Baffinland's approach to IQ, how IQ was incorporated into the Phase 2 Proposal, and future steps that will be followed (including additional IQ that will be collected, the use of IQ in monitoring programs, and adaptive management considerations).CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Human	Resolved	
CIRNAC-15	CIRNAC	In response to technical comments, Baffinland provided summaries of interactions between the NIRB guidelines for the 'Culture, Resources, and Land Use,' 'Benefits, Royalty, and Taxation,' and 'Governance and Leadership' VSECs (Appendix 1) at the same level of thoroughness as the summaries of interactions provided for other VSECs in TSD 25.CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Human	Resolved	
CIRNAC-16	CIRNAC	In response to technical comments and a commitment made at the April 2019 Technical Meeting, Baffinland provided a supplement to the Technical Supporting Document on Cumulative and Transboundary Effects (TSD 27). The supplement describes how the Project's main alternative development scenarios (I. A future without the Phase 2 Proposal; II. A future with the Phase 2 Proposal; and III. Potential future development at the Mary River Project) have been evaluated in accordance with Subsections 6.1 and 7.8 of the NIRB guidelines.Baffinland's view is that the intent of these guidelines is focused on alternative development scenarios, not individual project alternatives. Baffinland also believes that completing a Cumulative Effects Assessment of each Project alternative	Baffinland understands that CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.	Human	Resolved	

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		would result in several development scenarios that would not be practical or useful. CIRNAC agrees with the provided explanation.CIRNAC is satisfied with the provided response and does not have any additional comments at this stage.				
DFO-3.1.1	DFO	DFO recommends that Baffinland:In consultation with affected Inuit communities, conduct a thorough environmental assessment prior to use of any additional/alternative routes through the Northwest Passage, outside of the current approved shipping route, including Navy Board Inlet.The assessment should include: Clarification whether Baffinland intends to use the alternative routes including the Northwest Passage at any point as part of Phase 2, or whether the alternatives would be solely reserved for future development and will be assessed at such a time, that Baffinland would seek approval for said development.	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N).	Marine	Resolved	
DFO-3.1.2	DFO	The assessment should include: Consideration of a larger proportion of the potentially impacted populations for each species along the alternate route, to adequately reflects the increase of use.	See response to DFO 3.1.1.	Marine	Resolved	
DFO-3.1.3	DFO	The assessment should include: An updated monitoring plan, which would include monitoring shipping through all alternative routes utilized for the Mary River Project, prior to usage of any additional routes outside the current approved shipping route.	See response to DFO 3.1.1.	Marine	Resolved	
DFO-3.2.1	DFO	In order for DFO to adequately assess the project's marine vessel traffic, DFO requires that Baffinland clarifies: The number of escorted vessels that will be permitted at any one time into the RSA	Baffinland expects that a maximum of four ore carriers would be escorted by a single ice breaker during a single transit in the early shoulder season. Based on acoustic modelling conducted in support of the Phase 2 Proposal, the noise field from a 4th carrier would not appreciably increase the aggregate noise field generated by the ice breaker.	Marine	Resolved	
DFO-3.2.2	DFO	In order for DFO to adequately assess the project's marine vessel traffic, DFO requires that Baffinland clarifies: The rationale for the maximum of 176 ore carrier transits	Rationale for the 176 ore carriers has been available to DFO since the time of the EIS submission, notably in Section 2.5.2.2 of TSD 24 (Marine Mammal Effects Assessment). Specifically, Baffinland noted that in order to account for the increased tonnage of ore being transported, an increase in vessel traffic serving Milne Port will be required. An estimated 176 ore carrier round trips was provided as an upper limit estimate in Table 2.4 of TSD 24 (provided below for reviewer reference). This table is based on a reasonable mix of vessel types calling on Milne Port between July and October to transport approximately 12 Mt. Baffinland further provided example shipping schedules in the Overview of Marine Operations submitted to the NIRB as Appendix 12 of the December 20,2019 response submission to information requests. These tables consistently demonstrate the need for 176 ore carriers to transport ore required as part of the Phase 2 proposal. In these	Marine	Resolved	

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			shipping schedules Baffinland has given consideration to historical ice conditions, operating experience and the need to have both predictably (i.e. start and end shipping dates) and operational flexibility to allow for contingency due to things like weather, operational malfunctions etc. Baffinland acknowledges that there were inconsistencies in the original EIS submitted in October 2018, those were corrected by December and DFO has been in receipt of this information since that time. Table 2.4: Maximum Number of Ore Carrier Calls (Round-trips) at Milne Port during Phase 2 Operations Vessel Type Vessel Size July August September October Total Supramax 50,000 DWT 10 5 5 10 30 Panamax 65,000 DWT 9 45 45 34 133 Capesize 150,000 DWT 0 6 5 2 13 Total 19 56 55 46 176 DWT = Dead Weight Tonnage. Note – Above schedule assumes all shipping will occur between July and October, although the original proposal anticipated some shipping into November.			
DFO-3.3	DFO	DFO is concerned that the present level of assessment may not be adequate to fully assess the effects of the vessels strikes on whales and other marine mammals. In order for DFO to adequately assess the effects of vessel strikes on marine mammals, Baffinland, working cooperatively with DFO, shall re-assess the impact of vessel strikes on bowhead whales and re-evaluate the significance of ship strikes related to the project (including inside and outside the RSA) and should consider other marine mammals (e.g., Killer whale, Sperm whale, Fin whale) that would potentially be entering the RSA in summer during the open water shipping season and risk of vessel strikes. The assessment shall include the knowledge and observation of Inuit hunters and trappers.	The physiological attributes of toothed whales (narwhal, beluga, killer whale) make them relatively less vulnerable to ship strikes compared to baleen whales, as they use echolocation to perceive their environment and can maneuver out of the way of oncoming vessels. Similarly, seals are considered to be at relatively low risk of vessel strike owing to their fast swimming speed, maneuverability and agility. This is consistent with available literature and IQ, as there is no record of a ship strike on narwhal, beluga or seal since shipping operations began in 2015, nor evidence of a recreational vessel strike on any of these species in the RSA (including by hunting vessels which commonly travel at speeds above 13 knots). The critical ship speed threshold above which strikes on marine mammals have a higher potential to occur is 13 knots, and this is largely applicable to baleen whales (e.g. bowhead whales) as they spend a considerable more amount of time at the surface feeding, do not have echolocation ability to detect ships as well at a distance, and are generally less mobile/maneuverable. In order to effectively avoid ship strikes on all marine mammal species, Baffinland has implemented a 9 knot (16.7 km/h) speed restriction applicable to all Project vessels and throughout the entire shipping corridor in the Regional Study Area. This exceeds any existing mitigation in Canadian (and U.S.) waters for reducing the probability of deaths and injuries to whales due to collisions with ships, including the following government-initiated measures to protect the endangered North Atlantic right whale from ship strikes, the cetacean species most commonly prone to being struck by vessels (Vanderlaan and Taggart 2007): • Regulations introduced in 2017 by the Government of Canada (and	Marine	Outstanding	Baffinland will implement the following requirement for vessels serving the Mary River Project: Once advised of the presence and location of bowhead whales, Masters of project ships operating within the RSA will be instructed to exercise due caution in order to minimize the likelihood of interaction with the mammals. In such events, Masters will be authorized to adjust speed or alter course within safe and prudent navigational constraints to avoid to the extent possible interaction with bowhead whales. Note: Baffinland notes that the surveillance measures implemented in the Guld of St Lawrence, as refernced by DFO, are to spot right whales and implement the 10 knot speed restriction. This additional mitigation measure is not required in the RSA as a blanket 9 knot speed limit is in place for the entire season. The only mitigation measure more restrictive

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			renewed in 2018 and 2019) for protecting endangered right whales from ship strikes, which include seasonal speed restrictions for vessels ≥13 m to a maximum of 10 knots (18.52 km/hr) when travelling in the western Gulf of St. Lawrence. • Regulations introduced in 2008 by the U.S. Government requiring all vessels ≥65 feet to travel ≤ 10 knots (18.52 km/h) when travelling in defined seasonal management areas (SMAs) along the Eastern U.S. coast to reduce the probability of deaths and injuries to right whales due to collisions with ships. Preliminary findings suggest that the 10-knot speed limit has been effective (when applied) as mitigation for ship strikes, with no documented fatalities of North Atlantic right whale in Canadian waters reported in 20181. Similar results were observed by Laist et al. (2014) in their study evaluating the effectiveness of the mandatory 10-knot speed limit in the U.S for protecting right whales from ship strikes. In the 5-year period following the enactment of the mandatory 10-knot speed limit, there were no right whale mortalities recorded in any of the identified SMAs or within 83 km of their boundaries, compared to the 18-year period preceding the 10-knot limit coming into force, in which 13 of 15 (87%) reported right whale deaths by ship strike occurred within the SMAs or within 83 km of their boundaries. Marine mammals occurring along the Northern Shipping Route during the shipping season consist primarily of narwhal and ringed seal, with occasional sightings of bowhead2, killer whale, beluga whale, sperm whale, harp seal, bearded seal and walrus, as documented in the Marine Mammal Baseline Report (Appendix A of TSD 24) and based on available Inuit Qaujimajatuqangit (IQ) including information shared through discussions and workshops held with the community of Pond Inlet and the Mittamatalik Hunters and Trappers Association (JPCS 2017). Ship strikes on bowhead whale, beluga, killer whale and walrus are not expected to occur as a result of the Phase 2 Proposal in light of proposed mitigation (e.g. 9 knots speed limit) and given the paucity of these species along the shipping corridor during the active shipping season. With the implementation of vessel speed restrictions (9 knots) along the Northern Shipping Route, in addition to the other noted mitigation measures, no ship strikes on marine mammals are anticipated to occur as a result of the Phase 2 Proposal. This is consistent with monitoring data available to date; there has been no evidence of ship strikes on the Project following four consecutive years of shipping and despite extensive marine mammal monitoring undertaken in the area (multiple programs). Ship speed restrictions as a mitigation are demonstrated to be effective. This above rationale is also consistent with IQ gathered during IQ studies (JPSC 2015-2016), community risk assessment workshops (ERM			than the speed limit is a 15 day shut down for non-tended fixed gear fisheries. Again, this is not applicable to Mary River operations. Baffinland strongly urges DFO to consider the commitment provided above and work with Baffinland to implement it.

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			2019, attached here as Appendix O), and monitoring program end of season interview (Golder 2019, attached here as Appendix N). • Inuit workshop participants and Inuit researchers on the Baffinland marine mammal monitoring programs noted that shipping impacts on seals is not an activity of concern for Inuit (Golder 2019) • Inuit workshop participants and Inuit researchers on the Baffinland marine mammal monitoring programs do not believe ship strikes will occur at current ship speeds for any marine mammal species (Golder 2019) • This is consistent with other IQ studies (Remnant and Thomas 1992; JPSC 2017; QIA 2019). • 1The Canadian Government removed the vessel speed restrictions in early 2019 to minimize impact on industry. However, the 10-knot speed limit was re-instated in the the Gulf of St. Lawrence in July of 2019 after eight North Atlantic right whales were found dead in Canadian waters throughout June 2019, some of which were attributed to vessel strikes. • 2Preliminary results from 2019 aerial surveys and Ship-based Observer Program indicate a higher number of bowhead whales were present in the RSA during the 2019 early shoulder season than observed in previous survey years (Golder 2019). References: Environmental Resources Management (ERM). 2019. Baffinlands Iron Mines Corporation – Mary River Phase 2 Proposal: Community Risk Assessment Workshops: Final Report. Project No. 0489284-0004, Version C.1. Technical report by ERM Consultants Canada Ltd. Golder Associates Ltd. (Golder). 2019 Marine Mammal Monitoring Programs – Preliminary Findings. Reference No. 1663724-161-TM-Rev0-3000. 11 October 2019. 45 p. Jason Prno Consulting Services Ltd (JPCS). 2017. Technical Supporting Document (TSD) No. 03: Results of Community Workshops Conducted for Baffinland Iron Mines Corporation's – Phase 2 Proposal. Report submitted to Baffinland Iron Mines Corporation. January 2017. Qikiqtani Inuit Association (QIA). 2019. Tusaqtavut Study Specific to Mary River Project Phase 2 Proposal. June 2019 • Remnant, R.A. and M.L. Thomas. 1992. Inuit Traditional Knowledge of the Distribution and Biology of High Arctic Narwhal and Beluga. Unpublished report by North/South Consultants Inc. Winnipeg, Manitoba. vii + 96 p.			
DFO-3.4	DFO	In order for DFO to properly assess the impact of the shipping season on ice formation, DFO recommends that Baffinland provides environmental conditions and ecological factors criteria used to determine yearly opening and closing of the shipping season, along with the monitoring plan to determine if ice-breaking in the shoulder season will have an impact on ice formation and	The environmental conditions present along the shipping route in terms of ice formation in the Fall are described in Section 4.3 of the Ice Study (TSD-16) for Phase 2. Mid-November is the average date that fastice has formed in Milne Inlet since 1997 and its presence would trigger the end of the shipping season from a technical (vessels receiving positive ice numerals) and environmental (commitment not to break landfast ice) perspective. Baffinland is committed to undertaking an end-of-season aerial survey	Marine	Outstanding	Environmental and ecological criteria for the opening of the shipping season is described in the Shoulder Season Shipping Operational Guide. The following clarifications will be added to the Shoulder Season Shipping Operational Guide to reflect

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		that Baffinland report annually on the determination of opening and closing the shipping season.	of the LSA, following the end of shipping operations, to confirm no narwhal entrapment events have occurred. During this survey observations will be taken of the ship track and how it has influenced ice formation. Should local knowledge indicate that ice formation during the fall shoulder season has interrupted travel routes on the sea ice, Baffinland will work with the local community to develop an appropriate monitoring program and/or adaptive management response.			the environmental and ecological conditions for closing the shipping season. Environmental - The formation of fastice along the shipping route will trigger the end of the shipping season. Ecological - There are no ecological triggers to close the shipping season, however, monitoring and adaptive management will be applied to ensure no significant impacts occur. Note: Seals - During the Fall season Seals are just beginning to establish breathing holes in the ice as part of their development of an overwinter territory, but this is not considered a critical life cycle period. Seals may avoid establishing breathing holes along the shipping route during this peirod, but this would be limited to general area of the ship path, which is minimal in extent. Seals do not start denning until January when enough snow is available on the ice for them to build a den. Shipping would not overlap with the denning period. Narwhal- The fall shoulder season will overlap with the outmigration of narwhal throughout October and November. Aerial surveys are planned each year to confirm no entrapment events have occured, and to inform adaptive management, should it be required.
DFO-3.5	DFO	DFO is concerned about the impacts to pinnipeds and disagrees with Baffinland's conclusions that effects will be non-significant. As such, DFO overall recommends	DFO has not provided evidence to support a determination of significance for shipping impacts on pinnipeds. Baffinland considered a substantial body of information in its evaluation	Marine	Outstanding	DFO is yet to discuss outstanding issue with Baffinland

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		Baffinland implement the most conservative mitigation measure and avoid shipping during the shoulder seasons and ice-breaking activities; only ship during the open water season.	of significance of shipping impacts on pinnipeds along the Northern Shipping Route, including Inuit Quajimajatuqangit (IQ), available scientific literature, empirical data (site-specific, quantitative data collected over an extended time series from multiple monitoring programs including aerial surveys, acoustic monitoring, shore-based monitoring, ship-based monitoring), and extensive acoustic modelling. The expert opinion of multiple professionals was incorporated into both the marine mammal effects assessment (TSD 24) and the icebreaking operations effects assessment (Golder 2019). Further to this, Baffinland has developed a number of key mitigation measures to effectively eliminate and/or greatly minimize any adverse impacts on pinnipeds from shipping operations under the Phase 2 Proposal. This includes: • Avoidance of sensitive periods - Shipping and icebreaking will be conducted outside key sensitive periods for ringed seal, including pupping, nursing and mating periods – see Table 1. • Project vessels will not exceed 9 knots in the RSA, thus avoiding and/or reducing the risk of vessel strikes on seal and minimizing the extent of acoustic disturbance. • Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA and are responsible for alerting vessel Master and crew to observed potential risk of ship strikes or other signs of disturbance to marine wildlife. • The number of daily icebreaker transits in the RSA will be reduced in heavy to moderate (4/10 to 10/10) ice conditions, thereby further reducing potential for vessel strikes and minimizing the daily noise exposure period for ringed seal. • Implementation of a 40-km buffer zone around the floe edge at the entrance of the RSA to reduce interactions between Project vessels and marine mammals (vessels entering the RSA during the spring shoulder season must wait 40 km to the east of the RSA until clearance from the Port Captain is obtained to enter the RSA). The following additional elements were key in supporting a determination of no significant impacts on pinnipeds from shipping: • IQ gathered during IQ studies, community risk assessment workshops, and monitoring program end of season interview focusing on the effects of project shipping and icebreaking on marine mammals (Golder 2019; ERM 2019). o Inuit workshop participants and Inuit researchers on the Baffinland marine mammal monitoring programs noted that shipping impacts on seals is not an activity of concern for Inuit. o Inuit workshop participants and Inuit researchers on the Baffinland marine mammal monitoring programs do not believe ship strikes will occur at current ship speeds for any marine mammal species. o This is consistent with other IQ studies (Remnant and Thomas 1992; JPCS 2017; QIA 2019).			

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			• No evidence of ship strikes to date on Project following four consecutive years of shipping and marine mammal monitoring (multiple programs). Ship speed restriction as mitigation demonstrated to be effective. • Ringed seal hotspots (Yurkowski et al. 2019) and pupping grounds are specific to the spring season (not summer) and will have dissolved by the time icebreaking commences in July. • Ringed seal molt period is largely completed by July. Literature demonstrates that basking behavior is greatly reduced in July, ringed seals have become solitary at this time and they are in the water for a greater proportion of the day, and they are highly mobile at this time (up to 35 km/day) (Heide Jorgensen et al. 1992; Kelly et al. 2010). • In thicker ice conditions, icebreaker will travel slower than 9 knots, thereby further reducing potential for ship strikes. • Minimal loss of sea ice habitat will occur based on narrow icebreaking path – sea ice has already fractured and become mobile at this time. • There are relatively few documented cases of vessel strikes in pinnipeds in the literature (seals and walrus) (Richardson et al. 1995; Van Waerebeek et al.2007) and none reported for ringed seal. Seals are considered to be at relatively low risk of vessel strike owing to their fast swimming speed, maneuverability and agility (Richardson et al. 1995; Laist et al. 2001; Jensen and Silber 2003). • Reports from the literature suggest that seals hauled out on ice are likely to detect icebreakers ahead of time and are likely to engage in active avoidance of the ship (i.e., fleeing behaviour) at approach distances <1km (Richardson et al. 1995). In summary, while Project shipping and icebreaking activities will likely result in some level of disturbance of pinnipeds, available evidence indicates that shipping is unlikely to result in permanent habitat displacement from the RSA nor a compromise in the integrity of the ringed seal population in the North Baffin region. Based on the effective application of the proposed mitigation, residual effects of Project shipping on pinnipeds is predicted to be limited to short-term localized disturbance from vessel noise exposure. Considering the commitments from Baffinland to effectively mitigate and monitor over the long-term, the residual effects of shipping on pinnipeds is characterized as not significant. While uncertainties exist, Baffinland is of the opinion that these can be addressed via follow-up monitoring and adaptive management. Table 1 – Key ringed seal life-history stages by month in relation to Project shipping schedule for Phase 2 Proposal References: Environmental Resources Management (ERM). 2019. Baffinlands Iron Mines Corporation – Mary River Phase 2 Proposal: Community Risk Assessment Workshops: Final Report. Project No. 0489284-0004, Version C.1. Technical report by ERM Consultants Canada Ltd.			

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			Golder Associates Ltd. (Golder). 2019 Marine Mammal Monitoring Programs – Preliminary Findings. Reference No. 1663724-161-TM-Rev0-3000. 11 October 2019. 45 p. Laist, D.W., A.R. Knowlton, J.G. Mead, A.S. Collet, and M. Podesta. 2001. Collisions Between Ships and Whales. Marine Mammal Science 17(1):35-75. Jason Prno Consulting Services Ltd (JPCS). 2017. Technical Supporting Document (TSD) No. 03: Results of Community Workshops Conducted for Baffinland Iron Mines Corporation's – Phase 2 Proposal. Report submitted to Baffinland Iron Mines Corporation. January 2017. Jensen, A.S. and G.K. Silber. 2003. Large whale ship strike database. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-F/OPR 25. 37pp. Qikiqtani Inuit Association (QIA). 2019. Tusaqtavut Study Specific to Mary River Project Phase 2 Proposal. June 2019 Remnant, R.A. and M.L. Thomas. 1992. Inuit Traditional Knowledge of the Distribution and Biology of High Arctic Narwhal and Beluga. Unpublished report by North/South Consultants Inc. Winnipeg, Manitoba. vii + 96 p. Richardson, J., C.R. Greene Jr, C. Malme and D. Thomson. 1995. Marine Mammals and Noise. Academic Press. San Diego, California, USA. Van Waerebeek K, A.N. Baker, F. Félix, J. Gedamke, M. Iñiguez, G.P. Sanino. 2007. Vessel collisions with small cetaceans worldwide and with large whales in the Southern Hemisphere, an initial assessment. Latin American Journal of Aquatic Mammals 6:43–69. Yurkowski, D.J., B.G. Young, J.B. Dunn and S.H. Ferguson. 2019. Spring distribution of ringed seals (Pusa hispida) in Eclipse Sound and Milne Inlet, Nunavut: implications for potential ice-breaking activities. Arctic Science. 5(1): 54–61.			
DFO-3.5.1	DFO	Uses walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).	During Phase 2 Operations, Baffinland commits to using the walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).	Marine	Resolved	During Phase 2 Operations, Baffinland commits to using the walrus haul out buffer zone guidelines set by the US Fish and Wildlife Service (USFWS) and the US Federal Aviation Administration (FAA).
DFO-3.5.2	DFO	Avoid icebreaking where and when seal density is relatively high. These areas occur in closed embayments and inlets where landfast ice exists	Baffinland will not be icebreaking in closed embayments nor in inlets where landfast ice exists (per Baffinland's commitment to not break landfast ice). Furthermore, as stated previously, icebreaking will avoid sensitive ringed seal life cycle periods (e.g. pupping, nursing, mating) when seal density is relatively high.	Marine	Resolved	Baffinland will not break ice in closed embayments and inlets where landfast ice exists. Should other areas of high seal density be encountered along the shipping route during the shoulder season, the Ship Board Observer Program will record and report this for potential adaptive management actions. This may include notices to Masters of

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						project ships operating within the RSA to exercise due caution in order to minimize the likelihood of interaction with the mammals. In such events, Masters will be authorized to adjust speed or alter course within safe and prudent navigational constraints to avoid to the extent possible interactions with high density seal areas. See other commitments related to the SBO Program in response to DFO 3.5.3 and 3.5.6
DFO-3.5.3	DFO	Provide an estimate of how many ringed seals are in Eclipse Sound, and re-evaluate the percentage of affected seals using available region and water-body specific abundance estimates.	An estimated 15,947 ringed seals are predicted to occur in the combined areas of Eclipse Sound, Pond Inlet and Milne Inlet (5,755 individuals in Eclipse Sound East; 2,457 individuals in Eclipse Sound West; 4,212 individuals in Pond Inlet; 2,763 individuals in Milne Inlet North, and 759 individuals in Milne Inlet South). This is based on ringed seal density estimates from Yurkowski et al. (2019), 1.40 individuals/km2 for Milne Inlet and 0.98 individuals/km2 for Eclipse Sound, and includes a correction factor of 2.46 for availability bias (Born et al. 2002) and 1.22 for perception bias (Frost et al. 1988). These were the values used to determine the predicted number of ringed seals affected by icebreaker noise in the Icebreaking Operations Assessment submitted May 13, 2019 to the NIRB. Based on a maximum-case icebreaker transit scenario (2 icebreakers escorting 2 capesize carriers), using corrected ringed seal density estimates for June (Yurkowski et al. 2019), the estimated number of ringed seals predicted to demonstrate avoidance of an icebreaker transit is: • 199 individuals (1.2% of 15,947 animals) per transit during Heavy Ice Regime (early summer) • 128 individuals (0.8% of 15,947 animals) per transit during Moderate Ice Regime (early summer) • 84 individuals (0.5% of 15,947 animals) per transit during Light Ice Regime (early summer) • 238 individuals (1.5% of 15,947 animals) per transit during Heavy Ice Regime (fall) • 93 individuals (0.6% of 15,947 animals) per transit during Moderate Ice Regime (fall) Based on a maximum-case icebreaker transit scenario (2 icebreakers escorting 2 capesize carriers), using corrected ringed seal density estimates for June (Yurkowski et al. 2018), the estimated number of ringed seals predicted to occur in the acoustic disturbance zone of an icebreaker transit is: • 1,219 individuals (7.6% of 15,947 animals) per transit during Heavy Ice	Marine	Outstanding	Baffinlands Ship Board Observer Program will confirm the prediction that no seal strikes will occur as a result of project shipping. Should monitoring demonstrate that the predictions are incorrect, Baffinland will implement adaptive managament measures in consultation with the MHTO and MEWG. Note: Baffinland will not provide an updated estimate of ship strikes on seals based on a study that covers a period in time and location that are fundamentally different from what is proposed under Phase 2.

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			Regime (early summer) • 688 individuals (4.3% of 15,947 animals) per transit during Moderate Ice Regime (early summer) • 339 individuals (2.1% of 15,947 animals) per transit during Light Ice Regime (early summer) • 1,530 individuals (9.6% of 15,947 animals) per transit during Heavy Ice Regime (fall) • 414 individuals (2.6% of 15,947 animals) per transit during Moderate Ice Regime (fall) References: Born, E.W., J. Teilmann and F. Riget. 2002. Haul-out activity of ringed seals (Phoca hispida) determined from satellite telemetry. Marine Mammal Science 18(1):167-181.Frost, K.J., L.F. Frost, K., L.F. Lowry, J.R. Gilbert and J.J. Burns. 1988. Ringed seal monitoring: relationships of distribution and abundance to habitat attributes and industrial activities. U.S. Dep. Commer., National Oceanic & Atmospheric Administration, OCSEAP Final Rep. 61(1989):345-445. NTIS PB89-234645. Available from National Technical Information Service, Springfield, VA. Yurkowski, D.J., B.G. Young, J.B. Dunn and S.H. Ferguson. 2019. Spring distribution of ringed seals (Pusa hispida) in Eclipse Sound and Milne Inlet, Nunavut: implications for potential ice-breaking activities. Arctic Science. 5(1): 54–61.			
DFO-3.5.4	DFO	Implement 300m proposed buffer zone for seals as there currently is for polar bears and walruses.	Baffinland has developed a number of key mitigation measures to effectively eliminate and/or greatly minimize any adverse impacts on pinnipeds from shipping operations under the Phase 2 Proposal. This includes: • Avoidance of sensitive periods - Shipping and icebreaking will be conducted outside key sensitive periods for ringed seal, including pupping, nursing and mating periods – see Table 1 in response to DFO-3.5. • Project vessels will not exceed 9 knots in the RSA, thus avoiding and/or reducing the risk of vessel strikes on seal and minimizing the extent of acoustic disturbance. • Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA to inform vessel Master and crew of buffer zones (where applicable), to avoid potential ship strikes on marine mammals, and to record other signs of disturbance to marine wildlife. • The number of daily icebreaker transits in the RSA will be reduced in heavy to moderate (4/10 to 10/10) ice conditions, thereby further reducing potential for vessel strikes and minimizing the daily noise exposure period for ringed seal. • Implementation of a 40-km buffer zone around the floe edge at the entrance of the RSA to reduce interactions between Project vessels and marine mammals (vessels entering the RSA during the spring shoulder season must wait 40 km to the east of the RSA until clearance from the	Marine	Resolved	

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
			Port Captain is obtained to enter the RSA). It would not be logistically possible to implement a 300-m buffer zone for seals given their overall high densities in the RSA (see response to DFO-3.5.3), nor does Baffinland feel that is warranted given the extensive mitigation already proposed, which Baffinland feels confident will effectively eliminate and/or greatly minimize the potential for ship strikes on pinnipeds under the Phase 2 Proposal. This is consistent with Inuit knowledge regarding potential ship strikes on marine mammals from Project shipping, based on existing IQ studies (JPCS 2017; QIA 2019), community workshops focusing on the effects of shipping and icebreaking on marine mammals from shipping (ERM 2019; Appendix O) and from interviews with Inuit following their participation in monitoring programs (Golder 2019; Appendix N): • Workshop participants noted that shipping impacts on seals is not an activity of concern. • Ship strikes are not thought to occur at current ship speeds. References: Environmental Resources Management (ERM). 2019. Baffinlands Iron Mines Corporation – Mary River Phase 2 Proposal: Community Risk Assessment Workshops: Final Report. Project No. 0489284-0004, Version C.1. Technical report by ERM Consultants Canada Ltd. • Golder Associates Ltd. (Golder). 2019 Marine Mammal Monitoring Programs – Preliminary Findings. Reference No. 1663724-161-TM-Rev0-3000. 11 October 2019. 45 p.			
DFO-3.5.5	DFO	Avoid shipping during the shoulder seasons and ice-breaking activities and only ship during the open water season.	As part of the August 23, 2019 submission to the NIRB in support of the Phase 2 Proposal, Baffinland submitted a Draft Early Shipping Season – Operational Guide that clearly outlines the conditions under which Baffinland would begin shipping in the shoulder season. This criterion is based on both ecological and community determinants, and includes the following requirements: • Before commencing shipping, Baffinland must receive written confirmation from the MHTO that the floe edge is no longer being used by community members. No transits to Milne Port will be permitted until confirmation is received. • Baffinland will not break ice during ringed seal denning, pupping, nursing or mating periods and will manage its vessel traffic during the Eclipse Sound narwhal summer stock spring migratory period. Furthermore, Baffinland has established several precedent-setting mitigations to minimize potential effects on ringed seal as a result of ice breaking activities, including: • Restricting the number of transits during the early shoulder season where ice concentrations above 3/10 cannot be avoided. • Implementation of speed restrictions (9 knots) that are more conservative than Government of Canada guidelines for speed reduction to 10 knots. • Local Inuit Marine Wildlife Observers (MWOs) will be stationed on all	Marine	Outstanding	DFO is yet to discuss outstanding issue with Baffinland

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			icebreaker transits in the RSA and are responsible for alerting vessel Master and crew to observed potential risk of ship strikes on pinnipeds and other marine mammals, or record other signs of disturbance to marine wildlife. Implementation of a 40-km buffer zone around the floe edge at the entrance of the RSA to reduce interactions between Project vessels and marine mammals (vessels entering the RSA during the spring shoulder season must wait 40 km to the east of the RSA until clearance from the Port Captain is obtained to enter the RSA). Follow-up monitoring commitments are appropriate and tailored to managing any uncertainties in the assessment. Furthermore, project economics require reasonably predictable access, based on historic ice conditions. Once shipping has begun, any interruptions, such as weather delays and maintenance, have cascading effects that diminish the viability of the project. As such, for each cumulative 24-hour loss, or delay, two potential ship loads are lost. Based on the above Baffinland disagrees with DFOs recommendation to avoid shipping during the shoulder seasons and to only ship during the open water season.			
DFO-3.5.6	DFO	Prepare a monitoring plan, with an appropriate survey methodology (e.g., Wilson et al. 2017), for the purpose of documenting and reporting any mortalities due to icebreaking and shoulder season shipping activities or otherwise.	Mitigation and monitoring measures recommended by Wilson et al. (2017) are specific to icebreaking of land-fast ice in the Caspian Sea during peak winter months which corresponds with key life cycle periods for the Caspian seal, including denning, pupping and nursing periods. This is not an appropriate comparison to the present Project (Phase 2 Proposal), as mitigation has already been proposed that includes avoiding breaking land-fast ice altogether, and avoiding icebreaking during the sensitive life cycle periods for ringed seal, including denning, pupping, nursing and mating periods. Reporting procedures for any marine mammal mortalities or injuries due to icebreaking or shipping are outlined in Section 3.7 of the Shipping and Marine Wildlife Management Plan (SMWMP), and are outlined below: In the event any accidental contact occurs between a Project vessel and a marine mammal or an aggregation of seabirds, with resulting death or serious injury, the regional office of Fisheries and Oceans Canada (marine mammals) or Environment Canada (seabirds) is to be notified and supplied with information documenting the incident (date/time/location, affected species and condition, circumstances of the incident, weather and sea conditions, location/travel direction of the affected animal(s)). The Ship's Master will inform Baffinland Site personnel, who will contact the appropriate government agency. Annually, Baffinland will summarize any such incidents in its report to NIRB. In the event a ship-based Marine Wildlife Observer is onboard, they will be required to report any significant observation (e.g. threatened collision) to the ship master. Other vessel traffic would also be advised of any such threat. References:	Marine	Outstanding	Baffinland will updated the Marine Monitoring Program to make it clear what behavioural indicators are recorded during the Ship Board Observer Program. These indicators include breaching, flipper slapping, lobtailing, diving, fluking, blowing, resting, looking, feeding, hauled-out, milling, swimming, surfacing. Other recorded information includes initial distance from vessel, minimum distance from vessel (i.e. closest point of approach), and bearing from vessel and movement direction. These methods and indicators are currently described in annual Ship Board Observer Reports.

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			Wilson, S.C., I. Trukhanova, L. Dmitrieva, E. Dolgova, I Crawford, M. Baimukanov, T. Baimukanov, B. Ismagambetov, M. Pazylbekov, M Jussi and S. M. Goodman. Assessment of impacts and potential mitigation for icebreaking vessels transiting pupping areas of an ice-breeding seal. Biological Conservation. Vol 214. October 2017. 213-222.			
DFO-3.6	DFO	DFO is concerned that the lack of defensible information makes the assessment of the effect of shipping on cetacean difficult and highly uncertain. As such DFO recommends that, for the time being, Baffinland maintain the current level of shipping and avoid shipping during the shoulder seasons and ice-breaking activities. Before any increase in shipping is considered, Baffinland should provide further information and provide further mitigation options in an updated shipping management plan (see DFO-3.6.1-DFO-3.6.6).	Baffinland contracted Hemmera to undertake a third-party peer review of the icebreaking operations effects assessment. Hemmera's review considered a substantial body of information and used a 'multiple lines of evidence' approach for evaluating the significance of shipping impacts on narwhal along the Northern Shipping Route, including the following: • Inuit Quajimajatuqangit (IQ) • literature evidence (journal articles and reports published) • empirical evidence (site-specific, quantitative data collected over an extended time series from multiple monitoring programs including aerial surveys, acoustic monitoring, shore-based monitoring, ship-based monitoring) • modelling evidence (acoustic modelling) • evidence from other past environmental assessments in Canada including the Canadian Arctic region • expert opinion including knowledge and experience that trained professionals have accumulated over time in a specific technical discipline. The expert opinion of multiple professionals was incorporated into effects assessment elements for the marine mammal assessment. This included a peer-review of the assessment chapters and associated monitoring reports. • follow-up monitoring programs to address uncertainty The outcomes of Hemmera' third party peer review substantiate Baffinland's original determinations of significance in the icebreaking operations effects assessment, including a non-significant effect on narwhal from icebreaking (Appendix N). Further to this, Baffinland has developed a number of key mitigation measures to effectively eliminate and/or greatly minimize any adverse impacts on narwhal from shipping operations under the Phase 2 Proposal. This includes: Furthermore, Baffinland has established several precedent-setting mitigations to minimize potential effects on cetaceans as a result of ice breaking activities, including: • Restricting the number of transits during the early shoulder season where ice concentrations above 3/10 cannot be avoided. • Implementation of speed restrictions (9 knots) that are more conservative than Government of Canada guidelines for speed reduction to 10 knots. • Local Inuit Marine Wildlife Observers (MWOs) will be stationed on all icebreaker transits in the RSA and are responsible for alerting vessel Master and crew to observed potential risk of ship strikes on cetaceans		Outstanding	DFO is yet to discuss outstanding issue with Baffinland

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			and other marine mammals, or record other signs of disturbance to marine wildlife. • Implementation of a 40-km buffer zone around the floe edge at the entrance of the RSA to reduce interactions between Project vessels and marine mammals (vessels entering the RSA during the spring shoulder season must wait 40 km to the east of the RSA until clearance from the Port Captain is obtained to enter the RSA). Baffinland will include the above mitigation options in an updated version of the Shipping and Marine Wildlife Management Plan (SMWMP) prior to initiation of Phase 2 shipping operations. References: Hemmera Envirochem Inc. (Hemmera). 2019. Review of the Mary River Phase 2 Assessment Conclusions on the Effects of Icebreaking to Narwhal. Project No. 103182-01. October 11, 2019.			
DFO-3.6.1	DFO	An estimate of the percentage of narwhal that could exhibit disturbance and avoidance behavior regularly depending on the icebreaking scenarios.	The number of narwhal (and the relative proportion of the Eastern Baffin Bay population and Eclipse Sound stock) that could exhibit disturbance and avoidance from icebreaking operations is provided in the Icebreaking Operations Assessment (Golder 2019) and represents 'average' and 'maximum-case' scenarios - see page 62 and Table D-1 in Appendix A of Icebreaking Operations Assessment (Golder 2019). DFO has suggested that effects are more appropriately assessed at the level of the Eclipse Sound stock (~12,000 narwhal) rather than the larger Baffin Bay population (~140,000 narwhal), given that stock level abundance estimates exist. Values are presented for both below: • DISTURBANCE: It is predicted that 3,500 to 4,700 narwhal in the RSA may experience noise levels above the disturbance threshold (120 dB) per icebreaker transit; this represents between 2.5 and 3.3% of the Baffin Bay population (estimated at 141,909 individuals based on DFO 2015a), and between 29 and 39% of the Eclipse Sound narwhal summer herd stock (estimated at 12,039 individuals based on Marcoux et al. 2019). • AVOIDANCE: It is predicted that 1,000 and 2,900 narwhal in the RSA may experience noise levels above the avoidance threshold (135 dB) per icebreaker transit, this represents between 1 and 2% of the Baffin Bay population and between 8 and 24 % of the Eclipse Sound narwhal summer herd stock. The total daily cumulative exposure period for narwhal from icebreaking operations is presented in DFO-3.8.1. Multiple lines of evidence, including empirical data, indicate that icebreaking and shipping operations are likely to trigger low- and possibly moderate-severity behavioural responses (Southall et al. 2007; Finneran et al. 2017) that are predominantly localized and temporary in nature. There is currently no evidence to suggest that extended exposure to vessel traffic noise has the potential to produce high severity responses that would compromise the integrity of the Eclipse Sound stock nor permanently displace narwhal from the RSA. Further, considering the	Marine	Resolved	

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			application of effective mitigation measures (e.g., limiting the number of transits in heavy ice conditions to create periods of quiescence, vessel speed restrictions, establishment of a floe-edge buffer zone and "no-go" zones in key calving areas) and commitment to monitor, and adaptively manage, effects over the long-term, icebreaking and shipping operations as proposed for the Phase 2 proposal are not likely to result in a significant environmental effect on narwhal. References: Golder Associates Ltd. (Golder). Assessment of Icebreaking Operations during Shipping Shoulder Seasons on Marine Biophysical Valued Ecosystem Components (VECs). Report No. 1663724-102-R-Rev1-30000. 17 May 2019. 343 p. Finneran, J., E. Henderson, D. Houser, K. Jenkins, S. Kotecki, and J. Mulsow. 2017. Criteria and Thresholds for US Navy Acoustic and Explosive Effects Analysis (Phase III). Technical report by Space and Naval Warfare Systems Center Pacific (SSC Pacific). 183 pp. Marcoux, M., Montsion, L.M., Dunn, J.B., Ferguson, S.H., and Matthews, C.J.D. 2019. Estimate of the abundance of the Eclipse Sound narwhal (Monodon Monoceros) summer stock from the 2016 photographic aerial survey. DFO Can. Sci. Advis. Sec. Res. Doc. 2019/028. iv + 16 p. Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, W.J. Richardson, J.A. Thomas, and P.L. Tyack. 2007. Marine mammal noise exposure criteria: initial scientific recommendations. Aquat. Mamm. 33(4):411-522.			
DFO-3.6.2	DFO	Mitigation measures to address this concern that frequency of entrapments will increase over natural levels due to icebreaking in the fall shoulder season (e.g., no icebreaking while narwhal migrate into and out of Eclipse Sound).	'Natural' levels of narwhal entrapment are presently unknown. Regardless, Baffinland is committed to undertaking an end-of-season aerial survey of the LSA, following the end of shipping operations, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey. The need for the mitigation measure proposed by DFO to not break ice while narwhal migrate into and out of Eclipse Sound is not supported by evidence and an unreasonable application of the precautionary principle. Such a mitigation measure would unnecessarily limit Baffinlands shipping season and the ability to transport the proposed increase in production to market. This recommendation does not adequately consider the shoulder season mitigation measures proposed by Baffinland, including vessel traffic management and setbacks from staging areas. Related to this technical comment, Baffinland would also like to note the following: the background to this comment suggests a linkage exists between the 2015 entrapment event and Baffinland's shipping operations that year (which was limited to 13 ore carriers and 4 fuel/cargo ships). Baffinland would like to formally document that Baffinland's shipping operations in 2015 ended on 12 October 2015 –	Marine	Outstanding	Baffinland is committed to undertaking an end-of-season aerial survey of the LSA for each year shoulder season shipping occurs, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey. Note Mitigation measures are limited, Baffinland has proposed having an icebreaker re-enter the RSA to create an exit pathway, assuming it is safe to do so. it is uncertain if this is a desireable action from the communities perspective. There is also an issue of identifying a natural event from a project affected one.

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			and at this time, open water conditions were still prevalent throughout the RSA. The entrapment event occurred in early November 2015. Given the lack of spatial and temporal overlap between shipping and the entrapment event that year, it should be clear that there is no connection between these activities. Baffinland requests that DFO formally acknowledge this misrepresentation.			Baffinlands suggests the MEWG is an appropirate forum to investigate such an event occurs in the future, and development adaptive mitigation measures, should they be neccessery.
DFO-3.6.3	DFO	Clarify what the 'Eclipse Sound complex' refers to and provide justification for not including the Pond Inlet area in this statement.	The use of the term 'Eclipse Sound Complex' refers collectively to the Eclipse Sound area, inclusive of Milne Inlet, Tremblay Sound, Navy Board Inlet, Eclipse Sound West, Eclipse Sound East and Pond Inlet. Pond Inlet is therefore already included in this statement.	Marine	Resolved	
DFO-3.6.4	DFO	Re-evaluation of the potential effects using the most recent stock size estimate.	See response to DFO 3.6.1.	Marine	Resolved	
DFO-3.6.5	DFO	Re-evaluation of the extent beyond the local study area (LSA) and within the RSA, the magnitude and the reversibility of the impacts of ice entrapment on narwhals.	The area outside the marine mammal LSA and inside the marine mammal RSA is restricted to the northern half of Navy Board Inlet and waters off the north coast of Bylot Island. There is no Project shipping undertaken in these areas and they are outside the acoustic zone of influence for Project shipping. Therefore, Baffinland does not feel that a re-evaluation of the effect of entrapment on narwhal is warranted in these areas.	Marine	Outstanding	DFO is yet to discuss outstanding issue with Baffinland
DFO-3.6.6	DFO	Short and long term monitoring of potential effects of shipping on cetaceans, potentially including multi-year aerial surveys for determination of the residual environmental effect of ice entrapment.	As stated in Baffinland's response to DFO-3.6.2, Baffinland is committed to undertaking an end-of-season aerial survey of the LSA, following the end of shipping operations, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey. Short- and long-term monitoring of potential effects of shipping on narwhal (example types include narwhal tagging study, shore-based monitoring at Bruce Head, ship-based monitoring, aerial surveys, etc.) will be implemented in support of Phase 2 operations at a frequency that is mutually agreed upon by Baffinland and the MEWG.	Marine	Resolved	Baffinland is committed to undertaking an end-of-season aerial survey of the LSA for each year shoulder season shipping occurs, to confirm no narwhal entrapment events have occurred. Baffinland will work directly with the Mittimatilik HTO in implementation of this survey. Note Baffinlands commitment to annual aerial surveys is for the life of the project.
DFO-3.7.1	DFO	DFO-FFHPP recommends that Baffinland clarify on how NL1 was calculated and on how LSR was calculated for ambient noise, providing rationale for the modifications to the equation from Pine et al. (2018), and providing an example of how LSR is calculated.	The computation that is presented in the May 2019 Technical Memorandum is consistent with what is described in Frouin et al. (2019). The modifications to the equation from Pine et al. were made to compute the more intuitive Listening Range Reduction (LRR). LRR was computed using the provided Equation 1. Note that Equation 1 contains a typo, as discussed during a teleconference with DFO on June 13, 2019; there is a minus sign missing in the exponent and the equation should read LRR = 100 * (1 - 10^(-(NL2-NL1)/N). The term N in the equation is the geometric spreading loss term. It will typically fall between 10 (cylindrical spreading) and 20 (spherical spreading). It is common practice to assume a value of 15 for a geometric spreading loss in the absence of empirical transmission loss data for a specific	Marine	Resolved	

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			environment; this is commonly referred to as the "practical spreading loss model". As described in the Technical Memo, NL1 is the sound pressure level without the masking noise (in this case vessel noise) present. NL1 was determined using the maximum of the mid-frequency cetacean audiogram (Finneran 2015) or the median 1-minute sound pressure level recorded during times with no vessel detections. At 1kHz, the mid-frequency cetacean hearing threshold exceeds the ambient sound level and the LRR is computed relative to the hearing threshold in this case. References: Finneran, J.J. 2015. Noise-induced hearing loss in marine mammals: A review of temporary threshold shift studies from 1996 to 2015. The Journal of Acoustical Society of America. Vol. 138. 1702 (2015). 26 p. Frouin-Mouy, H., E.E. Maxner, M.E. Austin and S.B. Martin. 2019. Baffinland Iron Mines Corporation–Mary River Project: 2018 Passive Acoustic Monitoring Program. Document 01720, Version 4.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd.			
DFO-3.7.2	DFO	DFO-FFHPP recommends that Baffinland conduct a modelling exercise to calculate the LSR associated with the proposed increased transits. Including modelling in other parts of the Regional Study Area including Milne Inlet and Eclipse Sound.	During the Technical Meeting in Iqaluit in April 2019, DFO requested that JASCO expand the analysis in "Frouin-Mouy, H. and E.E. Maxner. 2018. Baffinland Iron Mines Corporation–Mary River Project: 2018 Passive Acoustic Monitoring Program. Document 01720, Version 2.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd." to also include an analysis at 1 kHz. To meet this request from DFO, JASCO performed the calculation for 1 kHz; preliminary results were provided and in a Technical Memo dated May 10, 2019 and final results were included in a revised monitoring report (Frouin-Mouy et al. 2019). Although this analysis is based on the volume of traffic during existing operations, it can be extrapolated to adequately assess the expected future impacts and modelling is therefore not required. The results from the existing conditions can be used to make an informed estimate of the anticipated Listening Space Reduction (LSR), now termed Listening Range Reduction LRR), during proposed Phase 2 activities based on the anticipated increase of vessel traffic. For example, analysis of the 2018 acoustic monitoring data indicated that for a narwhal directly in the shipping lane (AMAR-1 recorder), a 90% LRR1 would occur at 1 kHz for approximately 1% of the time when vessels were present. For a whale in Koluktoo Bay (AMAR-3 recorder), a 90% LRR threshold would never occur for calls emitted at 1 kHz. Under a Phase 2 scenario, one can assume that narwhal would be subject to a similar proportional loss of listening space during each vessel exposure, only the number of exposures in a given day would roughly double. . Taking also into account that capesize ore carriers are slightly louder than the ore carriers associated with the current operations, one could conservatively assume that a 90% LRR at 1 kHz could occur as much as 3% of the time a vessel was present. Acoustic measurements presented in JASCO's 2018 Passive Acoustic	Marine	Outstanding	

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			Monitoring Report (Frouin-Mouy et al. 2019) indicate that the acoustic modelling provides conservative estimates of sound exposure (as designed). As such, interpretation of the empirical results provides a more realistic assessment of the potential loss of communication space due to vessel noise associated with the Project. In 2019, Baffinland considered this request for additional acoustic data from other parts of the Regional Study Area (RSA) and acoustic recorders were also deployed in Eclipse Sound and Pond Inlet. Analysis of the acoustic data from those recorders has not yet been completed but an evaluation of LRR will be executed on those data as well, and for data from future monitoring programs into Phase 2, should it be approved. 1A '90% reduction' in listening range was arbitrarily selected as a threshold for where acoustic masking may become substantial for narwhal (noting that the level at which masking occurs is presently unknown and that no acoustic thresholds for masking presently exist). References: Finneran, J.J. 2015. Noise-induced hearing loss in marine mammals: A review of temporary threshold shift studies from 1996 to 2015. The Journal of Acoustical Society of America. Vol. 138. 1702 (2015). 26 p. Frouin-Mouy, H., E.E. Maxner, M.E. Austin and S.B. Martin. 2019. Baffinland Iron Mines Corporation–Mary River Project: 2018 Passive Acoustic Monitoring Program. Document 01720, Version 4.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd.			
DFO-3.7.3	DFO	DFO-FFHPP recommends that Baffinland provide new calculations based on the new guidelines (Southall et al. 2019) or provide comments on the difference in methods and results between the older and newer methods, as well as consider temporary threshold shift (TTS) and not just permanent threshold shift (PTS), where relevant.	The thresholds and auditory weighting functions in Southall et al. (2019) are consistent with those from NMFS (2018) that were used in the acoustic modelling assessments. The methods and results are unchanged. The noise from transiting vessels will not exceed the thresholds for Temporary Threshold Shift. This can be seen in Figures E-42 through E-53 in TSD 24 (Marine Mammals Effects Assessment) Appendix B and Figures D-39 through D-76 in Appendix B of the Icebreaking Operations Assessment submitted to the NIRB on May 13, 2019. References: National Marine Fisheries Service (NMFS). 2018. 2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. US Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59. 167 pp. https://www.fisheries.noaa.gov/webdam/download/75962998 Southall B.L., J.J. Finneran, C. Reichmuth, P.E. Nachtigall, D.R. Ketten, A.E. Bowles , W.T. Ellison, D.P. Nowacek and P.L. Tyack. 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. Aquatic Mammals 2019, 45(2), 125-232.	Marine	Resolved	
DFO-3.7.4	DFO	DFO-FFHPP recommends that Baffinland provide long term monitoring plan to verify the prediction of the sound	A comparison of model estimates and measured data is presented in Frouin-Mouy et al. (2019). Similar analyses will be conducted using data collected during the 2019 shipping season to characterize the degree of	Marine	Outstanding	An analyses will be conducted using data collected during the 2019 shipping season to characterize the

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		propagation modelling and its potential effects on the populations of marine mammals.	conservatism in the sound propagation modelling that has been conducted. Additional AMARs have been deployed and will collect data during the Fall 2019 and Spring 2020 seasons. We are confident that the model provides a conservative estimate of the sound field, allowing for a precautionary assessment of the potential acoustic impacts. Monitoring data to date indicate that the narwhal are not showing pronounced reactions to the current levels of vessel activities. References: Frouin-Mouy, H., E.E. Maxner, M.E. Austin and S.B. Martin. 2019. Baffinland Iron Mines Corporation–Mary River Project: 2018 Passive Acoustic Monitoring Program. Document 01720, Version 4.0. Technical report by JASCO Applied Sciences for Golder Associates Ltd.			degree of conservatism in the sound propagation modelling that has been conducted. Additional AMARs have been deployed and will collect data during the Fall 2019 and Spring 2020 seasons to further this analysis. See response to DFO 3.8.4 for commitment to long term acoustic monitoring.
DFO-3.8.1	DFO	Baffinland should provide an assessment of the percentage (%) of time that narwhals will be exposed to noise under the Phase 2 proposal shipping scenario.	Tables referenced this response are provided in Appendix F. Early Shoulder Season: The predicted 'per transit' and 'cumulative daily' noise exposure period that narwhal (and all marine mammal species) would be exposed to under Phase 2 shipping during the early shoulder season is presented below in Table 2 for disturbance (120 dB) and in Table 4 for avoidance (135 dB). During 'heavy' ice conditions (6/10 to 10/10 concentration), narwhal would be exposed to noise levels above the disturbance threshold for up to 9.5 hours per day (40% of the day, limited to a single transit event per 24-h period), effectively providing >14 h of quiet time for narwhal in a given day (60% of the day, Table 2). With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 2 h per day (8% of the day) during 'heavy' ice conditions (Table 4). During 'moderate' ice conditions (4/10 to 5/10 concentration), the 'per transit' exposure period for disturbance is predicted to be 4.5 h (Table 2). With a maximum of two transits per day allowable in 'moderate' ice conditions, the resulting cumulative daily noise exposure period for disturbance is predicted to be 9 h (37% of the day) (Table 2), equivalent of 15 h of quiet time (63% of the day). With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 1.6 h per day (7% of the day) during 'moderate' ice conditions (Table 4). During 'light' ice conditions (≤3/10), the 'per transit' exposure period for disturbance is predicted to be 3.1 h (Table 2). Although the number of daily transits in the RSA is not limited in ≤3/10 concentrations, no more than four transits per day was considered possible at this time of year because of the limited number of icebreakers (n=2) and the time required to complete an escort. The resulting cumulative daily noise exposure period for disturbance is predicted to be up to 12.4 h (52% of the day) (Table 2), equivalent of 11.6 h of quiet time (48% of the day) . With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 1.2 h per day (5% of the day) during 'light' ice conditions (Table 4). It is important to note that these	Marine	Resolved	

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			predictions are based on conservative modelling. Based on acoustic monitoring data collected in the field in 2019 (see below), Baffinland is confident that these cumulative daily noise exposure periods are, in reality, considerably shorter. For example, in 0/10 ice conditions, narwhal would in reality be exposed to noise levels above the disturbance threshold for a total daily period of up to 5.2 h (22% of the day), rather than 12.4 h per day (52% of the day) as predicted through modelling (Table 2). In 2019, the sound levels of five icebreaker transits were measured at the Bylot Island AMAR (recorder station) to determine the total amount of time per transit in which sound levels exceeded both the disturbance onset threshold (120 dB) and the avoidance threshold (135 dB) at Bylot Island, with results presented in Tables 1 and 3, respectively. Measured values were subsequently compared to predicted (i.e. modelled) values[1] for the same transiting scenario at Bylot Island (icebreaker escort + 2 ore carriers in 0/10 ice) to evaluate relative conservancy of the model. Results demonstrated that the measured noise fields associated with disturbance and avoidance were less than half those predicted by modeling (Tables 2 and 4), even when considering the loudest of the five icebreaker transits. For example, based on acoustic modelling, it was predicted that a narwhal exposed to an icebreaker accompanied by two ore carriers transiting in 0/10 ice would be subject to noise levels exceeding the disturbance threshold (≥120 dB) for a period lasting up to 3.1 h (per transit). Measured values at Bylot Island demonstrate that narwhal would be subject to noise levels ≥120 dB for a maximum period of 0.5 to 1.3 h per transit (>58% lower than predicted). Similarly, for the same icebreaker transit scenario, modelling results predicted that the exposure period for avoidance (≥135 dB) would last up to 20 min per transit. Measured values at Bylot Island indicated that the avoidance exposure period is actually in the range of 0 to 10 min per transit. These preliminary results support assumptions that acoustic modelling results are conservative and over-representative of measured effects. Open Water Season: For the open-water shipping season, Table 5 presents the predicted aggregate number of Project vessels in the RSA per month for Phase 2 operations. The predicted 'per transit' and 'cumulative daily' noise exposure period that narwhal (and all marine mammal species) would be exposed to is presented in Table 6 for the 'average' case (up to 5 vessel transits in the RSA per day), and in Table 7 for the 'maximum' case (up to 8 vessel transits in the RSA per day). The predicted 'cumulative daily' noise exposure period for disturbance is predicted to be, on average, up to 9.2 h (38% of the day), equivalent to > 14 h of quiet time (62% of the day), and under a 'worst case' scenario, up to 14 h (58% of the day), equivalent to 10 h of quiet time (42% of the day). Again, these estimates are based on acoustic modelling results, and are			

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			therefore considered to be conservative. Calculated as the total time period that a stationary narwhal would be exposed to a vessel's transiting noise field at sound levels ≥120 dB for disturbance, or at levels ≥135 dB for avoidance, based on modelling results and in consideration of ship speed, ice conditions, and escort configuration.			
DFO-3.8.2	DFO	Re-evaluate the impact of masking on narwhal noting the evidence that narwhals will get close enough to vessels to experience masking effects.	The conclusions made by Baffinland in the Phase 2 assessment that the effect of acoustic masking from shipping during both the shoulder and open water season is non-significant for narwhal was also independently supported by the results of the peer review of Baffinland's Mary River Phase 2 Assessment Conclusions conducted by Hemerra (Appendix N). In their review, Hemmera determined that acoustic masking from shipping and icebreaking operations are not anticipated to result in population or stock level effects on narwhal given: • many of the narwhal calls occur at predominantly higher frequencies than icebreaker noise and hence may not be masked • the majority of icebreaking will occur in the shoulder seasons when abundances of narwhal are generally lower • icebreaking will be intermittent in nature (as per mitigation measures) and the effects of masking will cease in the absence of icebreaking • literature indicates that in the presence of noise, narwhal initially exhibit a "freeze" response during which vocalizations cease; in the absence of communication clicks, acoustic masking is unlikely to occur. Following the initial "freeze" response narwhals have been documented to begin vocalizing again. This behaviour may suggest narwhal likely exhibit some level of habituation. This conclusion of non-significance is made with moderate confidence given the lack of scientific understanding in general on the effects of acoustic masking (and how this may affect energetics and habitat use over the long term), the fact that narwhal hearing is not well understood, and their ability to change calls to adapt is not understood. While uncertainties exist, Baffinland is of the opinion that this will be addressed by the proposed mitigation (e.g. end-of-season aerial surveys to confirm narwhal are clear of RSA) and via ongoing and follow-up monitoring programs looking specifically at masking effects, and via adaptive management measures integrated into the Project. Please also see responses to ON-01-03 and summary provided in Hemmera (2019). References: Hemmera Envirochem Inc. (Hemmera). 2019. Review of the Mary River Phase 2 Assessment Conclusions on the Effects of Icebreaking to Narwhal. Project No. 103182-01. October 11, 2019.	Marine	Outstanding	DFO is yet to discuss outstanding issue with Baffinland
DFO-3.8.3	DFO	Re-evaluate the level of the impact of masking from icebreaking on narwhal and provide supporting evidence, justification, and rationale for their conclusions.	Currently, there are no established regulatory thresholds that would aid in the determination of significance of acoustic masking effects on narwhal. Erbe et al. (2016) characterize acoustic masking as a complex	Marine	Outstanding	DFO is yet to discuss outstanding issue with Baffinland

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			phenomenon and masking levels can be variable and dependent on the physiological and anatomical characteristics and activity of the sender and receiver, the levels of ambient noise and the degree of habituation of the individuals, as well as any anti-masking strategies employed. There is no call masking model developed in the literature that is narwhal-specific and no research is available on the hearing ability (i.e., audiogram) of narwhal (Erbe et al. 2016). There is uncertainty about how repeated exposure to icebreakers and ore carriers will affect narwhal and how narwhal might use anti-masking strategies to overcome masking effects. More research is needed to understand the process and biological significance of masking, as well as the risk of masking by various anthropogenic activities, before masking can be incorporated into regulation strategies or quantitatively within an effects assessment (Erbe et al. 2016). Although there is acknowledged uncertainty on how narwhal will be affected by repeated exposure to icebreakers and ore carriers or how narwhal might use anti-masking strategies to overcome masking effects, based on acoustic monitoring results to date and in light of conservative mitigation measures proposed by Baffinland, the degree of acoustic masking resulting from Project shipping is not anticipated to result in large-scale displacement or abandonment of narwhal from their summering grounds in the RSA, and population-level effects are not anticipated. Based on acoustic monitoring results to date and in light of proposed mitigation (i.e., 9 knot speed limit, reduced transits during shoulder season, convoyed transits), the degree of acoustic masking resulting from Project shipping is not anticipated to result in large-scale displacement or abandonment of narwhal from their summering grounds in the RSA, and population-level effects are not anticipated. The determination of a non-significant effect on narwhal from acoustic masking relies on the assumption that narwhal may alter their vocal behaviour (e.g., call amplitude, call shape, call frequency) to overcome acoustic masking effects as documented for belugas (Au et al. 1985; Lesage et al. 1999; Sheifele et al. 2005). However, the use of anti-masking strategies to overcome masking effects has not been studied in narwhal. Although no significant residual effects for masking are predicted for narwhal, to address uncertainty, Baffinland will continue to conduct tailored studies to evaluate narwhal responses to ore carrier traffic along the shipping corridor during Phase 2 operations. This will include acoustic monitoring studies to assess for potential acoustic masking effects including loss of listening range for narwhal. Also see response to ON-01-03 and summary provided in Hemmera - Appendix N References: Au, W.J., L.D.A. Gardner, R.H. Penner and B.L. Scronce. 1985.			

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			Demonstration of adaptability in beluga whale echolocation signals. Journal of Acoustic Society of America 82:807-813. Erbe, C., M. Ainslie, C. deJong, R. Racca and M. Stocker. 2016. Summary report panel 1: The need for protocols and standards in research on underwater noise impacts on marine life. In The effects of noise on aquatic life. Edited by A. Popper and A. Hawkins. Springer, New York. pp. 1265–1271. Lesage, V., C. Barrette, M.C.S. Kingsley and B. Sjare. 1999. The effect of vessel noise on the vocal behaviour of belugas in the St. Lawrence River Estuary, Canada. Marine Mammal Science. Vol. 15(1):65–84. Hemmera Envirochem Inc. (Hemmera). 2019. Review of the Mary River Phase 2 Assessment Conclusions on the Effects of Icebreaking to Narwhal. Project No. 103182-01. October 11, 2019. Scheifele, P.M., S. Andrew, R.A. Cooper, M. Darre. 2005. Indication of a Lombard vocal response in the St. Lawrence River beluga. The Journal of Acoustical Society of America 117: 1486.			
DFO-3.8.4	DFO	Commits to additional acoustic monitoring related to icebreaking beyond 2019 regardless of if Phase 2 is approved or not, to verify predictions and better inform/refine ongoing monitoring, mitigation, and adaptive management	Baffinland will continue to undertake acoustic monitoring supportive of its operations in accordance with terms and conditions of the existing Project Certificate No. 005.	Marine	Resolved	Baffinland will continue to undertake acoustic monitoring supportive of its operations in accordance with terms and conditions of the existing Project Certificate No. 005.
DFO-3.9.1	DFO	All project related vessels (e.g., icebreakers, escort vessels, ore carriers) have MWOs present for the entire shipping season (e.g., port to port). If this not logistically possible, an alternative plan should be developed by Baffinland to monitor presence and behavior of marine mammals.	Placing marine wildlife observers on ore carriers as they enter the RSA is not an option due to safety and logistical limitations. It is also unfeasible to place MWOs on each vessel from their originating and terminating ports, which would be required as Milne Port is not equipped to process such arrivals to enter Canada from another country. Baffinland notes that monitoring for Project effects within the Regional Study Area (RSA) allows for effective and comprehensive monitoring of areas of Inuit traditional land use and harvesting and within the area where incremental effects have the greatest potential to interact with the effects of existing and reasonably foreseeable activities on marine mammals. The ship-based observer (SBO) program was re-instituted when a safe and logistically feasible opportunity presented itself. The Marine Wildlife Observers (MWOs) are based aboard the icebreaker which is only operating in the RSA during the shipping shoulder seasons. However, potential effects of shipping on marine mammals during the open water season are collected through other ongoing monitoring programs implemented by Baffinland including marine mammal aerial surveys, the Bruce Head Shore-based Monitoring Program, the Passive Acoustic Monitoring (PAM) program and the Narwhal Tagging Program. These programs collectively provide for data evaluation of potential interactions of vessels with marine mammals during the entire shipping period.	Marine	Outstanding	Baffinland will implement an incidental marine mammal monitoring program with vessel operators calling on Milne Port, which will request incidental observations of marine mammals to be recorded and relayed to Baffinland. In support of this program, Baffinland will develop educational materials for vessel crew to assist in marine mammal identification and data recording. Baffinland will provide a draft of the materials and program for review by the MEWG before they are finalized.

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DFO-3.9.2	DFO	Baffinland provide the “standard instructions to operate their vessel in a manner that avoids separating an individual member(s) of a group of marine mammals from other members of the group” for DFO to review.	The Standing Instructions to Masters are provided to Captains to operate their vessel within the RSA and outline, among other things, the manner in which to avoid separating an individual from a group of marine mammals are as follows: • Maintain constant speed and course when possible. • Follow waypoints provided in Standing Instructions to Masters • Reduce vessel speed to 9 knots. • Heed guidance of Shipboard Marine Wildlife Observers who are monitoring vessel interactions with marine mammals. • When marine mammals appear to be trapped or disturbed by Project vessel movements, the vessel will implement appropriate measures to mitigate disturbance, including stoppage of movement until wildlife move away from the immediate area (as safe navigation allows). • Do not approach within 300 m of a walrus or polar bear on observed sea ice.	Marine	Resolved	
DFO-3.10.1	DFO	With current level of information provided, DFO is not able to adequately assess the risk of ballast water release on the spreading of unwanted species in the project area. In order to DFO properly assess the ballast release, DFO recommends that Baffinland, prior to issuance of the project certificate and issuance of authorizations, provide the following (DFO 3.10.1-DFO-3.10.6)The ballast water dispersion model and analyses be complete.	Comparison with 2018 seasonal data has been completed and provided in a Technical Report (Appendix N) with appendices. The above memo was sent to DFO, QIA, Parks Canada, Transport Canada, NPMO and NIRB on October 11, 2019. References: Golder Associates Ltd. 2019. Technical Report - Ballast Water Dispersion Modelling - Ballast Water Model Validation. Submitted to Baffinland Iron Mines Corporation. 1663724-154-R-Rev0. 09 October 2019.	Marine	Outstanding	DFO to develop specific recommendation for Baffinland consideration
DFO-3.10.2	DFO	All project vessels use ballast water treatment plus exchange strategy.	It is noted that all vessels calling to Milne Port are required to operate in accordance with Transport Canada’s Ballast Water Control and Management Regulations (Regulations; SOR/2011-237) pursuant to the Canada Shipping Act, 2001 (S.C. 2001, c. 26) and the International Maritime Organization’s International Convention for the Control and Management of Ship’s Ballast Water and Sediment (IMO 2017). Baffinland wishes to emphasize that current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management. Baffinland has put into place additional measures that exceed regulatory and industry standards to include the requirement for all vessels calling on Milne Port that treat their ballast under the D2 Standard to also perform a ballast water exchange prior to treatment. This practice will continue until Baffinland provides updated ballast water dispersion modelling that more accurately reflects the spectrum of salinity and temperature that can be expected to be discharged at Milne Port. The Ballast Water Management Plan will be updated post-Phase 2 Proposal approval to reflect the commitments described above.	Marine	Outstanding	Baffinland will revise the Ballast Water Management Plan to include a requirement for all vessels to conduct ballast water exchanges (with or wthout D2 treatment systems) prior to calling on Milne Port, until such a time that ballast water treatment systems are compliant with the D2 standards set by the IMO. Should Baffinland wish to discontinue the practice of exchange plus treatment, Baffinland will provide updated ballast water modelling that reflects the range of salinity that may be presnet in the ballast water tanks where no exchange occurs.
DFO-3.10.3	DFO	Monitoring of all ballast water discharges for compliance with Regulations D-1 and D-2, which includes a provision requiring the ballast water of each ship is tested to confirm that it meets Canadian requirements for salinity (at least 30	Baffinland wishes to emphasize that current ballast water sampling by Baffinland remains a measure that exceeds federal and international guidelines for ballast water management, including those mandated by Transport Canada.	Marine	Outstanding	Baffinland is continuing to discuss a resolution to TC-02 regarding the sampling of mulitple ballast water tanks in circumstances where ballast

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		ppt) and number of viable organisms (Regulation D-2) prior to discharging.	Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island. The Ballast Water Management Plan will be updated post-Phase 2 Proposal approval to reflect the commitments described above.			water is taken on at multiple locations. Baffinland will mirror any commitment to TC here for DFO. Baffinland will implement a pilot ballast water biological monitoring program for ships calling on Milne Port. This program will be designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017. This program will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island.
DFO-3.10.4	DFO	A monitoring plan which includes biological sampling of ballast water and hull fouling for all arriving ships (not just foreign flagged vessels) to evaluate the number and types of organisms being discharged, and more intensive seasonal sampling for marine fish and invertebrates.	See response to DFO-3.10.3	Marine	Outstanding	Ballast water - See commitment to implement a pilot ballast water biological monitoring program (3.10.3) Hull fouling - Baffinland cannot implement a biological sampling program. Biological growth is typically limited to the deepest sections of the hull, so the only way to collect samples in these areas is to use divers. This would require 'lock out' of the vessel, which is not possible on our ore carriers. We do collect biological AIS data for hull biofouling via high definition ROV video surveys of the hulls – this is undertaken on a subset of the vessels calling to port each summer (this occurred in 2018 and 2019, and

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						will be the plan moving forward). Note – lock out means that we would physically put locks on all the controls in the mechanical room and on the bridge such to ensure that no intakes, engines, discharges of the ship are operational. This is an occupational requirement when diving in proximity to ships due to the danger present. This procedure requires significant time and insurance to permit, which Baffinland does not feel is warranted given the biological program already in place. Baffinland will continue to integrate feedback from MEWG Members in the design of the MEEMP program, such as more intensive seasonal sampling for marine fish and invertibrates.
DFO-3.10.5	DFO	An assessment of potential biological and ecological effects of ballast discharge and identification of the high risk species or groupings of species of concern. These species may include, but not be limited to any NIS/AIS that have been detected in the course of past AIS/MEEMP monitoring, and should be updated in the event that new NIS/AIS are detected in future monitoring.	Identification of high-risk biological species or groupings of species of concern is the responsibility of DFO. Baffinland will continue to share all results of the Marine Environment Effects Monitoring Program and AIS Monitoring Program with DFO to assist in this regard.	Marine	Outstanding	Baffinland will update the AIS monitoring program in the next iteration of the Marine Monitoring Program for Phase 2 to describe the process it follows for identifying high-risk biological species discovered through its sampling programs.
DFO-3.10.6	DFO	An early response plan (similar to an oil spill response plan) be developed with applicable regulators and local communities so that, should an NIS/AIS be detected, significant environmental effects or major change to species composition could be avoided.	In Baffinland's March 2019 response to Technical Comment DFO 3.8.2, Baffinland has committed to the following: "Should it be confirmed that an AIS has become established in the Project area and that this introduction was a direct result of Baffinland shipping operations, Baffinland is committed to working with DFO to develop management actions for control of the AIS in accordance with DFO's Canadian Action Plan to Address the Threat of AIS. The level of intervention would correspond proportionally to the level of threat of the AIS." This commitment was reiterated to DFO following the June technical meetings with the following "Baffinland will work with DFO to develop a management and response approach in the event a non-indigenous species is identified during monitoring." It is also noted that Baffinland's management of AIS is focused on prevention through regular ship inspections and on-board ballast water testing (as outlined in Baffinland's BWMP) and through comprehensive AIS monitoring in the marine receiving environment as outlined in the	Marine	Outstanding	Baffinland will work with DFO to develop a management and response approach in the event a non-indigenous species is identified during monitoring. This response approach will be added an an attachment to the AIS monitoring program.

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			Marine Environment Effects Monitoring Program and AIS Monitoring Program Annual Reports.			
DFO-3.11.1	DFO	All iron ore carriers related to the Baffinland Project stop and reduce noise when cruise ships are in the area.	Project economics require reasonably predictable access, based on information on community land-use and historic ice conditions. Once shipping has begun, any interruptions have cascading effects that diminish the viability of the project. As such, for each cumulative 24-hour loss, or delay, two potential ship loads are lost. In 2019, numerous cruise and pleasure crafts were operating in the Pond Inlet, Eclipse Sound area, from July to September. Some of these vessels remained in the area for consecutive days at a time. Restricting movement of ore carriers during these periods when pleasure craft were in the vicinity would result in time that cannot be recouped. There is currently no traffic management scheme in the area except that which is administered for Baffinland Project shipping. The measures in place (speed limits, defined routes, no passing areas, no-go zones, etc) all contribute to diminishing risks and lowering impacts. Pleasure craft do not operate with the same level of risk mitigation. Given these comments, and the degree to which the project has already undertaken measures to address community concerns, it remains entirely unclear to Baffinland why DFO would request that Baffinland suspend regular shipping operations when cruise ships are present in the area given that Baffinland's mitigations for minimizing effects of shipping in the RSA are far more conservative than those adopted by cruise ships operating in the RSA. To further illustrate, Baffinland notes that it has committed to restricting vessel speeds to less than 9 knots, and has demonstrated compliance to that commitment in 2019, with 99% of ore carriers travelling less than 9 knots while transiting in the RSA, compared to only 32% of cruise ships who travelled at that speed. Furthermore, cruise ships are known to frequent areas within the RSA that have been identified as important marine mammal summering grounds both through IQ and scientific literature, namely Koluktoo Bay and Tremblay Sound, while Baffinland has in sharp contrast, identified these as restricted shipping areas for Project vessels. Baffinland has also established means for ongoing VHF radio communications with local hunters within the RSA via Shipping Monitors in Pond Inlet to minimize disturbances of shipping operations. Baffinland also notes that both the direct and indirect socio-economic benefits (i.e. employment and training opportunities and financial revenues) of the proposed Phase 2 Project to local communities and the Territory more generally, far exceed those of the cruise ship industry. Lastly, Baffinland notes that while it has a long-standing commitment to extensive ongoing monitoring of the marine environment and marine mammals within the RSA, the cruise ship industry does not provide even a relative proportion of the same contribution for understanding either individual (i.e. single cruise ship) or industry level effects of their activities in the area. In light of the above, DFOs recommended preference for cruise	Marine	Resolved	

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			ships operations to take priority in the RSA over Baffinland's well managed vessel operations in the area appear contradictory to the objectives of other recommendations provided by DFO in the Agency's FWS.			
DFO-3.11.2	DFO	Baffinland conduct a thorough cumulative effects analysis and assessment examining all the combined impacts of all the Project activities inside and outside the study areas. This should include a final assessment on the expected available quiet time during the shipping season and whether the Phase 2 development will in fact result in continuous noise through the shipping route.	The Phase 2 development will not result in continuous noise along the shipping route. Table 1 presents the aggregate number of vessels in the RSA per month, based on both Project and estimated known non-project related vessel traffic. For the open-water shipping season, the predicted 'per transit' and 'cumulative daily' noise exposure period1 that narwhal (and all marine mammal species) would be exposed to is presented in Table 2 for the 'average' case (up to 6 vessel transits in the RSA per day including Project and non-Project vessels), and in Table 3 for the 'maximum' case (up to 9 vessel transits in the RSA per day including Project and non-Project vessels). The predicted 'cumulative daily' noise exposure period for disturbance is predicted to be, on average, up to 11.4 h (48% of the day), equivalent to > 12 h of quiet time (52% of the day), and under a 'worst case' scenario, up to 16.2 h (68% of the day), equivalent to ~8 h of quiet time (32% of the day). Again, these estimates are based on acoustic modelling results, and are therefore considered to be conservative. For the early shoulder season, it is assumed that only Project vessels would be active in the RSA. Therefore, daily noise exposure periods presented for the early shoulder season in Baffinland's response to DFO-3.8.1 would apply, as summarized below. • During 'heavy' ice conditions (6/10 to 10/10 concentration), narwhal would be exposed to noise levels above the disturbance threshold for up to 9.5 hours per day (40% of the day, limited to a single transit event per 24-h period), effectively providing >14 h of quiet time (60% of the day) for narwhal in a given day. With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 2 h per day (8% of the day) during 'heavy' ice conditions. • During 'moderate' ice conditions (4/10 to 5/10 concentration), the 'per transit' exposure period for disturbance is predicted to be 4.5 h. With a maximum of two transits per day allowable in 'moderate' ice conditions, the resulting cumulative daily noise exposure period for disturbance is predicted to be 9 h (37% of the day), equivalent of 15 h of quiet time (63% of the day). With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 1.6 h per day (7% of the day) during 'moderate' ice conditions. • During 'light' ice conditions (≤3/10), the 'per transit' exposure period for disturbance is predicted to be 3.1 h. Although the number of daily transits in the RSA is not limited in ≤3/10 concentrations, no more than four transits per day was considered possible at this time of year	Marine	Outstanding	DFO to develop specific recommendation for Baffinland consideration

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			because of the limited number of icebreakers (n=2) and the time required to complete an escort. The resulting cumulative daily noise exposure period for disturbance is predicted to be up to 12.4 h (52% of the day), equivalent of 11.6 h of quiet time (48% of the day). With respect to avoidance behaviour, narwhal would be exposed to noise levels above the avoidance threshold (135 dB) for up to 1.2 h per day (5% of the day) during 'light' ice conditions. • It is important to note that these predictions are based on conservative modelling. Based on acoustic monitoring data collected in the field in 2019 (see response to DFO-3.8.1), Baffinland is confident that these cumulative daily noise exposure periods are, in reality, considerably shorter. For example, in 0/10 ice conditions, narwhal would in reality be exposed to noise levels above the disturbance threshold for a total daily period of up to 5.2 h (22% of the day), rather than 12.4 h per day (52% of the day) as predicted through modelling (See Table 2 in response to DFO-3.8.1). Table 1: Number of Project and Non-Project vessel one way transits in the RSA presented by month – Phase 2 Proposal Table 2: Estimated cumulative daily noise exposure period for marine mammals during open water shipping - Average Case Table 3: Estimated cumulative daily noise exposure period for marine mammals during open water shipping - Maximum Case*			
DFO-3.12	DFO	If the Project is approved, DFO-FFHPP recommends Baffinland, during DFO's regulatory phase, provide rationale for the selection of crossing infrastructure for fish bearing watercourses.	This will be provided as part of the application for an authorization under the Fisheries Act for the North Railway.	Freshwater	Resolved	Baffinland will include the requested information in the apllication for the Fisheries Act Authorization
DFO-3.13.1	DFO	If the Project is approved, DFO-FFHPP recommends that, during the Regulatory phase, Baffinland: Analyze monitoring reports related to the Tote Road existing watercourses crossings and provide comprehensive "lessons learned" report (for the Tote Road crossings) that would include strategic analysis of what will be done differently to ensure the fish-passage issue will be mitigated, avoided and addressed	A discussion on lessons learned from the Tote Road crossings will be provided with the crossing selection rationale as part of the application for an authorization under the Fisheries Act.	Freshwater	Resolved	Baffinland will include the requested information in the apllication for the Fisheries Act Authorization
DFO-3.13.2	DFO	If the Project is approved, DFO-FFHPP recommends that, during the Regulatory phase, Baffinland: Provide updated hydrological assessment of proposed watercourses crossings that includes, but is not limited to, crossing selection and design criteria, flow rates, velocities and discharge.	This information will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Freshwater	Resolved	Baffinland will include the requested information in the apllication for the Fisheries Act Authorization
DFO-3.14.1	DFO	Provide detailed water withdrawal plan that includes an in-depth risk analysis informed by site specific fish and fish habitat features for the waterbodies chosen for water withdrawal as part of any 'DFO Request for Review' submission.	This information will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Freshwater	Resolved	Baffinland will include the requested information in the apllication for the Fisheries Act Authorization

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DFO-3.14.2	DFO	Conduct a thorough localized assessments on the waterbodies selected for water withdrawal in order to adequately assess the potential impacts on the fish habitat resulting from 20% of the 10-year dry unit runoff water withdrawal on fish-bearing watercourses and connecting waterbodies. This assessment should include, but not be limited to, an assessment of the effects to littoral/shore/riparian areas from the proposed water withdrawal, the specific withdrawal locations proposed for each waterbody including fish habitat in the area and updated rationale on how this level of withdrawal will be environmentally protective threshold.	Fish habitat surveys were completed at water withdrawal sites in late August 2019. Localized assessments of water withdrawals will be undertaken and presented in a Detailed Water Withdrawal Plan that will be provided to the DFO-FFHPP during the permitting phase, as part of Baffinland's application for an authorization under the Fisheries Act.	Freshwater	Resolved	Baffinland will include the requested information in the apllication for the Fisheries Act Authorization
DFO-3.14.3	DFO	Provide additional rational/ assessment to support the assertion that 40% of the 10-year dry unit runoff water withdrawal from non-fish-bearing streams will not negatively affect downstream fish-bearing waterbodies.	The limits for water withdrawal were established as a screening tool to identify suitable waterbodies on the Northern Transportation Corridor. The limits are conservative but require additional site-specific assessments to confirm the avoidance of impacts on fish and fish habitat. These site-specific assessments will be provided as part of the Request for Review Application to DFO as part of project permitting.	Freshwater	Resolved	Baffinland will include the requested information in the apllication for the Fisheries Act Authorization
ECCC-FC1	ECCC	**ECCC recommends that the NIRB include or amend the Terms and Conditions of Project Certificate No. 005 to require the Proponent to:** Submit all air quality and meteorological monitoring data as part of the annual reports and compare the monitoring data to the CAAQS, where applicable. The air quality and meteorological monitoring data should be presented to include at least, but not limited to:• Time series of data.• Hourly, daily, and annual averages in graphical and/or tabulated form (if applicable to the air quality or meteorological parameter).• Comparison to the CAAQS (and relevant statistical forms, if three years is not available, CAAQS can be calculated using one year).• Wind roses.• Graph and tables indicating seasonal variability.• Comparisons to other years of data.• Include any photos taken of dust on snow in the annual reports.• Present the predicted concentrations in the annual reports as a range of absolute concentrations.	Baffinland will provide all quality assured measured air quality and meteorological data in an annual report and compare to applicable criteria as outlined in the revised Air Quality and Noise Abatement Plan (AQNAMP) for the project. The annual report will include all raw data, averages in graphical and tabular form as most relevant to the data set, comparison to relevant criteria and visual presentation including wind roses and comparisons to previous year's data. In relation to photography, if major dusting events are observed, they will be photographed and included in the annual report. Also, the available satellite imagery will be reviewed and included if considered relevant. The use of satellite imagery will be evaluated on an ongoing basis to confirm whether it adds value or provides any relevant context to the dust fall evaluations. As the revised AQNAMP will be updated to detail these reporting requirements specifically, additional requirements in the Terms and Conditions of the Project are not deemed necessary. As per recent discussions, the 2020 CAAQS would be used for comparison purposes only with the objective to “keep clean areas clean” with respect to ambient air quality while the Project Standards are based on Nunavut Standards where available, or otherwise the most stringent available from a Provincial or other Territorial Government. Appendix G includes memos describing dustfall management action triggers for the protection of human health and vegetation. Baffinland will reflect the commitment to annual reporting in the final AQNAMP for the Phase 2 Proposal and subsequently does not believe a new Term and Condition is required.	Atmospheric	Resolved	Baffinland will reflect the commitments provided in its response in the Air Quality and Noise Abatement Management Plan following the issuance of an amended Project Certififcate. In the interim these commitments will be captured in a commitment register, to be provided to the Board during the Public Hearings. Baffinland does not object to having relevant terms and conditions modified to reflect this commitment.
ECCC-FC2	ECCC	ECCC recommends that the Proponent: Investigate NO2 reduction measures that could be applied to power generation that would offset the use of a portion of the	Baffinland will review options to reduce NO^x emissions and document this review in the first annual air quality report. The report will also quantify potential reductions achievable, where feasible. New	Atmospheric	Resolved	Baffinland commits to investigate and implement NOX reductions measures, where feasible, and report

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		emissions from the generators. This information should be provided in a management plan along with a quantitative analysis of the potential emissions offset.Commit that all mobile equipment (new and existing) be Tier 4 or better.	equipment procurement will meet Tier 4 standard or better, however, Baffinland cannot commit to replacement of existing equipment that does not meet the Tier 4 standard.			on this in the 2020 annual air quality report (to be submitted by March 31, 2021)
ECCC-FC3	ECCC	**ECCC recommends that the NIRB amend the Terms and Condition #7 of Project Certificate No. 005 to require the Proponent to**:• Complete the AQNAMP in consultation with ECCC and other interested interveners.• Monitor PM2.5 and TSP using continuous monitors at:• The sites that already monitor NO2 and SO2 at both Milne Port and the Mine Site.• New locations on or close to the Project Boundary at both the Milne Port and Mine Site that include sites that are close to locations of passive dustfall monitoring and in locations that have predicted and passively measured high dustfall; and site placement also consider prevailing wind direction.ECCC recommends that the Proponent update the AQNAMP with the following:• Present the predicted concentrations in the AQNAMP as a range of absolute concentrations.• Investigate ways to mitigate the emissions from the stockpiles and present these in the AQNAMP for review.• Include management actions for the stockpiles in Section 4 of the AQNAMP as well as Table 5-2, and Table 5-3.• Define the management action trigger levels for both the 24-hour and annual averaging periods for all species (Table 5-1, Table 5-2, and Table 5-3).• Define the frequency at which air quality and meteorological data is reviewed that allows for timely response for implementation of corrective actions in response to exceedances of triggers.• Include details on how the air quality data and meteorological data will be analyzed together during the investigation of exceedance of trigger levels and necessary management actions.• Confirm the trigger levels for dustfall and include corrective actions associated with collected dustfall data.• Include 24-hour and annual Total Suspended Particulate data in the dustfall management action trigger levels and describe how it will be used as a tool for determining potential causes of elevated dustfall.• Include the wind roses from onsite meteorological stations, maps showing where these potential monitoring stations are located, discussion on the rational for the site locations, and discussion on how emissions from the stockpiles would be captured by these monitoring stations.	Baffinland is committed to updating the AQNAMP in consultation with ECCC and other interested interveners and has undertaken a number of discussions in relation to this commitment. The revised AQNAMP will include the following (which is consistent with ECCC's recommendations): • Monitor PM2.5 and TSP using continuous monitors at: o The sites that already monitor NO^2 and SO^2 at both Milne Port and the Mine Site. o Seasonally at at least one new location on or close to the Project Boundary at both the Milne Port and Mine Site considering prevailing wind direction during the peak dust season and locations of sensitive receptors (camp locations). These will be seasonal as permanent power is not available near the boundaries thus the systems will run on solar power as feasible during the summer. The revised AQNAMP will also include the following recommended items: • Presentation of the predicted concentrations in the AQNAMP as a range of absolute concentrations. • Investigation of ways to mitigate the emissions from the stockpiles as warranted. • Include management actions for the stockpiles in Section 4 of the AQNAMP as well as Table 5-2, and Table 5-3. • Define the management action trigger levels for both the 24-hour and annual averaging periods for all species (Table 5-1, Table 5-2, and Table 5-3). • Define the frequency at which air quality and meteorological data is reviewed that allows for timely response for implementation of corrective actions in response to exceedances of triggers. • Include details on how the air quality data and meteorological data will be analyzed together during the investigation of exceedance of trigger levels and necessary management actions. • Confirm the trigger levels for dustfall and include corrective actions associated with collected dustfall data. • Include 24-hour and annual Total Suspended Particulate data in the dustfall management action trigger levels and describe how it will be used as a tool for determining potential causes of elevated dustfall. • Include the wind roses from onsite meteorological stations, maps showing where these potential monitoring stations are located, discussion on the rational for the site locations, and discussion on how emissions from the stockpiles would be captured by these monitoring stations. The recommendations outlined above will be captured in a	Atmospheric	Resolved	Baffinland will reflect the commitments provided in its response in the Air Quality and Noise Abatement Management Plan following the issuance of an amended Project Certififcate. In the interim these commitments will be captured in a commitment register, to be provided to the Board during the Public Hearings. Baffinland does not object to having relevant terms and conditions modified to reflect this commitment.

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			management plan update register, which Baffinland will use to track changes and additions to management plans committed to during the final review of the Phase 2 Proposal. Baffinland suggests that this register, submitted to the Board on the record before the close of the Public Hearing, is a more appropriate means of ensuring the requested updates to the AQNAMP are made, that an amendment to an existing Term and Condition.			
ECCC-FC4	ECCC	Given the sensitive nature of the Arctic, ECCC recommends the Proponent investigate additional mitigation measures to mitigate the black carbon associated with Project-related shipping.	The science surrounding the various sources of the black carbon emissions, especially shipping, is continually evolving. Baffinland will keep abreast of the technology changes that could reduce black carbon emissions and implement changes if and when the technology has been deemed feasible and economically achievable by the shipping contractors. The shipping contractors will follow the latest emissions limits that are published by ECCC. Notwithstanding the above, in order to manage shipping logistics, Fednav Limited (Fednav) has been partnering with Baffinland to act as their Shipping Agent. Fednav, a 75-year old company, is Canada's largest ocean-going, dry-bulk ship owning and chartering group. It is known for its "best in class" service, excelling in the safe navigation of the Canadian Arctic. Fednav has participated in every major shipping project in the Canadian Arctic since the late 1950s, and thus has demonstrated proven excellence in the delivery of innovative and effective solutions in challenging arctic regions. Fednav's mission and core values aligns with those of Baffinland, particularly with regards to their approach in achieving the highest levels of corporate social responsibility, with the aim of protecting people and the communities in which it serves. Fednav is a founding member and collaborator of Green Marine, a voluntary North American program aimed at strengthening the marine industry's environmental performance through various means, by "promoting a process of continuous improvement, building stronger relations with stakeholders, and raising awareness of the industry's activities". Their involvement with Green Marine demonstrates their leadership within the maritime shipping industry in addition to being a member of the Trident Alliance, a coalition of shipping owners and operators who share a common interest in robust enforcement of maritime Sulphur regulations. They are thus at the forefront of newly emerging regulations and of implementing best practices in advance of mainstream adoption. Consistent with their commitment for reducing the environmental footprint of shipping and improving best practices, Fednav partnered with the World Wildlife Fund (WWF) on a report entitled "Benchmarking of Best Practices for Arctic Shipping" (WWF 2012). In this report, best practices for safe and sustainable arctic shipping were identified, and as part of this benchmarking, provided a number of recommendations covering a wide range of topics including, for example, vessels sailing at reduced speeds to reduce emissions.	Marine	Resolved	Baffinland commits to investigate and implement black carbon reduction measures, where feasible, and report on this in the 2020 annual air quality report (to be submitted by March 31, 2021). The investigation will consider the use of distillate fuels as a reduction measure for local black carbon emissions.

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			Baffinland has already committed to enforcing lower speeds (maximum of 9 knots) for its vessels sailing in the Regional Study Area, which goes beyond existing regulations. Baffinland strives to work with shipowners possessing a high quality fleet (e.g., young, modern vessel fleet), capable of safely navigating arctic waters. Transporting ore with high quality fleets plays a significant role in reducing pollutants. As part of the 2019 ore carrier vessel fleet, most ice A-class ore carrier vessels were contracted through numerous leading international dry bulk shipping companies, namely Golden Ocean Group (Golden Ocean), Nordic Bulk Carriers, and Sovcomflot, among others. Golden Ocean is a member of the Clean Shipping Alliance 2020. The CSA 2020 is composed of industry leaders committed to complying with International Marine Organization 2020 fuel requirements. Similarly, Sovcomflot has endeavored to develop a Ship Energy Efficiency Management Plan for each ship. Baffinland will continue with reputable operators and continue to comply with emissions regulations as they evolve and apply to Canadian waters.			
ECCC-FC5	ECCC	**ECCC recommends that• The NIRB include a new Term and Condition as part of Project Certificate No. 005 that** requires the Proponent to Submit the Phase 1 WRMP for review by interested parties.• The Proponent consider the results of the Phase 1 WRMP in re-evaluating the 0.2 % Sulphur cut-off for quarries and rock cuts.	Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% cutoff for PAG classification, irrespective of the Phase 2 approvals process. As the update to the management plan was initiated under the current Type A Water Licence 2AM-MRY1325 Amendment No. 1, and the plan is regulated under the Type A Water Licence, a Project Certificate condition is not required to ensure regulator review and approval of the updated Phase 1 Waste Rock Management Plan is achieved. Furthermore, the update to the Phase 1 Waste Rock Management Plan will be completed in December 2019, prior to any Ministerial approval of an amended Project Certificate, thereby making any associated conditions redundant.	Terrestrial	Resolved	Baffinland remains committed to updating the Phase 1 Waste Rock Management Plan and evaluating the appropriateness of the 0.2% cutoff for PAG classification, irrespective of the Phase 2 approvals process.
ECCC-FC6	ECCC	ECCC continues to recommend that the Proponent conduct Arctic diesel fuel spill modelling for all scenarios in order to account for the differences in the fate and behaviour with IFO and adequately determine the best response strategy for Arctic Diesel.	Baffinland commits to conduct additional Arctic diesel fuel spill modelling to account for shoulder season shipping and update the SSRP as necessary (Appendix G). This will occur prior to the 2020 shipping season.	Marine	Resolved	Baffinland commits to conduct additional Arctic diesel fuel spill modelling to account for shoulder season shipping and update the SSRP as necessary (Appendix G). This will occur prior to the 2020 shipping season.
ECCC-FC7	ECCC	ECCC recommends that the Proponent:• Identify whether they intend to use the alternative shipping through Navy Board Inlet and/or the Northwest Passage and if so, under which circumstances.• Conduct an environmental assessment prior to using alternative shipping, including an evaluation of potential effects of shipping on migratory birds, the aquatic environment and the atmospheric environment.	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Marine	Resolved	N/A

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GN-01	GN	**The GN recommends that the NIRB include a term and condition limiting the increased use of the Tote Road to no greater than six years.The GN proposes the following term and condition with respect to the disposition of this issue**:1. Use of the Tote Road to support truck-based hauling of ore, at rates of ore production greater than 2018 levels, is approved for a maximum period of 6 years.	Baffinland believes 6 years is a reasonable time period to allow for elevated trucking along the Tote Road in the event of unforeseen delays in post environmental assessment permits and/or construction scheduling. For clarity, however, Baffinland plans for the North Railway to be fully operational by 2022. Rather than a Term and Condition Baffinland suggests that there is already an adequate process for handling unforeseen modifications to projects as proposed and approved. The Project Description for Phase 2 is clear on the short-term duration of trucking above 6 Mtpa and Baffinland would argue that operating at that level longer than 6 years would constitute a modification to the Project and require the NIRB to determine the most appropriate course of action.	Terrestrial	Resolved	
GN-02	GN	Since the Technical Review Period, the Proponent has made several revisions to the TEMMP (BIM 2019a – Commitment # GN 10). The Proponent has also committed to the following initiative to ensure FEIS Addendum assumptions and predictions are verified and that the Project's effects are adequately monitored at the regional level:"To help define caribou monitoring at the regional level, Baffinland and the GN will finalize a caribou research MOU during the Phase 2 review. The monitoring components of this MOU will be incorporated as explicit programs within a revised TEMMP." (BIM, 2019b – Commitment # GN 8 and 9)The Proponent and the GN are currently negotiating a more robust caribou habitat research arrangement. Development of the research MOU is currently in progress. As per the commitment made by the Proponent, the GN expects negotiations to be complete prior to the conclusion of the final hearing.Pending the outcome of the negotiations prior to the hearing, the GN may provide furtheradvice to the NIRB and an additional written submission during the Final Hearing.If necessary, the GN may make a proposal on terms and conditions in respect of this issue depending on the outcome of the parties' negotiations.	Baffinland has worked closely with the GN over the last few months to revise the TEMMP (as requested by the GN) and develop a mutually agreed upon caribou research agreement (also referred to as the GN MOU) (still in progress). Baffinland has made every effort to address this request and looks forward to finalizing the agreement with the GN in a way that will be mutually beneficial to both parties.	Terrestrial	Outstanding	Baffinland is committed to work with the GN to develop a mutually agreed upon research agreement (also referred to as the Research and Relationship Agreement) that includes the following aspects, which are based on GN's internal budgeting and community consultation schedules for its North Baffin Regional Monitoring Program: • By July 30 of each year, the GN to share a preliminary proposal with Baffinland (the "GN Preliminary Proposal") outlining the planned activities that may be carried out as part of its North Baffin Regional Monitoring Program for the twelve-month period commencing on January 1 of the following year, which would be subject to any future revisions arising as a result of consultation by the GN with communities and the Qikiqtani Inuit Association. • By October 1 of each year, the GN to share a final proposal with Baffinland (the "GN Final Proposal") based on the GN Preliminary Proposal and including any revisions as a result of consultation. • Baffinland would provide its total annual financial contribution to GN on or before November 30 of each year following review and

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						acceptance by Baffinland of a GN Final Proposal. The financial contribution could include monetary and/or in-kind support. • Collaboration as possible regarding scientific peer-reviewed research into mitigative measures or potential disturbance effects, as related to the Mary River Project. • GN will provide Baffinland with reports on work carried out under its North Baffin Regional Monitoring Program. • GN-generated data needed to support Baffinland's assessment, monitoring and mitigation programs for the Mary River Project (which would remain Baffinland's sole responsibility) will be released upon request by GN to Baffinland, in accordance with the terms and conditions of the Research and Relationship Agreement.
GN-03	GN	Engineering the embankments to make the slopes gentler and top dressing the sides with a finer grain material may address the problems outlined above depending on how much of the railway is subject to this mitigation measure. During the Technical Review Period, the GN expressed concern with the Proponent's plan to construct 11 wildlife crossing structures along that 110 km railway; noting that the effectiveness of these structures is unproven in the Arctic and as planned the crossings would likely be too small and widely spaced to adequately increase the permeability of the railway for caribou (GN 2019 – TRC GN 13). There is also concern with sparsely spaced crossings artificially increasing rates of predation.During the Technical Review Period, the Proponent committed to"…provide a report on the Caribou Crossing Workshop and a revised railway wildlife crossing plan (include the proposed number, preliminary location and length of crossings) before the final hearing. Report to be provided by August 23rd. (2) Consider engineering long sections (kilometers in length) of the northern railway to facilitate caribou crossing. This idea will be discussed at the caribou crossing workshop." (BIM, 2019b – commitment # GN 12)The GN may make a proposal on terms and conditions in	Baffinland's Rail Alignment Summary Report is included in this submission as Appendix P. The contents of the Report should address the concerns raised by the GN in their final written submission. Based on input provided during the Crossing Selection Workshop from participants representing Pond Inlet, Igloolik, QIA and GN, the following modifications have been proposed for the design of the North Railway to aid in caribou crossing: • 30 level crossings to be installed at locations identified by community representatives during helicopter overflights (subject to Transport Canada and Community Acceptance) • A smoother fill material (Type 8 - 6 inches' or less in size) will be used along the entire railway embankment (change from Type 12 - 24 inches or less) • A gentler slope (1:2 ratio) will be used for all portions of the railway embankment between 2 and 4 meters (change from 1:1.5) • A gentler slope will be created at the edges of crossings to assure approach from any angle is safe • 4 additional plate arch culverts will be installed in areas where the railway embankment is high enough to allow an underpass (10 plate arch culverts are already proposed at fish bearing water crossings, which may also serve to allow passage for terrestrial wildlife throughout the year) Baffinland would like to note that the conclusions presented by the GN	Terrestrial	Outstanding	Baffinland commits, subject to safety and detailed engineering considerations, to build sections of the railway embankment less than 4 metres high with a gentler slope (i.e. 1:2) and smoother (e.g., type 8) fill material. Baffinland commits to implement an adaptive management approach to the installation of additional or extended gentler railway embankment slopes, should land users or caribou monitoring programs demonstrate that the North Railway is posing a barrier to caribou movement and causing greater than predicted impacts. This process will be outlined in the Additional Level Crossing Construction Decision Matrix and submitted to the NIRB within 6 months of the approval of an

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		respect of this issue following receipt of results from the Proponent.The Proponent has not provided the Caribou Crossing Workshop report or the revised wildlife crossing plan. The GN accordingly must maintain its concerns as set out more fulsomely in its Technical Review Comments.	in their submission regarding permeability of the North Railway - namely, an embankment height of 1.5 meters, a slope of 1:1.5, and fill material with an upper range of 2 feet in diameter (Type 12) will prevent crossing - was not the cumulative opinion of Workshop participants who were able to view a mock version of the embankment built to our original design proposal i.e. 2 meter and 4 meter embankment heights with Type 12 fill material and a slope of 1:1.5. As stated in previous responses, the proposed crossing design was based on criteria used at northern diamond mines, with follow up research on effectiveness of the crossings. Although the crossings may not currently be “proven” in the Arctic, they were designed using the best information available, including input from Inuit and knowledge holders through workshops and other consultations. There is no documented basis that crossing structures as proposed for this Project will “artificially increase rates of predation”.			amended Project Certificate. The process, to be discussed with the TEWG members prior to submission to the NIRB, will likely include the following elements: • Land-user identified need for additional crossing enhancements are acted on as requested as outlined in the Additional Level Crossing Construction Decision Matrix • Additional areas for crossing enhancement may also be identified through monitoring programs, such as snow tracking, environmental monitor observations, height-of-land observations, collar data, camera monitoring data, or other data as may be available at the time. • If we start to see diversions based on the monitoring data, and the correlation is not apparent, we may choose to further investigate with a camera program to help us determine the cause of diversion and formulate additional mitigations. • The observations and data analysis will occur on an annual basis in line with the annual terrestrial environment monitoring report and scheduled TEWG meetings to facilitate further discussion and mitigation actions. • Mitigations will be applied where a correlation is made apparent between caribou diversions and the North Railway, and may include construction of additional, or extended crossings, at a length and slope to be determined in collaboration with the TEWG. • The monitoring program will continue until impacts are sufficiently mitigated, as agreed up with the TWEG.

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						The Railway Management Plan and Terrestrial Environment Mitigation and Monitoring Plan will be updated to reflect these commitments.
GN-04	GN	The GN recommends that:1. The Proponent should engineer a significant portion of the railway's embankment to facilitate caribou crossing by creating gentler slopes (i.e. 4:1) and top-dressing larger rock material with a finer grain material.2. Should the Project proceed, the Proponent should resolve uncertainty regarding caribou responses to the railway through investment in the regional scale monitoring of caribou movements using methods such as collars and aerial surveys as per GN Final Written Submission Comment GN-02 (Regional Caribou Monitoring). The purpose of this monitoring should be to confirm FEIS Addendum predictions and facilitate adaptive management. This investment should be clarified during the NIRB's review of the Project in-order to provide certainty that adverse effects will be detected and mitigated in a timely manner.The GN notes that commitments made by the Proponent in respect of recommendations (1) and (2) listed above are still outstanding (see GN Final Written Submission comments GN-03 [Railway Design and Construction to Facilitate Caribou Crossing] and GN-02 [Regional Caribou Monitoring]).Accordingly, the GN may make a proposal on terms and conditions with respect to the disposition of this issue following receipt of results from the Proponent.	1. As identified in response to GN-03, Baffinland is committed to engineering the entire railway embankment from a finer course building material (Type 8 - <6 inches) as a result of input received during the Crossing Selection Workshop. Baffinland is also committed to providing a gentler slope (1:2 ratio) anywhere along the railway that the embankment is between 2 and 4 meters and adding up to 30 level crossing (1:5 ratio) locations, which is consistent with Baffinland's commitment to the GN in relation to TRC-13 (consider up to 22 crossings). Baffinland disagrees that embankment heights at less than 2 meters with a slope of 1:1.5 will be a barrier to caribou crossing. Implementing a blanket 1:4 slope requirement along 'significant' portions of the embankment would roughly double the footprint of the railway (1.37 million square meters to 2.74 million square meters) and the volume of quarry material required to build it (3.56 million cubic meters to 6.78 million cubic meters). Aside from the expanded terrestrial impact of the wider embankment and additional quarries, most culverts would need to double in length, greatly increasing the chances of creating serious harm to fish and fish habitat. Baffinland cannot carry out the requested design mitigation suggested by the GN, nor is it reasonable or necessary given the modifications Baffinland has already committed to. Understanding the GN's recommendation to engineer significant portions of the railway embankment with a gentler slope (i.e. 4:1) is due to uncertainty in the general movements of North Baffin caribou in relation to the Project, Baffinland believes an adaptive management approach that relies on the observations of land users as well as project specific and regional monitoring would be more reasonable and effective. To provide additional confidence in this process Baffinland has developed an initial draft Additional Level Crossing Construction Decision Matrix for review by the communities and interested Interveners. The Decision Matrix details how the need for additional crossings will be identified, investigated, considered, constructed, and reported back throughout the life of the Project (Appendix P). This document will be amended to account for project specific and regional monitoring as inputs into the adaptive management process. 2. See response to GN-02.	Terrestrial	Resolved	Baffinland will update the Additional Level Crossing Construction Decision Matrix to include advice from the Terrestrial Environment Working Group (TEWG).
GN-05	GN	The GN is of the opinion that uncertainty surrounding the cumulative effects on caribou habitat cannot be resolved further at this stage of the NIRB's review. Additional resolution and mitigation of risk can only be obtained through further research and monitoring, should the Project proceed. The greatest areas of uncertainty requiring	This is the first time that the GN has mentioned concern regarding the accuracy of the RSPF model, which was created using GN collar data and used in previous assessments (FEIS and ERP). Baffinland has already revised the TEMMP as requested by the GN to address their concerns with the Zone of Influence (ZOI) and makes the following two commitments (TEMMP, Table 4.8):	Terrestrial	Resolved	BIMC will update the Terrestrial Environment Mitigation and Monitoring Plan to reflect that it will undertake research to estimate the Zone(s)-of-Influence (ZOI) and disturbance coefficients (DC) exerted

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		further research and monitoring are: (1) the ZOIs and disturbance coefficients that would be generated by the Project; and (2) the accuracy of the RSPF.**The GN proposes the following Term and Condition/Commitment with respect to disposition of this issue:**1. The Proponent shall undertake research to estimate the Zone(s)-of-Influence (ZOI) and disturbance coefficients (DC) exerted by the Project on caribou, and shall provide to NIRB updated estimates of cumulative habitat losses for caribou, at least every 5years.	• Baffinland and the GN-DoE will develop a MOU related to regional caribou monitoring. When caribou numbers are sufficient to provide robust statistical analysis of distribution within the ZOI, an annual aerial survey program (pending approval) can be implemented to document abundance and distribution of caribou in the RSA. • Determination of long-term caribou distribution patterns identified by a GN and Baffinland-sponsored caribou satellite collaring program. Baffinland intends to further develop programs and program design through consultation with the GN, MHTO, TEWG and other parties as appropriate, and can provide results to the NIRB (for any program) if requested, at any time. Baffinland does not believe an additional Term and Condition is necessary given the requested commitment is already included in the TEMMP.			by the Project on caribou, and shall provide to NIRB updated estimates of cumulative habitat losses for caribou, at least every 5 years.
GN-06	GN	The GN recommends that the Proponent work with the GN through their MOU to promote greater female employment at the Project.The GN recommends that the Proponent include monitoring gender-specific initiatives in their Socio-Economic Monitoring Plan to identify success and challenges in implementing these initiatives, and to share past and ongoing success of implementing gender-specific initiatives with the GN and other stakeholders.**The GN proposes the following Terms and Conditions with respect to the disposition of this issue:**1. The Proponent is strongly encouraged to monitor the success of existing and newly implemented gender-specific initiatives through the Socio-Economic Monitoring Plan to determine their success or to identify any challenges to their implementation. The Socio-Economic Monitoring Plan shall be updated within six (6) months of issuance of the Project Certificate and information is to be provided in the Socio-Economic Monitoring reports.2. The Proponent is strongly encouraged to share information on the ongoing implementation of current gender-specific initiatives, including their successes and challenges, with the GN, the Qikiqtani Socio-Economic Monitoring Committee and Mary River Working Group, and other northern resource development operators.The GN proposes the following commitment with respect to the disposition of this issue:1. The Proponent shall work with the GN through their MOU to promote greater female employment with the Mary River Project, with a goal of attracting more women into the mining industry and employing and retaining more women with the Project including in more senior level positions.	Baffinland supports the intentions of the Government of Nunavut with respect to this subject and proposes two commitments, rather than Terms and Conditions, to satisfy the intent of their recommendations: 1. The Proponent will continue to monitor female employment rates at the Project through its Socio-Economic Monitoring Plan and will share information on the ongoing implementation of current gender-specific initiatives, including their successes and challenges, with the QSEMC and SEMWG as appropriate. 2. The Proponent shall work with the GN through their MOU to promote greater female employment at the Mary River Project, with the additional goal of attracting more women into the mining industry more generally.	Human	Resolved	1. The Proponent shall work with the GN through their MOU to promote greater female employment at the Mary River Project, with the goals of a) employing and retaining more women with the Project including in more senior level positions, and b) attracting more women into the mining industry more generally. 2. The Proponent will assess the ongoing implementation of current and proposed gender-specific initiatives, including their successes and challenges, in conjunction with monitoring female employment rates at the Project through its Socio-Economic Monitoring Plan. The Proponent will report to the QSEMC and SEMWG, as appropriate, on the effectiveness of these gender-specific initiatives.
GN-07	GN	The GN recommends that the Proponent develop a separate section in the Workplace Harassment Policy or the	Baffinland supports the intentions of the Government of Nunavut with respect to this subject and proposes three commitments, rather than	Human	Resolved	1. The Proponent will update its Workplace Harassment Policy and

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		Workplace Harassment and Violence Program on sexual harassment in order to present a clear understanding of the effects of sexual harassment and to address the specific needs of sexual harassment victims. This should include a clear definition of what sexual harassment looks like in the workplace, how to appropriately engage with victims of sexual harassment, and initiatives aimed at the prevention of sexual harassment.In addition, the GN recommends that the Proponent review the comments provided by the GN on their Workplace Harassment and Violence Program and update their policies to reflect these suggestions. The GN has the following specific recommendations for the Workplace Harassment and Violence Program:Under How to Report Workplace Violence and Harassment (pg. 1 of 8), the GN suggests the Proponent add the following action:Both parties should keep a written/dated/signed copy of the complaint form.The GN suggests that the Proponent make it clear to employees that harassment is potentially a chargeable offense and that there may be legal remedies. Under Who to Report Workplace Violence or Harassment to (pg. 1 of 8), the GN suggests the Proponent include that where a formal complaint is not deemed harassment but the employee feels a review is warranted, that the employee may submit their complaint to the RCMP.Under Commitment to Investigate (pg. 2 of 8) the GN suggests the Proponent include the following:Support the employee with meeting their safety needs, providing information to the employee regarding what remedies are available if the employee feels unsafe, and provide information about where to access mental health services in Nunavut.Under Investigation Plan (pg. 6-7 of 8), the GN suggests adding the following step:The investigator should offer mental health support or offer to have a support person present during the investigation.The GN recommends that the Proponent consider modifying any relevant cultural and employee orientation courses that address sexual harassment to reflect its updated policies and to include the above suggestions. This includes specific training (or components of current training programs) for all employees on sexual harassment in the workplace and on bystander intervention.The GN recommends that the Proponent form an oversight committee that will review implementation of company policies and initiatives regarding sexual harassment and review the types and frequency of complaints that were deemed not to qualify as harassment.The GN proposes the	Terms and Conditions, to satisfy the intent of their recommendations: 1. The Proponent will update its Workplace Harassment Policy and Workplace Harassment and Violence Program and include a component on sexual harassment that addresses the unique nature of sexual harassment in the workplace and supports the specific needs of sexual harassment victims. The Government of Nunavut will be engaged in this process. This update will occur within 6 months of amended Project Certificate issuance. 2. The Proponent will update its employee orientation program to reflect the revisions in the Workplace Harassment and Violence Program, including components related to sexual harassment in the workplace and bystander intervention. This update will occur within 6 months of amended Project Certificate issuance. 3. The Proponent will work with the GN to establish a sub-committee through their MOU to review implementation of Company policies and initiatives regarding sexual harassment in the workplace, subject to all applicable privacy laws, and to explore potential new ways to address this issue at the Mary River Project. Baffinland Human Resource Staff will be available to specifically address this topic through the MOU subcommittee as and when required. Baffinland notes that it takes the issue of employee safety extremely seriously. Workplace harassment of any nature is not tolerated by Baffinland and by extension Contractors to Baffinland. Internal processes and procedures are in place to review any claims that are submitted. Upon review of submitted claims Baffinland takes all appropriate action to ensure situations are rectified up to and including the termination of individuals found to be in contravention of the Company's Workplace Harassment Policy. Further, Baffinland is developing the Arnait Action Plan in partnership with the Qikiqtani Inuit Association to address issues that may impact women specifically in the workplace. This will be a detailed plan that includes measurable goals and procedures to monitor compliance with government employment equity legislation and respectful workplace policies.			Workplace Harassment and Violence Program and include a component on sexual harassment that addresses the unique nature of sexual harassment in the workplace and supports the specific needs of sexual harassment victims. The Government of Nunavut will be engaged in this process. This update will occur within 6 months of amended Project Certificate issuance. 2. The Proponent will update its employee orientation program to reflect the revisions in the Workplace Harassment and Violence Program, including components related to sexual harassment in the workplace and bystander intervention. This update will occur within 6 months of amended Project Certificate issuance. 3. The Proponent will work with the GN to establish a sub-committee through their MOU to review implementation of Company policies and initiatives regarding sexual harassment in the workplace, subject to all applicable privacy laws, and to explore potential new ways to address this issue at the Mary River Project. The proponent and GN will move forward on this issue through the MOU within 6 months of issuance of the Project Certificate. Baffinland Human Resource Staff will be available to specifically address this topic through the MOU sub committee as and when required.

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		following Term and Condition with respect to disposition of this issue:1. The Proponent will establish a multi-stakeholder committee that will review implementation of company policies and initiatives regarding sexual harassment in the workplace, including the type and frequency of harassment claims made and whether they lead to satisfactory results. The Proponent will invite relevant GN departments to sit on the review committee and discuss sexual harassment policies on at least an annual basis. Terms of Reference for this committee shall be developed within six (6) months of the issuance of the Project Certificate.The GN proposes the following Commitments with respect to the disposition of this issue:1. The Proponent will work with the Government of Nunavut to update its Workplace Harassment Policy and Workplace Harassment and Violence Program and to include a component on sexual harassment that addresses the unique nature of sexual harassment in the workplace and supports the specific needs of sexual harassment victims.2. The Proponent will update its employee orientation courses and cultural orientation courses to reflect the revisions in the Workplace Harassment and Violence Program and to provide specific training on sexual harassment in the workplace, including bystander intervention training.				
GN-08	GN	The GN recommends the Proponent work with the GN through the MOU to promote employment across the Qikiqtani Region in an effort to ensure that employment benefits remain in Nunavut and specifically in the Qikiqtani Region. Some of these initiatives to promote employment across the Qikiqtani shall include, but are not limited to, the following:Where and when the Proponent will provide employment or training programs in non-point of hire communities and what restrictions will be imposed; Employment and training opportunities to be posted in all Qikiqtani communities; Responding to unsuccessful job applicants in addition to job interviewees from all Qikiqtani communities in an effort to encourage their employability in future applications; andCovering travel costs for Baffinland employees from across the Qikiqtani region to an existing point of hire community for he project. The GN proposes the following Commitments with respect to the disposition of this issue:1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities once LSA priority hires have been	Baffinland supports the intentions of the Government of Nunavut with respect to this subject and proposes the following modified commitment wording from that proposed by the GN in their submission: 1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities, consistent with relevant provisions of the Mary River Inuit Impact and Benefit Agreement. Initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, communicating with unsuccessful job applicants, and continuing to provide travel for all Inuit Baffinland employees from across the Qikiqtani Region to a point of hire community.	Human	Resolved	1. The Proponent shall work with the GN through their MOU to promote employment opportunities with the Mary River Project across all Qikiqtani communities, consistent with relevant provisions of the Mary River Inuit Impact and Benefit Agreement. Initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, communicating with unsuccessful job applicants, and continuing to provide travel for all Inuit Baffinland employees from across the Qikiqtani Region to a point of hire community.

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		maximized, with a goal of ensuring Project benefits remain in the Qikiqtani Region as much as possible. Some initiatives may include training opportunities in non-point of hire communities, posting employment and training opportunities in all Qikiqtani communities, considering methods of communicating with unsuccessful job applicants, and continuing to provide travel for all Baffinland employees from across the Qikiqtani region.				
GN-09	GN	The GN recommends that the Proponent develop a clear safety protocol that informs potential land users of rules and safety protocols for both the use of project roads and crossing the North Railway. This safety protocol should include the risks associated with road use and the North Railway or being in the vicinity of roads and the railway. The Proponent should also develop a Communication Plan to guide communication of this information and include the frequency of communication, to whom, the methods of communication, and the items to be communicated. This safety protocol and communication plan for non-Project road and rail users should be included as part of the Road Management Plan and Rail Management Plan.The GN recommends that the Proponent update their Hunter and Visitor Site Access Procedures to include any considerations for the construction and operation of the North Railway. The Hunter and Visitor Site Access Procedures should be included in the Safety Protocol and Communication Plan to ensure that it and any updates are shared.The GN proposes the following Commitments with respect to the disposition of this issue:1. The Proponent shall develop a Safety Protocol and Communication Plan that will outline non-Project safety measures and how the Proponent will communicate to land users the rules and procedures for using the Tote Road and other project roads, crossing the North Railway, visiting the project site, and the risks associated with the road and the North Railway. The Safety Protocol and Communication Plan may include the following:• Rules of the Road, such as speed limits, signs on the road or rail, right of way protocols, traveling with weapons, etc.• Potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, washouts; potential risks associated with crossing the North Railway and travel on the Tote Road near the railway; and the protocol for when these hazards exist or when the road or railway is closed for maintenance or weather.• Location of rail crossings, emergency shelters, safe access routes to the Mine Site and Milne Port, etc.• Protocol for visitors to the	Baffinland held a crossing workshop with community representatives, a Government of Nunavut representative, and representatives from the Qikiqtani Inuit Association at the Mine Site July 29-August 2, 2019. A number of mitigation measures were identified as a result of the workshop, including: • Provision of cabins at three locations, subject to MHTO approval • Provision of dedicated mobile equipment to move people, equipment, cargo and snowmobiles between the port and mine • Snowmobile trails in 5 areas alongside the railway totalling 20.25 km to address areas of travel concern • Snowmobile trail along the entire Option 1 deviation length of 29 km (if Option 1 is retained as the alignment for construction). A summary of the workshop is presented as part of Appendix P. This information will be incorporated into a future safety protocol and communication plan to be developed in two parts: • Safety Protocol and Communications Plan – prior to railway construction • Safety Protocol and Communications Plan – prior to railway operations Baffinland proposes the following commitment, drawing from the GN's proposed wording: Baffinland will submit to the NIRB a Safety Protocol and a Communications Plan prior to construction of the North Railway and a Safety Protocol and a Communications Plan prior to operation of the North Railway. The protocols and plans will: • Safety Protocol and Communications Plan – prior to railway construction o Complete a risk register prior to construction o Address safety issues related to both the road and rail, during the construction period o Be implemented by the Company, its contractors, and non-Project land users o Integrate Baffinland’s existing Hunter and Visitor Site Access Procedure o Communicate to land users the rules and procedures for using the Tote Road and other project roads, visiting the project site, and the risks associated with the road and the North Railway during the construction period	Human	Resolved	1. Baffinland will submit to NIRB a Safety Protocol and a Communications Plan prior to construction of the North Railway or within 18 months of issuance of the Project Certificate; and a Safety Protocol and a Communications Plan prior to operation of the North Railway. The protocols and plans will include: Safety Protocol and Communications Plan – prior to railway construction or within 18 months of Project Certificate issuance: a. Complete a risk register prior to construction b. Address safety issues related to both the road and rail, during the construction period c. Be implemented by the Company, its contractors, and non-Project land users d. Integrate Baffinland’s existing Hunter and Visitor Site Access Procedure e. Communicate to land users the rules and procedures for using the Tote Road and other project roads, visiting the project site, and the risks associated with the road and the North Railway during the construction period f. Include Rules of the Road, such as speed limits, signs on the road, right of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail

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		site, as presented in the Hunter and Visitor Site Access Procedure.• Implementation of the Operation Lifesaver program, including information on when it may be offered, to whom, and how often.• The methods and frequency this information will be communicated and to whom.The Safety Protocol for non-Project use of the road and rail, and the Communication Plan shall be submitted to the NIRB prior to construction of the North Railway and within six (6) months of issuance of the Project Certificate.2. The Proponent shall update the Hunter and Visitor Site Access Procedure to include considerations for rail construction and operation in consultation with communities. These updates will be finalized prior to construction of the North Railway and within six (6) months of issuance of the Project Certificate.3. The Proponent shall provide an update on the development of a Safety Protocol and Communication Plan for land users to the NIRB and other stakeholders prior to the Final Hearing.	o Include Rules of the Road, such as speed limits, signs on the road, right of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail construction areas, etc. o Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, construction areas, and washouts o Identify the location of safety features such as rail crossings, emergency shelters and safe access routes to the Mine Site and Milne Port. Identify the location of safety features such as emergency shelters and safe access routes to the Mine Site and Milne Port, and construction shelters and accommodations o Be developed in consultation with the North Baffin Communities, with a particular focus on the Communities of Pond Inlet and Igloolik o Identify the means and frequency of communicating the safety protocol, and to whom the information will be communicated • Safety Protocol and Communications Plan – prior to railway operation o Complete a risk register prior to operation o Address safety issues related to both the road and rail, during operations o Be implemented by the Company, its contractors, and non-Project land users o Integrate Baffinland's existing Hunter and Visitor Site Access Procedure o Communicate to land users the rules and procedures for using the Tote Road and other project roads, crossing the North Railway, visiting the project site, and the risks associated with the road and the North Railway o Include Rules of the Road, such as speed limits, signs on the road, right of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail o Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, and washouts o Identify potential hazards with the rail line such as train traffic, sharp corners, loading and unloading areas o Identify the location of safety features such as rail crossings, emergency shelters and safe access routes to the Mine Site and Milne Port o Identify the location of safety features such as emergency shelters and safe access routes to the Mine Site and Milne Port, and construction shelters and accommodations o Be developed in consultation with the North Baffin Communities, with a particular focus on the Communities of Pond Inlet and Igloolik o Identify the means and frequency of communicating the safety protocol, and to whom the information will be communicated o Describe how the Operation Lifesaver program will be implemented, including information on when it may be offered, to whom, and how often			construction areas, etc. g. Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, construction areas, and washouts h. Identify the location of safety features such as rail crossings, emergency shelters and safe access routes to the Mine Site and Milne Port i. Identify the location of safety features such as emergency shelters and safe access routes to the Mine Site and Milne Port, and construction shelters and accommodations j. Be developed in consultation with the North Baffin Communities, with a particular focus on the Communities of Pond Inlet and Igloolik k. Identify the means and frequency of communicating the safety protocol, and to whom the information will be communicated Safety Protocol and Communications Plan – prior to railway operation a. Complete a risk register prior to operation b. Address safety issues related to both the road and rail, during operations c. Be implemented by the Company, its contractors, and non-Project land users d. Integrate Baffinland's existing Hunter and Visitor Site Access Procedure e. Communicate to land users the rules and procedures for using the Tote Road and other project roads, crossing the North Railway, visiting the project site, and the risks associated with the road and the North Railway f. Include Rules of the Road, such as speed limits, signs on the road, right

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						of way protocols, safety restrictions regarding the discharge of firearms in proximity to the road and rail g. Identify potential hazards on the road such as mine traffic, snow drifts, steep hills, sharp corners, and washouts h. Identify potential hazards with the rail line such as train traffic, sharp corners, loading and unloading areas i. Identify the location of safety features such as rail crossings, emergency shelters and safe access routes to the Mine Site and Milne Port j. Identify the location of safety features such as emergency shelters and safe access routes to the Mine Site and Milne Port, and construction shelters and accommodations k. Be developed in consultation with the North Baffin Communities, with a particular focus on the Communities of Pond Inlet and Igloolik l. Identify the means and frequency of communicating the safety protocol, and to whom the information will be communicated m. Describe how the Operation Lifesaver program will be implemented, including information on when it may be offered, to whom, and how often
HC-FC-01	HC	HC recommends the NIRB consider the following terms and conditions:1) That the Proponent investigate further measures to reduce and mitigate NO2, PM2.5, and other common air pollutants to protect human health. Measures may include:a. implementation of Tier 4 engines for all mine site vehicles;b. investigate additional measures to reduce emissions from highest emitters of NO2;c. additional measures to mitigate the air pollutant emissions associated with project-related shipping	These items are addressed by Baffinland in the Air Quality and Noise Abatement Management Plan (AQNAMP) and through the climate change strategy. The climate change strategy has identified several fuel consumption reduction measures which would also lead to reductions in air pollutants. The various mitigation measures and commitments to reduce air emissions are discussed in Section 4 of the revised AQNAMP. Mitigation measures are discussed for the various components of operations such as Mine Site air quality, Northern Transportation Corridor, Milne Port, aircraft operation and ship operation.	Atmospheric	Resolved	See commitment to ECCC-FC2
HC-FC-02	HC	HC recommends the NIRB consider the following modification to existing monitoring and reporting requirements and terms and conditions:1) The Proponent continue to undertake continuous monitoring of NO2 and	The responses to these queries are provided in the response to ECCC-FC1 and ECCC-FC3. These concerns will be addressed in the revised AQNAMP.	Atmospheric	Resolved	Baffinland will update the Air Quality and Noise Abatement Management Plan with the following text: "Use the existing continuous air quality

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		other air quality contaminants identified in the air quality and noise abatement management plan (August 23 2019), and implement additional monitors at sites relevant to human health.2) The Proponent incorporate all air quality monitoring data into the annual monitoring reports, to allow for comparison to the CAAQS and the Nunavut ambient air guideline.3) If the monitored levels of any non-threshold pullutant exceed model predictions at sites relevant to human health, then a revised risk assessment should be presented. If warranted, appropriate adaptive management plans, targeted mitigation measures, and implementation strategies should be developed.				monitors on site to validate the predictions of NO2 and other air quality contaminants in the EIS moving forward. Share results through reporting mechanisms, such as the annual report. Should exceedances occur beyond the EIS predictions, include an updated human health risk assessment in the annual report."
HC-FC-03	HC	HC recommeneds the NIRB consider the following terms and conditions:The Proponent continue monitoring COPCs reported in the risk assessment, and that monitoring is done in all environmental media, for each project phase. If concentrations of any COPS increase in any environmental media during project activities, HC recommends that the Proponent update the human health risk assessment model with new environmental monitoring data, and extend the monitoring program to include relevant country foods as indicated by the risk assessment.	Baffinland will continue with monitoring of COPCs reported in the country foods risk assessment. If increases in a specific COPC are confirmed to be occurring outside of the Potential Development Area (PDA) and if country foods could be influenced by those changes, Baffinland will update the human health risk assessment model with the new data. Decisions related to extending the monitoring program to any relevant country foods would be made based on consideration of risk assessment outcomes. Updated modelling would be triggered by changes from monitoring stations that are outside the PDA where harvesting could occur. Changes to COPCs at stations inside the PDA would not trigger a need for re-modelling because changes in COPCs are expected within the active footprint of industrial activities. As part of existing terrestrial monitoring for metals in soil and vegetation, sampling is conducted within a distance gradient approach from the edge of PDA: Near (0–100 m); Far (101 –1,000 m); and Control (>1,000 m). The study was designed to detect changes in environmental media (soil and vegetation) at Near sites relative to baseline conditions and in comparison to sites further from the PDA. That objective requires collections being made within 0–100 m of the PDA. Any remodelling effort should also consider changes (or lack thereof) in more ecologically relevant distant stations (i.e., those stations located between 100 m and 1,000 m from the PDA boundary). Consideration of change at near sites (0 – 100m) and far sites (100 – 1,000 m), relative to baseline data, and environmental quality guidelines, in conjunction with statistical analyses, would be used to identify the need for supplementary risk assessment modelling. Baffinland will add this text to the Air Quality and Noise Abatement Management Plan. Specific wording can be agreed upon with Health Canada.	Atmospheric	Resolved	Baffinland will continue with monitoring of COPCs reported in the country foods risk assessment during all phases (including closure). If increases in a specific COPC are confirmed to be occurring outside or inside (in the closure phase) of the Potential Development Area (PDA) and if country foods could be influenced by those changes, Baffinland will update the human health risk assessment model with the new data. Decisions related to extending the monitoring program to any relevant country foods would be made based on consideration of risk assessment outcomes. Updated modelling would be triggered by changes from any of the monitoring stations where harvesting could occur. Any remodelling effort should also consider changes (or lack thereof) using a distance gradient approach from the edge of PDA: Near (0–100 m); Far (101 –1,000 m); and Control (>1,000 m) and more ecologically relevant distant stations (i.e., those stations located between 100 m and 1,000 m from the PDA boundary). Consideration of change at PDA (closure phase), near sites (0 – 100m) and far sites (100 – 1,000 m), relative to baseline data, and environmental quality guidelines, in

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						conjunction with statistical analyses, would be used to identify the need for supplementary risk assessment modelling.
MHTO-1	MHTO	Given the motion passed by our membership at the most recent AGM, we recommend that the NIRB not approve the railway or additional mining at this time. We provide additional discussion in comment MHTO-2 which recommends additional information that is required before we will be in a position to offer support for the railway project.	The full response to this submission is provided in Appendix B.	Human	Outstanding	
MHTO-2a	MHTO	Baffinland must compile and submit reporting on feasibility of the preferred and alternative rail routes as well as in depth assessments of alternate routes. Baffinland must also provide additional rationale for excluding options that are preferable to the communityof Pond Inlet. This includes previous alternatives from Mary River including routes and ports to the East.	The full response to this submission is provided in Appendix B.	Terrestrial	Outstanding	
MHTO-2b	MHTO	Finally, Baffinland must undertake significantly more community consultation to reach more than the current “we believe” statement related to community preference for railway routing	The full response to this submission is provided in Appendix B.	Human	Outstanding	
MHTO-3	MHTO	Baffinland must undertake additional monitoring of caribou and update its current effects assessment for Phase 2. Baffinland must employ Inuit and specifically consult with the MHTO in the development and implementation of caribou monitoring programs. Inuit should also be trained in the interpretation of results from Baffinland’s studies, and should be informing Baffinland on what “significant” means to Inuit in terms of impacts to caribou or number of caribou sighted.	The full response to this submission is provided in Appendix B.	Terrestrial	Outstanding	
MHTO-4a	MHTO	We, the MHTO we must be consulted by Baffinland with regard to its shipping plans, and will not support shipping activities that begin or persist outside of our approval every year in the spring and fall to authorize the beginning, and to require the end of Baffinland’s shipping season.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	
MHTO-4b	MHTO	Baffinland must indicate how its plans to ship ore can be constrained by Inuit use of ice and still manage to achieve production targets and economic viability. We have concerns we may be faced with a similar scenario as happened with the Production Increase Proposal, where Baffinland said they had to increase production or the mine would shut down. How can we be assured Baffinland will not threaten mine shut down again if operations cannot continue as it demands? We have no certainty that the Phase 2 development will operate as Baffinland is stating	The full response to this submission is provided in Appendix B.	Marine	Outstanding	

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		within the FEIS Addendum, and we are equally uncertain that promises of a seasonal shipping schedule determined by Inuit approval will hold up in the face of economic pressures on Baffinalnd tomove ore to market. NIRB must protect our interests and not allow additional pressure to be put on our resources and allow Baffinland to ignore our desires because of mining costs and desire for profits.				
MHTO-4c	MHTO	Baffinland must indicate how its plans to ship ore can be constrained by Inuit use of ice and still manage to achieve production targets and economic viability. We have concerns we may be faced with a similar scenario as happened with the Production Increase Proposal, where Baffinland said they had to increase production or the mine would shut down. How can we be assured Baffinland will not threaten mine shut down again if operations cannot continue as it demands? We have no certainty that the Phase 2 development will operate as Baffinland is stating within the FEIS Addendum, and we are equally uncertain that promises of a seasonal shipping schedule determined by Inuit approval will hold up in the face of economic pressures on Baffinalnd tomove ore to market. NIRB must protect our interests and not allow additional pressure to be put on our resources and allow Baffinland to ignore our desires because of mining costs and desire for profits.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	
MHTO-5a	MHTO	MHTO recommends Baffinland clarify how the ships size and frequency with Phase 2 are so different from the original Mary River project that concerns about using the narrow Milne Port have been abated.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	
MHTO-5b	MHTO	MHTO recommends that Baffinland be required to submit a full assessment of baseline conditions and potential impacts of shipping and ice-breaking at the floe edge in spring and fall, and that this be submitted and thoroughly considered, prior to NIRB's decision being rendered.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	
MHTO-5c	MHTO	MHTO recommends no additional shipping routes be approved at this time.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	
MHTO-5d	MHTO	MHTO recommends Baffinland undertake significantly more monitoring of marine wildlife and ecosystem, specifically that Inuit receive on the job training to conduct these studies, and also to interpret data and compile reporting. We would like to hear the assurances Baffinland is giving us about no impacts, from an Inuk that has been trained in the science and procedures of its monitoring and review.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	
MHTO-5e	MHTO	MHTO recommends Baffinland undertake additional sampling of ship ballast water, hull fouling, and other contaminants that may be released by ships calling to port.	The full response to this submission is provided in Appendix B.	Marine	Outstanding	

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		MHTO also recommend that Baffinland consider partnering with another organization, or developing on its own, a sampling laboratory in Pond Inlet that could process limited samples and employ local people to do so.				
MHTO-6	MHTO	MHTO recommends the NIRB reject the alternative option to use the Tote Road to ship ore in excess of 6 Mtpa on the basis that no adequate assessment was provided to support its consideration and/or approval.	The full response to this submission is provided in Appendix B.	Corporate	Outstanding	
MHTO-7a	MHTO	We recommend that Baffinland be required to incorporate Inuit knowledge into its determination of significance, identification of indicators and development of threholds. We recommend that Baffinland's current conclusions regarding impact significance in the FEIS Addendum be revised to take account of Inuit needs, and that indicators and thresholds be developed and in place prior to approving the Phase 2 development.	The full response to this submission is provided in Appendix B.	Human	Outstanding	
MHTO-7b	MHTO	We recommend that Baffilnand develop monitoring programs in consultation with Inuit, and that it hire and train Inuit to participate in additional scientific studies and monitoring activities, and to interpret results.	The full response to this submission is provided in Appendix B.	Human	Outstanding	
MHTO-7c	MHTO	MHTO requires additional resources to manage the responsibilities associated withparticipating in the highly technical and ongoing assessments of Mary River phases ofdevelopment as well as the annual monitoring and working group activities. We recommendBaffinland provide the MHTO with annual funding to participate more fully in the review and comment submissions for its increasingly complex project development. Without proper support, this project will be absent any meaningful input from the hunters and trappers of Pond Inlet. We have not received any increases to our funding owing to project-related demands on our time. Given that this is a Proponent driven process, we recommend that Baffinland provide funding to support our ability to participate in ongoing activities related to additional assessments and regular mitigation and monitoring programs in place for the previously approved project.	The full response to this submission is provided in Appendix B.	Human	Outstanding	
MHTO-7d	MHTO	Recommend NIRB assume lead role in marine and terrestrial environment working groups, require Baffinland to remain transparent and accountable, and deliver more prescriptive direction to Baffinland for its ongoing mitigation measures and any proposed changes to monitoring plans.	The full response to this submission is provided in Appendix B.	Human	Outstanding	
NRCan-01	NRCan	NRCan recommends that the Proponent follow through on the plans outlined in their response to NRCan to support detailed design and environmental monitoring and	Baffinland has committed to carrying out the plans as outlined in NRCAN's final written submission comment	Marine/Terrestrial	Resolved	Baffinland commits to: • Conducting the summer 2019 mapping program in areas where the

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		management programs. Specifically NRCan recommends the Proponent:Conduct the summer 2019 mapping program in areas where the railway corridor deviates from the road.Conduct the winter 2019/20 drilling program, described in their response, to obtain additional subsurface data to support design.Conduct the pre-drilling program, described in their response, to improve delineation of ice-rich areas to support implementation of appropriate measures to deal with permafrost conditions prior to cuts or embankment construction.Install thermistors during the 2019/20 and pre-drilling programs to establish baseline conditions along the corridor prior to construction.				railway corridor deviates from the Tote Road, including along the Route 1 deviation alignment. This summer mapping program was completed in summer 2019. • Conducting the winter 2019/2020 drilling program along the deviation route, following the proposed Route 3 deviation alignment, and near the port terminus to obtain additional information on subsurface conditions to inform the final design. • Conducting a pre-drilling program, to be completed by the railway contractor and supervised by BIM's Engineer during the construction period. Boreholes will be advanced into permafrost along the rail alignment prior to the railway earthworks. Boreholes will be used to delineate zones of ice-rich and ice-pore permafrost and to determine the required permafrost treatment prior to making cuts and placing fill for the embankments. • Installing thermistors and other monitoring instruments along the rail alignment including along the Route 3 deviation during the pre-drilling programs to establish baseline conditions prior and during rail construction.
NRCan-02	NRCan	NRCan recommends that the Proponent implement the recommendations provide by Hatch in the design memo and the plans for further analysis and instrumentation as outlined in their response to NRCan to support detailed design and environmental monitoring and management programs. Specifically NRCan recommends the Proponent:Implement the recommendations made by Hatch to accommodate the 30 year design life including those related to pile length embedment and number of piles required for foundations.Continue to refine the thermal, stability and creep analysis incorporating new data collected during geotechnical investigations and from instrumentation along the railway corridor to support final design of embankments and bridges.Consider local factors	Baffinland has committed to implementing recommendations outlined by Hatch in their design memo and plans for further analysis and instrumentation. Pile designs have been revised per recommendations to accommodate the 30-year design life.	Terrestrial	Resolved	Baffinland commits to: • Implementing the recommendations to accommodate the 30 year design life provided in the project memorandum 'Analysis of Proposed Rail Line Cut Sections and Port Area Structures Considering a Mine Life of 30 Years' (Hatch, 2019) including those related to pile length embedment and number of piles required for foundations. • Continue to refine the thermal, stability and creep analysis incorporating new data collected

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		(such as snow accumulation and presence of water bodies) in the 2D thermal modelling to support final design of embankments, cuts and bridges.Establish instrumentation as outlined in their response, prior to and during construction to improve characterization of baseline ground conditions, support final design, evaluate impacts due to construction and railway performance, and to inform the implementation ofmitigation/maintenance measures when triggers are reached.				during geotechnical investigations and from instrumentation along the railway corridor, along the Route 3 deviation alignment as well the rail alignments outside the rail deviation, to support final design of embankments and bridges. • Consider local factors (such as snow accumulation and presence of water bodies) in the 2D thermal modelling to support final design of embankments, cuts and bridges. • Establish instrumentation along the rail alignment, including along the Route 3 deviation alignment, prior to and during construction to improve characterization of baseline ground conditions, support final design, evaluate impacts due to construction and railway performance, and to inform the implementation of mitigation /maintenance measures when triggers are reached.
PCA-01	PCA	Parks Canada recommends that:The Proponent identify whether they intend to ship through Navy Board Inlet and/or the Northwest Passage and if so, under what circumstances.Should the intention of the Proponent be to use this route, the project assessment should be informed by a review of potential impacts including: - Consultation with affected communities, - description of circumstances under which the route will be used, - identification of potential effects, mitigations, and significance of residual impacts, - gathering and incorporation of Inuit Qaujimanituqangit relevant to use of the route, and - identification of cumulative effects.	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Marine	Resolved	
PCA-02	PCA	Parks Canada recommends that:DFO Science review and provide expert advice regarding marine (and freshwater) monitoring plans from the Proponent, independent of the MEWG (as per DFO Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2", p. 51) in preparation for the submission of these plans to the MEWG, and the updated Terms of Reference for the MEWG be finalized and approved by all members, including the NIRB.	Baffinland notes that in recent in person Terrestrial and Marine Working Group meetings (June 20 and 21, 2019, Iqaluit) the functionality of the Working Groups and updates to the Terms of References were discussed. It was noted by some members during these meetings that they had observed improved changes to the functioning of the Working Groups. Notwithstanding, proposed changes to the ToR's have been ongoing throughout the summer 2019, with drafts available to the NIRB for review. In response to recommendations made by several Working Group members to date, Baffinland has submitted proposed revisions to the ToRs in Appendix O of this submission that reflect a more consensus-based approach to	Marine/Freshwater	Outstanding	Baffinland commits to amend the Terms of Reference for the MEWG in collaboration with MEWG Members.

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			decision making that more clearly identifies how recommendations are identified, supported, communicated, and tracked. Baffinland believes the updated draft Terms of Reference provide the mechanism and accountability for the implementation of recommendations made by both the MEWG and DFO. Provision of draft monitoring programs to DFO Science before other MEWG members, aside from being impractical from a planning cycle perspective, is not consistent with the spirit of the working groups, which is to solicit advice from a range of scientific experts and knowledge holders in a collaborative environment. The prioritization of DFO Science participation in monitoring planning would also contradict Baffinlands commitment to weigh science and Inuit Qaujimanituqangit equally, and that of DFO as outlined in the PC-04a recommendation. Baffinland notes that this recommendation, although proposed in a DFO Science Review Report, was not carried forward by DFO in their final written submission.			
PCA-03	PCA	Parks Canada recommends that: Recommendations presented by DFO in the "Science Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2" regarding AIS (pp 31-48) be implemented, for example:• All project vessels use a treatment plus exchange strategy, and the Proponent be required to develop a coordinated early detection and rapid response plan for invasive species in Milne Inlet/Eclipse Sound with applicable regulators, communities, and other potential partners.• The ballast water dispersion model and analyses be completed prior to issuance of the project certificate and issuance of authorizations.	Please refer to responses to DFO 3.10.1-3.10.6.	Marine	Outstanding	Baffinland is waiting for recommendation in relation to DFO 3.10.1
PCA-04a	PCA	Parks Canada believes there are significant gaps in information and as a result, uncertainty in conclusions, related to the impacts of shipping on the marine environment. The Government of Canada supports the establishment of Tallurutiup Imanga NMCA and as a result, Parks Canada recommends that the precautionary principle, as described by section 9(3) of the CNMCAA and the Tallurutiup Imanga IIBA, be followed when considering any decisions and recommendations regarding shipping.Parks Canada recommends that:If the project were to proceed, the Proponent work with DFO and incorporate Inuit Qaujimanituqangit, to address uncertainties and gaps in the Proponent's information andconclusions as described by the existing and pending DFO Science Canadian Science Advisory Secretariat Science Responses and that this occur prior to any increase in levels	Baffinland notes that Parks Canada has not provided any independent analysis to support their recommendations other than that sourced from the 'Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2'. This Review Report was conducted at the request of DFO's Fish and Fish Habitat Protection Program and is adequately reflected in DFO's final written submissions. Respectfully, while Parks Canada does have a mandate to protect areas in the RSA, they rely on the expertise of the other federal Intervenors for much of their submission, and do not maintain their own technical expertise to support their recommendations on these matters. Baffinland believes it is reasonable to request that the Board view the Parks Canada's submission as a reiteration of the DFO submission, and not a separate and distinct set of recommendations. Baffinland has also identified that neither the references or detailed	Marine	Outstanding	

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		of shipping (for the total number of proposed project vessels: ore carriers, resupply vessels, tugs, and icebreakers).	review sections of Parks Canada's comment include any documentation submitted past June 17, 2019, consistent with what was considered in DFO's 'Review of Additional Documents submitted May 13–June 17, 2019 for the Second Technical Review of the Final Environmental Impact Statement Addendum for the Baffinland Mary River Project Phase 2'. This has made it challenging for Baffinland to identify and respond to potential outstanding issues, as it appears that the great majority of issues raised were answered by Baffinland's filings with NIRB post June 17, 2019. Baffinland also notes that given that the available information provided by Baffinland appears to have not yet been considered, the mitigation measures currently recommended by DFO and Parks Canada are premature – this approach would not be consistent with the precautionary principle, which requires the consideration of available relevant information in making recommendations. Between June 17 and August 23rd Baffinland provided the following documents related to the marine environment to NIRB, which Baffinland strongly encourages DFO (and Parks Canada) to take into full consideration prior to preparing their presentations for the NIRB public hearings (noting these materials should have been considered prior to the preparation of DFO and Parks Canada's final written submissions): • Responses to Request for North Water Polynya Mapping – Additional Assessment Information (June 28, 2018) • Impact of icebreaking activities within the approaches to the Milne Inlet Port Site (Northern Shipping Route to Milne Port) – Additional Assessment Information (June 28, 2018) • Transport Canada Comments/Requests to Proponent – June 2019 – Additional Assessment Information (June 28, 2018) • Responses to WWF Questions Regarding Shipbuilding – Additional Assessment Information (June 28, 2018) • Responses to WWF Questions Regarding Black Carbon Emissions for the Phase 2 Project – Additional Assessment Information (June 28, 2018) • Draft Shipping and Marine Wildlife Management Plan – Additional Assessment Information (June 28, 2018) • Response to the questions submitted via email by WWF on the topic of the Ice Breaking (Email dated June 12 from Andrew Dumbrille to Lou Kamermans) – Additional Assessment Information (June 28, 2018) • Responses to WWF Questions Regarding Fuel Spill – Additional Assessment Information (June 28, 2018) • Revised Memo -Follow-up Information to ECCC Comment 3.08, 3.09 – Shipping CACs Errata, Follow-up Information to ECCC Comment 3.08, 3.09 - Black Carbon Emitted from Ore Carriers, Sealift Vessels and Tankers, CACs from Shipping – Additional Assessment Information (June 28, 2018) • RSA Sea-ice for Polar Bears – Additional Assessment Information (July			

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			12, 2019) • TM2- DFO: Rationale for identifying "Icebreaking effect on sea ice habitat for arctic cod species" as a level 1 interaction in the icebreaker effects assessment – Additional Assessment Information (July 12, 2019) • Spill at Sea Response Plan (SSRP) – Additional Assessment Information (July 12, 2019) • Environmental Review of Shipping through the Northwest Passage – Additional Assessment Information (July 12, 2019) • Clarification – Open Water Period as Related to Polar Bear – Additional Assessment Information (July 12, 2019) • Daily Ship Exposure Periods for Narwhal During Shoulder and Open Water Season Relevant to the 135, 120 and 110 Decibel Noise Fields – Additional Assessment Information (July 15, 2019) • Draft Communication Protocol for Shipping Activities – Additional Assessment Information (August 23, 2019) • Draft Baffinland Early Shipping Season – Additional Assessment Information (August 23, 2019) • Operational Guide – Additional Assessment Information (August 23, 2019) • Draft Spill at Sea Response Plan – Additional Assessment Information (August 23, 2019) • Black Carbon Emissions for the Phase 2 Project – Additional Assessment Information (August 23, 2019) Baffinland disagrees with DFO's assessment that there remain significant gaps in information and uncertainty in the conclusions of the Phase 2 impact assessment. This is further supported by the results of the peer review of Baffinland's Mary River Phase 2 Assessment Conclusions conducted by Hemerra, which states the following: Using a multiple lines of evidence approach, information was extracted from six categories of evidence: (1) Inuit Quajimajatuqangit (2) empirical evidence (site-specific, quantitative data collected during aerial surveys, etc.), (3) model evidence (acoustic modelling), (4) literature (i.e., peer reviewed journal articles as well as grey literature published by government or industry), (5) evidence from other environmental assessments (such as for past developments in Canada), and (6) expert opinion (knowledge and experience that trained professionals have accumulated over time in a specific technical discipline). Expert opinion was also used to synthesize information and evaluate the merit of each line of evidence as they pertain to conclusions of the Review regarding potential effects on narwhal. Results of this Review indicate that: • A substantial body of information was collected and used by Baffinland to base its assessment (e.g., Baffinland has periodically been conducting narwhal studies since 2007; since 2016, Golder has undertaken six marine mammal study/monitoring programs with			

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			multiple surveys conducted per program); • Data are generally of high technical quality and appropriate within the context of impact assessment as a planning tool (e.g., studies conducted across multiple seasons and years, using a variety of survey methods, with good spatial coverage across the RSA); • Assessment information comes from multiple sources (including IQ, literature, modelling, field work/empirical studies); • Standard assessment methodology was applied and the assessment appropriately focused on the key Project issue to narwhals (i.e., impacts of Project-related underwater noise); • Progressive and known effective mitigation measures during icebreaking have been applied (e.g., Baffinland's commitment to a 9 knot speed restriction in the RSA is notable in that such voluntary speed restrictions in Canada are uncommon) • Mitigation proposed for narwhal will also be beneficial and effective for other marine mammal species, which are less likely to interact with the Project. Follow-up monitoring commitments are appropriate and tailored to managing the uncertainties Should Phase 2 be approved Baffinland will continue to engage DFO through the MEWG for the purposes of ensuring our proposed mitigation and monitoring programs are robust, effective, and responsive. Inuit Qaujimanituqangit For a better understanding of how Baffinland views and plans to integrate IQ and Inuit perspectives into its environmental management and decision making processes for Phase 2, please refer to the IQ Management Framework, submitted to the NIRB on September 19, 2019. This document outlines our commitments to an Inuit Advisory Panel and a Culture, Resource, and Land Use Monitoring Program. Both of these elements has strong ties to Baffinlands adaptive management process, which is further outlined the draft Adaptive Management Plan, submitted August 23, 2019.			
PCA-04b	PCA	Parks Canada recommends that:Shipping only occur during a clearly defined open water season. As described byTransport Canada, the Proponent could consider the definition of 'open water' asfound in the Polar Code: "Open water means a large area of freely navigable waterin which sea ice is present in concentrations less than 1/10. No ice of land originis present."	Baffinland would like to be clear that Transport Canada has NOT recommended that shipping only occur during a clearly defined open water season, as could be insinuated from this recommendation. Transport Canada (TC-04) did recommend that Baffinland provide a consistent definition of open water (which Baffinland has agreed), but it was in the context of understanding Baffinlands intentions to transfer fuel during the shoulder season. Baffinland also notes that this recommendation did not consider Baffinlands Draft Early Shipping Season – Operational Guide, submitted August 23, 2019, which outlines the conditions under which Baffinland would commence and manage shoulder season shipping. This is an important mitigation and could have been reviewed in light of the recommendation that has been made. Key details of the draft Early Shipping Season – Operational Guide are	Marine	Outstanding	

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			described here in for the benefit of Parks Canada. The criteria for initiating shoulder season shipping include environmental, ecological and community determinants as follows: • Before commencing shipping operations, Baffinland must receive written confirmation from the MHTO that the floe edge is no longer being used by community members. No transits to Milne Port will be permitted until confirmation is received. • Baffinland will not break landfast ice. • Baffinland will not break ice during ringed seal parturition, pupping and nursing periods and will manage its vessel traffic during the Eclipse Sound narwhal summer stock spring migratory period. Once the shipping season commences, Baffinland has established several precedent-setting mitigations to minimize potential effects identified by Baffinland, DFO and the MHTO as a result of ice breaking activities during the shoulder season, including: • Restricting the number of transits where ice concentrations above 3/10 cannot be avoided. • Implementation of speed restrictions (9 knots) that are more conservative than Government of Canada guidelines for speed reduction to 10 knots. • Avoidance of walrus or polar bear observed on sea ice by 300m. • Placing local Inuit Marine Wildlife Observers on ice breakers. For the purposes of shoulder season vessel traffic management, Baffinland considers uninterrupted transits through ice concentrations of 3/10 or less as the open water shipping season. This is appropriate given that in ice concentrations of 3/10 or less, noise generated from ice breaking activities would appreciably reduce and the level of decay in the ice would inevitably mean that marine mammals would no longer be able to use sea ice as habitat and hunters would no longer be using the ice for travelling or hunting purposes. Based on the above, Baffinland disagrees with Parks Canada's recommendation to avoid shipping during the shoulder seasons and to only ship during an open water season defined by ice concentration of 1/10 or less. The conclusions in Baffinlands Phase 2 assessment that shipping activities proposed in both the shoulder and open water season are non-significant were also independently supported by the results of a peer review of Baffinland's Mary River Phase 2 Assessment Conclusions conducted by Hemerra, which are described in response to PC-04a.			
PCA-04c	PCA	Parks Canada recommends that:If shipping, and associated icebreaking activities/ice management activities (asdefined by the Proponent in Appendix 12, Information Responses, March 2018),were to occur outside of a clearly defined open water season (not includingwinter), work with DFO and incorporate Inuit Qaujimanituqangit, to identifyconditions under which these activities could occur.	Baffinland submitted a draft Early Shipping Season – Operational Guide for review on August 23rd, 2019 with the intent to solicit input from Interveners. For a more detailed description of this Guide, please see Baffinlands response to PC-04b. Baffinland remains open to comments on the Guide and will commit to modifications through a post-EA process. For more details regarding Baffinlands intentions to work with DFO and Inuit in relation to the implementation of proposals and commitments,	Marine	Outstanding	

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			and the effectiveness of proposed mitigation measures, please see Baffinlands response to PC-04a. Should Phase 2 be approved, Baffinland will continue to engage DFO and Parks Canada through the MEWG for the purposes of ensuring our proposed mitigation and monitoring programs are robust, effective, and responsive.			
PCA-04d	PCA	Parks Canada recommends that: The Proponent consider additional options regarding the feasibility of shippingthrough Steensby Port.	Baffinland intends to use necessary capital generated by the Phase 2 expansion to support the eventual construction and operation of the southern portion of the Project. The Phase 2 proposal is a desirable and economically feasible option to capital generation for Steensby because it allows for the utilization of several existing infrastructures, notably a fully constructed Port at Milne Inlet and an established transportation corridor to support construction and maintenance of a railway. Baffinland has not assessed for winter shipping as part of the Phase 2 Proposal, as this was previously identified as unfavorable to the community of Pond Inlet. If Baffinland were to consider any future expansions of the Project through the Northern route, required regulatory processes would be followed. It is also noted that this is not being contemplated by Baffinland at this time.	Marine	Resolved	
QIA-01	QIA	QIA requests the Proponent provide outstanding documents relevant to caribou at least two weeks prior to the November hearing. This should include terms of reference for working groups, calculations of habitat loss (project specific and cumulative), and reassessment of caribou-related impacts (habitat, movement, mortality risk, health). QIA requests the Proponent commit to working with the interested parties to develop IQ and sciencebased predictions of habitat loss, expected impacts to caribou movements, mortality risk, and health risk, which can be tested through the monitoring program and responded to through mitigations and adaptive management. QIA requests the Proponent commit to a revised AMP that is equally responsive within reasonable time frames to inputs from MEWG, TEWG and whatever Inuit Committee/Inuit Panel is set up. QIA requests the Proponent commit to support a formal harvesters survey. QIA requests the Proponent commit to supporting (pending community support) a regional IQ-based approach for monitoring North Baffin caribou, and local monitoring program for caribou interactions. QIA requests the Proponent commit to working with GN, QIA and HTOs (parties to be identified as appropriate) to conduct an IQ study of caribou habitat use and establish protection areas and other protection measures for caribou in the North Baffin caribou range.	1) Meaningful incorporation of IQ into project assessment, design, mitigations and monitoring: Baffinland agrees that a fulsome review by relevant parties is necessary to develop the terms of reference for the Inuit Advisory Panel (IAP). This commitment is already recognized in the Inuit Qaujimanituqangit (IQ) Management Framework and further outlined in the attached Conceptual Implementation Plan (Appendix O). Baffinland also recognizes the importance of IQ and Inuit perspectives to the adaptive management process and holds those sources of information and values in the same regard as those generated from other empirical sources. Section 1.5 of the draft Adaptive Management Plan recognizes that "…this section will be updated as Baffinland continues to develop its IQ Management Framework, Inuit Advisory Panel, and Culture, Resource and Land Use (CRLU) Monitoring Program." Baffinland plans to consult the QIA on each of the listed initiatives as they are finalized, and this would extend to the Adaptive Management Plan. Baffinland already supports IQ-based monitoring and agrees that Project impacts to caribou could be a community priority to investigate. However, Baffinland continues to state that the communities' monitoring priorities are for them to determine, not Baffinland or the QIA. 2) Responsiveness of BIMC to input from working groups: Baffinland already incorporates feedback from the Working Groups. Examples of how Inuit and QIA feedback from the Terrestrial Environment Working Group (TEWG) has been incorporated into the terrestrial monitoring programs include:	Terrestrial	Outstanding	

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			• Increasing survey effort for Height of Land and snow tracking surveys in 2019, • Including Inuit elders on Height of Land surveys to train younger Inuit, and non-Inuit scientists how to observe for caribou on the landscape around Mary River, • Increasing snowbank survey effort in 2018 and 2019, • Adding more dust fall collection sites outside of the PDA, • Adding more reference sites and soil measurements to the vegetation abundance program, • Conducting additional analyses for vegetation and soil base metals program, • Facilitating more Inuit involvement in these and other monitoring programs over the last few years. However, Baffinland recognizes that the mechanisms for incorporating feedback from the TEWG into the monitoring programs could be more clearly defined. Baffinland is already committed through the existing Terrestrial and Marine Environment Working Groups to update each of the Terms of Reference to reflect a more consensus-based approach to decision making that more clearly identifies how recommendations are identified, supported, communicated, and tracked. Baffinland suggests that whatever approach is finalized for the Working Groups be considered in the development of the Inuit Advisory Panels Terms of Reference, however, that is ultimately subject to the input of the North Baffin communities. These changes are intended to make things more transparent and strengthen the efficacy of the working group. Updated draft Terms of Reference for both groups are attached to this submission (Appendix O). 3) Understanding habitat impacts from the proposed project: As the QIA indicates in the preamble to this request, the cumulative habitat impacts update and approach used for the sensitivity analysis of habitat effects was completed in direct response to a specific request from the GN. The QIA suggests that the analyses could have been done differently and it would be interesting to explore using input from IQ. While Baffinland understands that interest, it unfortunately was not the approach requested at the time the GN suggested the quantitative sensitivity analysis. Baffinland asserts that the nine different habitat impact scenarios using reasonable, underestimate and overestimated impacts addresses very broadly all reasonable uncertainty about habitat impacts. The QIA also requests specific area calculations that are mostly provided within supporting documents. The QIA requested a breakdown in terms of absolute numbers of several values in relation to the total area of the North Baffin Island caribou range. Those values are presented in an attached table (Appendix C), and as a proportion of the north Baffin Island caribou range. The request for a breakdown by			

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			seasonal range does not apply because no seasonal ranges were identified for north Baffin Island caribou, based on both harvester knowledge and Resource Selection Probability Function Models presented in the FEIS Wildlife Baseline Report. 4) Addressing uncertainty within the assessment: Changes to the impact characterization and significance estimations: Baffinland has responded to a previous request from the QIA to modify our impact characterization and significance estimations for caribou. Baffinland's full response to this request is provided in Appendix C (EDI 2019), which outlines the factors that contributed to our significance statements. Those statements are made in consideration of knowledge and lessons learned from our existing operations, the existing and proposed mitigations, and mitigations by design and operation that were developed through consultation with community representatives. In addition to that, Baffinland made the not significant statements in the context of the confidence that we have in our robust environmental management systems already in place and modifications that are proposed for Phase 2. Improvements to monitoring programs: Please see Baffinlands responses to QIA-02 To address uncertainty, commitment for collection of IQ and range planning for North Baffin caribou: Baffinland commits to support a harvester's survey as described by QIA, however, such a study must be led by harvesters, not Baffinland. Baffinland is committed to the continued collection of IQ through the Culture, Resource, and Land Use Monitoring Program. Baffinlands commitment to this Program is outlined in the IQ Management Framework. Periodic formal IQ collection will form a part of the Program and the results will flow into Baffinlands broader environmental management system, including adaptive management. These processes are outlined in the IQ Management Framework and the draft Adaptive Management Plan. Despite Baffinlands financial or in-kind support for regional monitoring, the Government of Nunavut is ultimately responsible for the development and implementation of the program, which includes consultation on design. Baffinland already supports community-based monitoring through the Mary River IIBA (Article 17.8) and agrees project impacts to caribou could be a community priority to investigate. However, Baffinland continues to maintain the communities monitoring priorities are for them to determine. Should the QIA wish to review the adequacy of this program to include additional terrestrial and marine monitoring programs as proposed in their recommendations, Baffinland suggests this should occur through the mechanisms established in the IIBA, not the NIRB review process.			

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			Baffinland and the QIA are already committed to work together to establish protection areas and other protection measures through the Mary River Caribou Protection Measures (Appendix C), submitted by Baffinland and the QIA to the Nunavut Planning Commission and the Nunavut Impact Review Board on January 29, 2014.			
QIA-02	QIA	QIA requests the Proponent commit to full assessment of alternatives to the current "dogleg" diversion in combination with QIA and HTOs. This includes proper and full assessment of the alternative route put forward by Pond Inlet and any alternatives to it currently being examined by BIMC. See also TCs #6 and #20. QIA requests the Proponent commit to embankment construction requests as outlined in our detailed TC #2. QIA requests the Proponent commit to conducting a robust science and IQ-based process for identifying high crossing locations once route is finalized, and full avoidance all important caribou crossings, using the best available information on what types of crossings will work best to reduce movement effects to caribou. QIA requests the Proponent commit to develop a strong regional monitoring program to answer questions about how caribou are being affected by the railway. QIA requests the Proponent develop a strong local monitoring program in the immediate vicinity of the railway, to identify high collision locations and trigger additional mitigations when caribou are in the area. QIA requests the Proponent commit to developing conditions jointly with the TEMP and BIMC-proposed Inuit Panel (or other Inuit Committee), if created, that would trigger the company to add or improve crossings once railroad is constructed. QIA requests the Proponent commit to developing clear triggers in collaboration QIA, HTOs and GN to introduce additional mitigations to reduce movement effects to caribou, including temporary shutdowns to allow caribou movement through northern transportation corridor.	1. Given the proximity of the alternative "dogleg" alignment currently under consideration (Route 3/Option 3) to the alignment originally proposed by Baffinland, the existing assessments and conclusions remain valid. This is described more fully in an Appendix I to the Rail Alignment Summary Report (Appendix P). 2. Based on input provided during the Crossing Selection Workshop from HTO participants representing Pond Inlet, Igloolik, as well as QIA and GN, the following modifications have been proposed for the design of the North Railway to aid in caribou crossing: • 30 level crossings to be installed at locations identified by community representatives during the workshop (subject to Transport Canada and Community Acceptance). • A smoother fill material (Type 8 - 6 inches or less in size) will be used along the entire railway embankment (change from Type 12 - 24 inches or less). • A gentler slope (1:2 ratio) will be used for all portions of the railway embankment between 2 and 4 meters (change from 1:1.5). • A gentler slope will be created at the edges of crossings to assure approach from any angle is safe. • 4 additional plate arch culverts will be installed in areas where the railway embankment is high enough to allow an underpass (10 plate arch culverts were already proposed at fish bearing water crossings, which may also serve to allow passage for terrestrial wildlife throughout the year). Baffinland agrees with the QIA that once the final route is selected a process should be developed for identifying level crossing locations and human movement corridors. To this end Baffinland suggests an adaptive management approach that relies on the observations of land users as well as project specific and regional monitoring is a reasonable and effective approach. To provide additional confidence in this process Baffinland has developed an initial draft Additional Level Crossing Construction Decision Matrix (Appendix P) for review by the communities and interested Interveners. The Decision Matrix details how the need for additional crossings will be identified, investigated, considered, constructed, and reported back throughout the life of the Project. This document will be amended to account for project specific and regional monitoring as inputs into the adaptive management process. 3. As identified above, Baffinland has developed a Decision Matrix for	Terrestrial	Outstanding	

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
			Adding Crossings that details the process by which Baffinland will identify, investigate, and determine to install additional crossing locations as Appendix P. 4. A complete list of Baffinland's operating mitigation measures for caribou protection along the railway are summarized in the memo provided by Baffinland to QIA on September 17, 2019 (Appendix C) 5. Baffinland will develop a summary of expected impacts to caribou movement in collaboration with the TEWG, of which the MHTO is a member, based on the conclusions derived in the Phase 2 assessment and those posed by interested parties through the review process. These predictions will influence the design of future Baffinland's monitoring programs. 6. Despite Baffinland's financial or in-kind support for regional monitoring, the Government of Nunavut is ultimately responsible for the development and implementation of the program, which includes consultation on design. Baffinland has been working with the GN on the development of an MoU describing Baffinland support to regional monitoring of caribou. Baffinland already supports community-based monitoring through the Mary River IIBA (Article 17.8) and agrees project impacts to caribou could be a community priority to investigate. However, Baffinland continues to maintain the communities monitoring priorities are for them to determine. Should the QIA wish to review the adequacy of this program to include additional terrestrial and marine monitoring programs as proposed in their recommendations, Baffinland suggests this should occur through the mechanisms established in the IIBA, not the NIRB review process. 7. Baffinland already maintains a strong project-based caribou monitoring program, despite the current low population of caribou in the North Baffin, and has proposed further monitoring mechanisms to detect caribou as they occur in the vicinity of the project. Baffinland invited an Inuk working at a mine from the Kivalliq to the crossing workshop to share their experience on best practices and effectiveness of monitoring programs. Baffinland would like to continue this relationship. Project monitoring in the local area will include the use of dedicated high cars to monitor for wildlife presence which could be sent ahead of the train during periods of substantial wildlife presence/movement to monitor for animals along the track. Inuit environmental monitoring staff will have first right of refusal for these positions. During construction Baffinland will have wildlife monitors stationed at key higher risk areas for wildlife and again, Inuit environmental monitoring staff will have the first right of refusal for			

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			these positions. 8. Baffinland commits to the following mitigation measures with respect to the operation of the railway to reduce interference with caribou: • Temporary speed restrictions may be implemented in areas where caribou have been observed over the previous 24hrs. • Permanent speed restrictions of 30km/hr will be applied to sections with steep hills for train safety. • If large groups of migratory caribou are moving through the area, rail operations will be temporarily suspended to allow caribou to cross the rail line. • In white out conditions, train crews will be required to travel at a speed suitable to stop before hitting an object based on sight distance, i.e. if you can see 50m ahead you need to be able to stop in 25m. Through the life of the project Baffinland expects the TEWG and Inuit Advisory Panel to play a key role in the development and implementation of these mitigation measures, as well as their evaluation for effectiveness. Processes for adaptive management under Phase 2 will be laid out in Baffinland's Adaptive Management Plan and the Terms of Reference for the TEWG and IAP. 9. Baffinland agrees the Terrestrial Environment Working Group (TEWG) and the Inuit Advisory Panel (IAP) should play a key role in adaptive management. This objective is already recognized in the Terms of Reference for the TEWG and the initial outline of the IAP in the IQ Management Framework.			
QIA-03	QIA	QIA requests the Proponent provide more details on its proposed Culture, Resources, and Land Use Monitoring Program at least two weeks prior to the November hearing, so that the adequacy of the scope and committed-to funding for the life of the Project of an ongoing Inuit data collection system for the Project can be assessed by the Inuit parties and the NIRB. QIA requests the Proponent to commit to increased representativeness in the collection of mapped data, including interviewing more people and from a broader demographic. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body.	Baffinland commits to develop and implement a CRLU Monitoring Program for the life of the Mine (Appendix O). The Program will be submitted to the NIRB 12 months following the issuance of a revised Project Certificate 005. The Program will include a maximum three-year delivery interval, including updating land use and value mapping, and tie into adaptive management planning. The CRLU Monitoring Program will strive to integrate alienation effects as well as future use. Baffinland commits to the development and implementation of an Inuit Advisory Panel, with a Terms of Reference to be developed with the QIA and the North Baffin Communities, and to be submitted to the NIRB within 12 months following the issuance of a revised Project Certificate 005. Baffinland has carefully considered the Tusaqtuvut Report and have used that information to inform a comprehensive updated assessment of food security filed with this submission, which specifically takes into account how culture, resources and land use have an influence on food security. Baffinland had been discussions with the QIA on its request for an updated assessment of Phase 2's relationship to Culture, Resources and Land-Use. Rather than an approach which would update	Human	Outstanding	

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			this document and tie the CRLU Monitoring Program to FEIS Addendum effects estimations, Baffinland suggests a different approach. It is important to emphasize that in its approach to monitoring on CRLU, Baffinland is not relying on a finding of non-significance in the context of environmental assessment to avoid future obligations with respect to adaptive management. Notwithstanding our conclusion of non-significance with respect to CRLU within Baffinland's assessment of Phase 2, Baffinland is proposing stringent mitigations and monitoring relating to this topic. BIM understands that other factors are important to the community and BIM will be guided by that in working with QIA and others to design a robust CRLU Monitoring Program, based on metrics that are meaningful to Inuit, identified through further consultations, and are not simply based on a comparison to Baffinand's CLRU assessment. It is critical to plan and undertake full, thoughtful and directed engagement on this topic, in consideration of the 3 Tusaqtavut reports. In light of this, our suggestion is incorporate the following commitment: • Baffinland has committed to the development of a CRLU monitoring plan within 12 months of issuance of an updated Project Certificate for Phase 2. This process is described in Appendix O, and include fulsome and directed consultation with communities, QIA, and once established, the Inuit Advisory Panel. • Baffinland will carry out engagement with the 5 North Baffin communities during 2020 in order to identify, together with Inuit and in consultation with QIA, the specific metrics that Inuit identify should be monitored as part of the CRLU program, and to identify, together with Inuit and in consultation with QIA, thresholds for change that should trigger adaptive management by the company. • Baffinland would report on changes and trends in monitoring, based on previous reports. Baffinland will consider adaptive management actions and consult with the community on the best path forward in relation to any changes to CRLU identified through the CRLU monitoring program. For clarity, Baffinland would not only consider adaptive management in the event that effects exceed the FEIS addendum estimations but instead would have regard to triggers for action identified through consultation with the community.			
QIA-04	QIA	QIA requests the Proponent commit to develop more detailed requirements for incorporation of IQ into marine (and terrestrial) environmental management plans moving forward, and work in conjunction with Inuit in development of limits of acceptable change. QIA requests the Proponent commit to incorporating Inuit- and IQ-derived metrics into Early Warning Indicators for the Project. QIA requests the Proponent commit to develop, with Inuit, a more efficient and Inuit-based monitoring plan for Ringed seals.	Both the Marine and Terrestrial Environment Working Groups include the MHTO in their membership, which has been an invaluable source of knowledge for Baffinland in planning and interpreting the results of its monitoring programs. Moving forward the Inuit Advisory Panel (IAP) will play a critical role in formalizing the process by which IQ and Inuit perspectives are integrated into Baffinland's environmental management system, including the development of a better understanding of acceptable limits of change. Baffinland has already started the process of including Inuit in the development of Early Warning Indicators (EWIs) for the Project, including a dedicated session	Human	Outstanding	

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			spent with the MHTO. This initiative is being actively worked on through the MEWG and will likely benefit from the future establishment of the IAP. Baffinland commits to developing a ringed seal monitoring plan that incorporates Inuit perspectives into the design, planning and implementation phases.			
QIA-05	QIA	QIA requests the Proponent provide more details on its proposed Culture, Resources, and Land Use Monitoring Program at least two weeks prior to the November hearing, so that the adequacy of the scope and committed-to funding for the life of the Project of an ongoing Inuit data collection system for the Project can be assessed by the Inuit parties and the NIRB. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body. QIA requests the Proponent commit to working with QIA and the Inuit communities to review adequacy of existing - and develop enhanced and independent - Inuit community-based monitoring programs.	Details of the CRLU Monitoring Program and Baffinland's commitments to establishing an Inuit Advisory Panel are provided in response to QIA-03. Baffinland already supports community-based monitoring through the Mary River IIBA (Article 17.8). Should the QIA wish to review the adequacy of this program to include additional terrestrial and marine monitoring programs as proposed in their recommendations, Baffinland suggests this should occur through the mechanisms established in the IIBA, not the NIRB review process.	Human	Outstanding	
QIA-06	QIA	QIA requests the Proponent commit to full assessment of alternatives to the current "dogleg" diversion in combination with QIA and HTOs. This includes proper and full assessment of the alternative route put forward by Pond Inlet and any alternatives to it currently being examined by BIMC. QIA requests the Proponent commit to providing more information on technical and economic feasibility of multiple alternative rail routes during reconsideration of the rail routing as discussed above. QIA requests the Proponent commit to the inclusion of a discussion on the triggers for modifying crossings so that clear steps on triggers and thresholds are known for when a modification to rail will occur (e.g., HTO formal application, repeated observations, individual observations, etc.) at any and all future rail routing meetings.	Baffinland's approach to the assessment of the alternative "dogleg' alignment is provided in response to QIA-02. An examination of the technical feasibility of the alternative alignments proposed during the Crossing Selection Workshop is provided in the Rail Alignment Summary Report, included as Appendix P. The economic feasibility of the alternative routes was not examined as it was not a criteria for selection by Baffinland. Baffinland has developed a draft Decision Matrix for adding crossings based on land user requests (Appendix P).	Terrestrial	Outstanding	
QIA-07	QIA	QIA requests the Proponent commit to including conformity with Inuit wildlife laws and norms as an objective in its terrestrial and marine EMPs, and reporting on Project conformity with Inuit wildlife laws and norms as an element of the enhanced IQenriched monitoring system. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate	Baffinland confirms that it has reviewed the "Uqausirisimajavut: What we have said. The Inuit view of how oil and gas development could impact our lives" Report and is committed to integrating conformity with Inuit wildlife laws and norms into the objectives of its terrestrial and marine environmental management plans. Reporting will focus on the laws and norms as outlined in the QIA's original technical comment: 1. Show respect to animals; 2. Leave animals alone unless hunting them; 3. Animals are to be used, not wasted;	Human	Outstanding	

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		decision-making authorities, with a timeline set for the development of Terms of Reference for this body.	4. Each animal has its own habitat; and 5. Protect animal habitat. Baffinland's commitment to the Inuit Advisory Panel is provided in response to QIA-03.			
QIA-08	QIA	QIA requests the Proponent to submit its Food Security Update on the public record for review at least one month prior to the November hearing. QIA requests the Proponent firm up and clarify its commitments to support food security and to contribute to efforts to track food security in the communities affected by its operations, including discussion of what specific supports BIMC is committed to provide in years where marine mammal returns are lower than expected. QIA also requests any mitigations proposed by BIMC for food security are confirmed with QIA and Inuit communities, re: their adequacy. QIA requests the Proponent provide in the Food Security Update a defensible written justification and any relevant evidence that explains the assertion the Phase 2 Proposal is not anticipated to have a negative effect on food security. QIA requests the Proponent commit to develop and fund a CRLU Risk Communication Strategy/Program with Inuit, focused on gathering and dissemination of information to Inuit on the health of the land and country foods. Given gaps in the food security data collection program in place, the NIRB should provide a more detailed Project Certificate Condition related to what food security needs to be collected, analyzed (and by whom), reported and tied to adaptive management triggers in relation to the Mary River Project.	The QIA's September 2019 Recommendations/Requests: QIA requests the Proponent to submit its Food Security Update on the public record for review at least one month prior to the November hearing. The Food Security Assessment is provided as Appendix O. The Proponent is requested to firm up its commitments to support food security and to contribute to efforts to track food security in the communities affected by its operations. QIA also requests that any mitigations proposed by BIMC for food security are confirmed with QIA and Inuit communities, re: their adequacy. Baffinland is proposing a CRLU monitoring program in relation to land use and harvesting. Also, Baffinland proposes to incorporate additional indicators of food security into its annual socio-economic monitoring program. Many of the programs Baffinland plans to deliver through Phase 2, while not intended to address food security specifically, will also have an enabling impact of food security. Baffinland will consult with the QIA and the communities on any other proposed programming that specifically address food security. Given gaps in the food security data collection program in place, the NIRB should provide a more detailed Project Certificate Condition related to what food security needs to be collected, analyzed (and by whom), reported and tied to adaptive management triggers in relation to the Mary River Project. Terms and Conditions 129 and 130 of the Project Certificate commit Baffinland to engage in the work of the Qikiqtaaluk Socio-Economic Monitoring Committee (QSEMC) and to develop smaller socio-economic working groups. In respect of these existing Terms and Conditions there is already a forum for Baffinland, QIA, Government and communities to discuss pressing issues like food security. Specific to food security, Term and Condition 148 encourage Baffinland and the QSEMC to investigate the interactions between the Project and food security through Inuit harvesting, and Term and Condition 168 states that project harvesting interactions and food security should be among the specific socioeconomic variables to be included in the monitoring program adopted by the QSEMC. Where specific adjustments to Baffinland's Mary River Socio-Economic Monitoring Program (the Program) are required, the Mary River Socio-Economic Working Group, which QIA is a member to, serves to "undertake collaborative monitoring in order and identify and access data in relation to the Program. The Terms of Reference clearly outline that each member is responsible for sharing relevant data, participating in collaborative analysis, and reviewing the effectiveness of Baffinland's	Human	Outstanding	

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			mitigation measures. To this effect the objectives of QIA's requested Term and Condition are already provided for in Project Certificate 005 and an additional Term and Condition is not necessary. QIA requests the Proponent provide in the Food Security Update a defensible written justification and any relevant evidence that explains the assertion the Phase 2 Proposal is not anticipated to have a negative effect on food security. The findings of the Food Security Assessment are supported with a justification and evidence. QIA requests the Proponent commit to develop and fund a CRLU Risk Communication Strategy/Program with Inuit, focused on gathering and dissemination of information to Inuit on the health of the land and country foods. Baffinland commits to develop a risk communication strategy focused on gathering and dissemination of information to Inuit related to the Baffinland Iron Ore Mines Project, and linkages between the Project and human health and ecological risk assessment topics. The strategy will focus on building capacity within community groups to understand the mining process, elements of the mining process and how substances produced from the mining process move in the environment.			
QIA-09	QIA	Given the lack of community-based monitoring of impacts to vegetation, the NIRB is recommended to develop a Project Certificate Condition related to development of Proponent-funded, independent terrestrial (and marine) monitoring programs in relation to the Project. NIRB is recommended to develop a Project Certificate Condition regarding revegetation standards for reclamation and developing standards based on IQ, including meeting standards for cultural use and addressing community concerns with respect to reestablishing use of these areas. QIA requests the Proponent commit to develop and implement, with Inuit communities, an improved baseline data collection program, including on the ground studies for Culturally Important Vegetation, including impacts of dustfall on vegetation. QIA requests the Proponent commit to, with affected communities, review, update and implement the EPP and the Terrestrial Environment Mitigation and Monitoring Plan to include Culturally Important Vegetation monitoring and re-vegetation research incorporating IQ into these activities.	Baffinland acknowledges that there are gaps in existing vegetation baseline and monitoring programs for the Project which do not incorporate a fulsome IQ-based approach to the study design, methodology, indicators/thresholds or mitigation planning. These programs were designed from a scientific perspective that focused on statistical significance and determination. Baffinland also acknowledges that even though current programs target all vegetation groups, there is no targeted monitoring for culturally valued vegetation based on what is important to Inuit. Baffinland already supports community-based monitoring through the Mary River IIBA (Article 17.8) and agrees project impacts to culturally important vegetation could be a community priority to investigate. However, Baffinland continues to maintain the communities monitoring priorities are for them to determine. Should the QIA wish to review the adequacy of this program to include additional terrestrial and marine monitoring programs as proposed in their recommendations, Baffinland suggests this should occur through the mechanisms established in the IIBA, not the NIRB review process.	Terrestrial	Outstanding	
QIA-10	QIA	QIA requests the Proponent provide the revised CRLU Assessment on the public record for review at least one month prior to the November hearing. QIA requests the Proponent to commit to and adequately fund a CRLU Monitoring Program, with full revisit of the Program on a	Baffinland's intentions towards the CRLU Assessment are provided in response to QIA-03. Details of the CRLU Monitoring Program and Baffinland's commitments to establishing an Inuit Advisory Panel are provided in response to QIA-03.	Human	Outstanding	

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		maximum three-year interval basis, including updating of Inuit use and value mapping, revisiting of FEIS Addendum effects estimations, and ties to the Adaptive Management Plan for any effects that exceed FEIS Addendum estimations. Further information on the CRLU Monitoring Program identified in the Proponent's September 18, 2019, IQ Management Framework document, is necessary. QIA requests the Proponent make a stronger commitment going forward to integrating alienation effects into monitoring as well as the consideration of future use. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body.				
QIA-11	QIA	QIA requests the Proponent provide the revised CRLU Assessment document to QIA for review at least one month prior to the November hearing. QIA requests the Proponent to commit to verification work with Inuit on the CRLU Reassessment that demonstrably indicates efforts to gather significance through an Inuit lens. QIA requests the Proponent commit to adoption of an Inuit Committee/Inuit Panel that is demonstrably agreeable to Inuit parties in scope and powers, including appropriate decision-making authorities, with a timeline set for the development of Terms of Reference for this body. This is relevant because such an Inuit body should be involved in the development of thresholds of acceptable change for future Project effects, to be tied into the monitoring and adaptive management regimes.	Please refer to the response in QIA-03.	Human	Outstanding	
QIA-12	QIA	As of September 23, 2019, QIA considers QIA 12 resolved. Our concerns can hopefully be addressed through the resolution of our other IQ-related technical comments.	Baffinland understands that the QIA considers QIA 12 resolved.	Human	Resolved	
QIA-13	QIA	Outstanding concerns with respect to monitoring impacts of the project and adaptive management are covered under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 13 resolved.	Human	Resolved	Amalgamated
QIA-14	QIA	This TC is now considered resolved for the purpose of TC resolution tracking. Remaining outstanding QIA concerns with respect to impacts to caribou movement are addressed under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 14 resolved.	Terrestrial	Resolved	Amalgamated
QIA-15	QIA	This TC is now considered resolved for the purpose of TC resolution tracking; remaining outstanding concerns on cumulative effects of rail line and Tote road in close proximity are covered under QIA-01 and 02, above.	Baffinland understands that the QIA considers QIA 15 resolved.	Terrestrial	Resolved	Amalgamated
QIA-16	QIA	This TC is now considered resolved for the purpose of TC resolution tracking. Remaining outstanding concerns with	Baffinland understands that the QIA considers QIA 16 resolved.	Terrestrial	Resolved	Amalgamated

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		respect to monitoring and mitigating impacts to caribou mortality risk are covered under QIA-01 and 02, above.				
QIA-17	QIA	Wind turbines were removed from Phase 2 of the project, so this TC is considered resolved.	Baffinland understands that the QIA considers QIA 17 resolved.	Corporate	Resolved	
QIA-18	QIA	This TRC is resolved.	Baffinland understands that the QIA considers QIA 18 resolved.		Resolved	
QIA-19	QIA	This TRC is resolved. This item will be ongoing as BIMC and QIA have agreed to review the Draft ICRP through the Commercial Lease Approval process.	Baffinland understands that the QIA considers QIA 19 resolved.	Corporate	Resolved	
QIA-20	QIA	If the alternative Rail Route is considered, BIMC should provide an update to the assessment of the alternative northern Rail Route that includes the following information, at a minimum: 7. How land and water use by Inuit were factored into the alternative and proposed Rail Route selection. 8. Describe how land use and water use by Inuit will be influenced by both Rail Routes. 9. Animal and human crossings. 10. Provide an update to impact area boundaries, if any. 11. Provide a process for which the Rail Route would be constructed to ensure satisfactory environmental and engineering parameters are accounted for in the alternative northern Rail Route. 12. Provide clear trigger points that would require BIMC to change the proposed alternative route, including discovery of archaeological sites and places of importance, and parameters around permafrost sensitivity and ice lenses, etc.	The requested information is included in the Rail Alignment Summary Report (Appendix P).	Terrestrial	Outstanding	
QIA-21	QIA	QIA requests a commitment by the Proponent to defining triggers for compensation in the new Water Compensation Agreement, that consider Inuit use, IQ, baseline data, and relevant government guidelines for the Project. Baffinland and QIA have scheduled a meeting on October 2, 2019 to discuss the new WCA. QIA requests the Proponent commit to managing changes to water quality by implementing mitigative measures as per an approved adaptive management framework.	Baffinland has engaged the QIA on the topic of the Water Compensation Agreement for the Phase 2 proposal since February 2019 and continues to do so, including a meeting held on October 2, 2019. Implementation of the Water Compensation Agreement, particularly with respect to the integration of IQ, will require a collaborative effort between Baffinland and the QIA to which Baffinland remains fully committed. As a Water Compensation Agreement is required under Section 63 of the Nunavut Waters and Surface Rights Tribunal Act and Article 20 (Part 3) of the Nunavut Land Claims Agreement, Baffinland maintains that a process to establish compensation in respect of Inuit Water Rights exists and will be adhered to outside of the Project Certificate amendment process. As a result, a Term and Condition regarding the Water Compensation Agreement is not warranted.	Freshwater	Outstanding	
QIA-22	QIA	QIA requests commitment to the following path forward which requires: 5. The Proponent to update the Roads Management Plan to have mitigative measures prior to the Water Quality Criteria in the approved Water Licence. 6. The Proponent to monitor and report on the areas of concern identified in the Inspection of the Mine Inlet Tote Road and Associated Borrow Sources Report. 7. **NIRB to update Project Certificate Condition No. 179b to:** a. Unless	1. Baffinland has utilized triggers for mitigation measures that allow for the evaluation of project related effects associated with the operation and maintenance of the Tote Road. Application of mitigation measure thresholds below water licence criteria, irrespective of background or natural conditions at the project would result in excessive deployment of mitigation measures, particularly during periods of high flow such as freshet, with no merit or positive environmental improvement. Baffinland will seek to adjust water licence criteria through the	Terrrestrial	Outstanding	

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		otherwise approved by the NIRB, in any given day, the total number of truck transits along the Milne Inlet Tote Road should not exceed an average of 180 truck transits per day until the first deposit of Iron Ore at Milne Port by Rail has occurred. Following that time, unless otherwise approved by NIRB, the number of truck transits should diminish to 0 truck transits per day after 3 years. Following commissioning of the Railway from Milne Port to Mary River, unless otherwise approved by the NIRB, in any given day, the total number of train transits along the Railway should not exceed 20. 8. NIRB add the following Project Certificate Condition: a. Should BIMC not commission the Railway in the first three years following Amendment 2 to the Project Certificate, BIMC shall construct the Tote Road to the design included in Amendment 1. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.	Amendment to the Type A Water Licence to align with the evaluation of project related impacts to surface water outlined in the Roads Management Plan and associated monitoring programs. It should be noted that with respect to exceedences of the water licence criteria within the Tote Road corridor, ad hoc monitoring of surface water prior to the implementation of the Tote Road Monitoring Program has indicated an overall reduction in exceedences of the Type A Water Licence criteria between 2016 and 2018, despite an increase in ore haul truck transits during this time. This can be largely attributed to the improvements in the operation of the road, upgrades to water crossings, and implementation of mitigation measures. 2. Baffinland conducts and reports on the geotechnical condition of project infrastructure biannually in accordance with the Type A Water Licence 2AM-MRY1325, Part D, Item 18. Additionally, under the terms of the Commercial Lease, Baffinland has committed to QIA to complete an inspection of the Tote Road and the associated historic borrow source locations in 2019. Field work for this program was executed in September 2019 to ensure observations were completed when summer thaw of the active zone is at its greatest extent and permafrost conditions can be properly assessed. This report will be included in the Annual Report to the NWB/QIA in accordance with the Commercial Lease and the Type A Water Licence, Schedule B, Part 1 (g). 3. The haul truck transit numbers provided in Baffinland's proposed amendment to Term and Condition 179a reflect a total tonnage of 12 Mtpa, not 24 Mtpa, to be hauled to the midway rail transfer station proposed under Phase 2 as part of North Railway commissioning. A limit of 180 truck transits a day would reduce the amount of ore Baffinland could transport to Milne Port during construction to 4.2Mtpa. Furthermore, a Term and Condition that states truck transits should reduce to 0 per day after 3 years omits the need to maintain support vehicle traffic on the Tote Road, including transportation of personnel, supplies, water and fuel. Baffinland does not believe this is a reasonable or well-supported request. The Phase 2 Proposal did accurately define and assess short-term haulage of 12 Mtpa of ore along the southern half of the Northern Transportation Corridor. This activity was considered in assessments interactions tables, and assessed as necessary based on the level of assigned interaction. The surface water and landforms technical supporting documents each concluded elevated trucking represented a minor interaction and did not provide further assessment. The atmospheric, terrestrial wildlife, and exposure potential assessments, however, assigned the activity greater interactions and assessed accordingly. References to specific sections within these assessments is provided here:			

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			• TSD 7 Atmospheric Assessment o Section 3.4 'Effects Assessment' o Appendix E 'Updated Noise Impact Assessment' • TSD 10 Terrestrial Wildlife Baseline and Impact Assessment o Section 3.4.1.2 'Movement' • TSD 11 Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs o Section 3.1 'Air Dispersion Analysis Outcomes for Dust Deposition' o Section 3.2 'Selection of Dust Deposition Rates for Future Predictions' Baffinland does believe it has provided an adequate assessment of the short-term haulage of 12 Mtpa on the Tote Road and would refer the QIA to our response to the Government of Nunavut's recommendation in GN-01 to clarify reasonable time limits for this activity to occur. 4. Baffinland maintains that effective monitoring and mitigation that utilizes adaptive management, such as the framework outlined in the Roads Management Plan, is key to quantifying and minimizing any project related effects on the Tote Road. The Hatch 2013 design of the Tote Road, in combination with subsequent design work such as the Tote Road Earthworks Execution Plan (TREEP), continue to inform upgrades to problematic areas of the Tote Road in consideration of safety, traffic management and environmental impacts. The design of the Tote Road will continue to adapt to meet the demands of the Project, and will be informed by ongoing monitoring of the water crossings (Tote Road Monitoring Program), geotechnical stability (geotechnical inspections), and permafrost degradation (Milne Inlet Tote Road and Associated Borrow Source investigations). Additionally, design of the Tote Road will take into account feedback received from land users, such as the location of snow mobile crossings. Based on this, Baffinland does not agree that a Term and Condition associated with the design of the Tote Road is warranted.			
QIA-23	QIA	This TRC is resolved.	Baffinland understands that the QIA considers QIA 23 resolved.		Resolved	Deferred
QIA-24	QIA	At minimum, QIA requests the Proponent commit to developing a plan consistent with BIMC's Adaptive Management Plan for the construction and operation of the Rail Line, to be completed prior to regulatory approvals. See further detail in our Section 2.0 Specific Comment TC #24.	Baffinland's response to QIA's IR#40 referenced TSD 09 (Vegetation Baseline and Impact Assessment) but this should have been TSD 08 (Landforms, Soils, and Permafrost Assessment), Section 2.5.2.3 Risk of Excessive Settlement of Rail Embankment. A bullet list of general mitigation measures to be applied appears on page 14 of TSD 08. With respect to the development of a geotechnical monitoring program for the railway, Baffinland's response to QIA's technical comment 15.4 on the application to amend the water licence stated that a construction phase geotechnical monitoring program for the North Railway will be submitted to the NWB for review in advance of the NWB technical meeting. A draft list of monitoring equipment and locations had been provided in a table presented as Attachment 10 of Baffinland's response to technical comments on the water licence application. The final monitoring plan for the operations phase of the railway will be	Corporate	Resolved	Deferred

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
			finalized following completion of the construction monitoring phase, when data collected has been analyzed and final recommendations can be provided. Adaptive management will be incorporated into the rail geotechnical monitoring program, to the extent practical. Baffinland feels this is best addressed through the water licence process.			
QIA-25	QIA	This TRC is resolved.	Baffinland understands that the QIA considers QIA 25 resolved.		Resolved	
QIA-26	QIA	At minimum, QIA requests the Proponent commit to developing a plan consistent with BIMC's Adaptive Management Plan for the construction and operation of the Rail Line, to be completed prior to regulatory approvals. See further detail in our Section 2.0 Specific Comment TC #26.	Geotechnical investigations have been conducted along the length of the railway. With respect to the development of a geotechnical monitoring program for the railway, Baffinland's response to QIA's technical comment 15.4 on the application to amend the water licence stated that a construction phase geotechnical monitoring program for the North Railway will be submitted to the NWB for review in advance of the NWB technical meeting. A draft list of monitoring equipment and locations had been provided in a table presented as Attachment 10 of Baffinland's response to technical comments on the water licence application. The final monitoring plan for the operations phase of the railway will be finalized following completion of the construction monitoring phase, when data collected has been analyzed and final recommendations can be provided. Adaptive management will be incorporated into the rail geotechnical monitoring program, to the extent practical. Baffinland feels this is best addressed through the water licence process.	Corporate	Resolved	Deferred
QIA-27	QIA	**The BIMC commitment to storing all Potentially Acid Generating rock in the waste rock facility is requested to be enshrined as a Project Certificate Term and Condition. Draft language as follows:** All potentially acid generating rock, as defined in the FEIS or as agreed to by the Landowner, shall be transported and stored in the Waste Rock Facility next to Deposit 1.	The deposit of waste, in this case Potentially Acid Generating (PAG) rock, is regulated under the water licence and the ongoing review to amend it is a better forum to address the QIA's recommendation. Baffinland believes a Term and Condition in the Project Certificate is unnecessary and duplicative. Should the NIRB determine a need to include a Term and Condition as proposed, Baffinland requests that the location of the Waste Rock Facility not be presented geographically in relation to Deposit No. 1, should the existing WRF shift course through subsequent updates to the Waste Rock Management Plan, or if additional WRF's are applied for.	Terrestrial	Resolved	
QIA-28	QIA	This TRC is resolved.	Baffinland understands that the QIA considers QIA 28 resolved.		Resolved	
QIA-29	QIA	This TRC is resolved.	Baffinland understands that the QIA considers QIA 29 resolved.		Resolved	
QIA-30	QIA	**QIA recommends the following Project Certificate Term and Condition be added:** Should BIMC not commission the Railway in the first three years following Amendment 2 to the Project Certificate, BIMC shall construct the Tote Road to the design included in Amendment 1. Should this design no longer be valid, the Tote Road shall be designed for its intended uses.	Baffinland maintains that effective monitoring and mitigation that utilizes adaptive management, such as the framework outlined in the Roads Management Plan, is key to quantifying and minimizing any project related effects on the Tote Road. The Hatch 2013 design of the Tote Road, in combination with subsequent design work such as the Tote Road Earthworks Execution Plan (TREEP), continue to inform upgrades to problematic areas of the Tote Road in consideration of safety, traffic management and environmental impacts. The design of the Tote Road will continue to adapt to meet the demands of the	Corporate	Outstanding	

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			project, and will be informed by ongoing monitoring of the water crossings (Tote Road Monitoring Program), geotechnical stability (geotechnical inspections), and permafrost degradation (Milne Inlet Tote Road and Associated Borrow Source investigations). Additionally, design of the Tote Road will take into account feedback received from land users, such as the location of snow mobile crossings. Based on this, Baffinland does not agree that a Term and Condition associated with the design of the Tote Road is warranted.			
QIA-31	QIA	If the Project were to be approved then conditions should be required in the next regulatory phase, i.e. the Water Licence and Commercial Lease, and require approval prior to construction such as: 3. A construction plan that indicates specific monitoring locations and site-specific conditions that would lead to additional monitoring locations. 4. What construction monitoring results would trigger additional monitoring during operations.	Baffinland agrees that these details are required and will be provided through the water licensing and Commercial Lease. Details on construction and operation phase monitoring of the North Railway were provided in Attachment 05 of Baffinland's response to technical comments on the application to amend the water licence. These monitoring programs are currently being incorporated into an update to the Surface Water and Aquatic Ecosystems Management Plan that will be provided to the Nunavut Water Board in advance of the NWB technical meeting on November 12-13, 2019.	Corporate	Resolved	Deferred
QIA-32	QIA	This TRC is resolved.	Baffinland understands that the QIA considers QIA-32 resolved		Resolved	
QIA-33	QIA	Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. For example, BIMC and QIA can work to develop a detailed Inuit Training Plan (for Baffinland and contractors) that covers the period between Phase 2 construction and the first three years of operations. This plan should detail the programs that will be offered and how BIMC will maximize the Inuit labour market relative to the projections identified in TSD 26. This has the potential to substantiate BIMC's assessment for Phase 2.	Baffinland appreciates QIA's commitment to working collaboratively to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. Baffinland would like to note that in response to QIA Technical Comments #33-36, the Company did provide a summary of the training programs and plans that are expected to be put in place by its contractors who will be constructing major components of the Phase 2 Proposal, if approved (Baffinland 2019). Baffinland also notes that the relevant training and administration provisions of the IIBA, and the IIBA Implementation Guide, are the overriding documents that will guide the review and approval of training to take place at the Mary River Project. Training plans and programs will be reviewed through the IIBA Employment Committee before being considered final and in use. Baffinland is confident the level of detail provided in its submission are satisfactory for the purposes of this NIRB-led review, however, Baffinland can commit to the following: 1. Baffinland will work with QIA to develop an updated Inuit Training Plan that covers the period between Phase 2 construction and the first three years of operations. This plan will provide updates on programs that will be offered and how Baffinland intends to maximize Inuit engagement with the Project. This updated plan will be developed within six months of issuance of the Project Certificate. References: Baffinland Iron Mines Corporation (Baffinland). 2019. Response to QIA Technical Comment #32 - 2018 Training Program Evaluation & Response to QIA Technical Comments #33-26 – Phase 2 Construction Training Plan. Submitted to NIRB on July 12, 2019.	Human	Resolved	Deferred

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QIA-34	QIA	Remaining concerns are covered under QIA-33.	Please refer to Baffinland's response to QIA 33	Human	Resolved	Deferred
QIA-35	QIA	Remaining concerns are covered under QIA-33.	Please refer to Baffinland's response to QIA 33	Human	Resolved	Deferred
QIA-36	QIA	Remaining concerns are covered under QIA-33.	Please refer to Baffinland's response to QIA 33	Human	Resolved	Deferred
QIA-37	QIA	Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.	Baffinland appreciates QIA's commitment to working collaboratively to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. Baffinland would like to reiterate the approach it used for the socio-economic assessment presented in TSD 25 (Socio-Economic Assessment) is both appropriate and comprehensive. The Phase 2 Proposal is an expansion of the Approved Project and has been assessed as such. Baffinland completed stand-alone assessments for each VSEC, supported by new research and analysis where necessary. Baffinland made a point to revisit assessments even when outcomes were expected to be relatively unchanged. The assessment focused on the residual impacts identified with the Approved Project, and Baffinland sought to identify any other potential impacts not identified in the previous assessments that were unique to the Phase 2 Proposal. Baffinland also ensured that the VSEC assessments addressed EIS guideline requirements to ensure concordance. Through its various submissions to NIRB, Baffinland has comprehensively demonstrated how Inuit will benefit from the Project. For greater clarity, Baffinland has prepared a summary table of measures the Company will use to deliver benefits for the Phase 2 Proposal (Appendix O). While a similar summary table was provided to QIA in Baffinland's response to QIA Technical Comment #39 (Baffinland 2019), some additional updates have been made herein. While there is always room for improvement, Baffinland strongly believes the Project's current benefits to communities have been substantial. These existing benefits provide further support to our assessment conclusions and are indicative of what more can be achieved in the future. To-date these have included: • 1.9 million hours of Project labour performed by Inuit • 50,000+ hours of training completed by Inuit • $45.2 million in payroll provided to Baffinland Inuit employees • $960.0 million in contracts awarded to Inuit Firms • IIBA benefits and royalties • Community donations and contributions • Taxes and other payments Baffinland's annual socio-economic monitoring reports to NIRB provide updated data on benefits being provided to Inuit through the Approved Project. The most recent (2018) version of this report was submitted to NIRB in March 2019 (JPCSL 2019). Detailed indicator data and analyses are provided in this report, and relevant summary tables are presented for each VSEC. For example, a series of 'Effects Assessment' tables are included to compare current monitoring results against residual effects originally predicted in the FEIS. 'Compliance Assessment' tables further	Human	Resolved	Deferred

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			summarize how Baffinland has addressed Project Certificate Terms and Conditions relevant to the socio-economic environment. This information provides concrete evidence of benefits delivered to Inuit to-date. Within the VSEC assessments presented in TSD 25 Baffinland has also described where changes to Inuit benefits might be experienced between the Approved Project and Phase 2 (e.g. where additional training, employment, and contracting opportunities might be experienced; where additional royalties, revenues, and taxes might be paid; and that no reduction in Inuit employment is anticipated). However, the analysis presented of the Phase 2 Proposal does not suggest socio-economic benefit types will be substantially different (overall) than for the Approved Project. It thus stands to reason that significance ratings and conclusions related to benefits from the Phase 2 Proposal should be similar to those identified for the Approved Project. We recognize our predictions are forward-looking and are based on what we believe can be achieved through the Project. We also recognize that a period of time may be required before some Project benefits can be fully realized by Inuit. This has been considered in the socio-economic assessment and various measures have been developed to help ensure Inuit benefits continue to grow (Appendix O). Many of the benefits listed in the Benefit Mitigation Table are reflective of commitments already made for the Approved Project, but which will continue under Phase 2. However, the Phase 2 Proposal also introduces several new and distinct benefits for Inuit, while providing increased economic stability for the Project: • Many resource developments experience growth and expansion as part of their evolution. The Phase 2 Proposal is part of Baffinland's approach to develop the Mary River Project in a phased and economically feasible manner. • The expansion of production proposed through Phase 2 will provide economic stabilization of the Company and greater certainty for the long-term delivery of economic benefits to communities. • Baffinland has presented an additional 'Summary of Opportunities' for the consideration of the North Baffin communities. This proposal outlines direct financial benefits to communities that can be realized should Phase 2 be approved. • Additional capital expenditures from construction of the 12 Mtpa operations including additional contracting and employment opportunities. • The Phase 2 Proposal's increase in production will also enable a more rapid delivery of royalty payments to QIA and NTI. • Baffinland and the community of Pond Inlet (including the MHTO) have established the Tasiuqtiit Working Group to assure programs are developed that positively impact the community. Funds for the			

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			establishment of the Working Group are provided through direct disbursement to the Working Group in the value of $10,000 per additional ore carrier required to transport iron ore above the volume of 4.2 Mt per annum. Funds provided to this Working Group will grow should the Phase 2 Proposal be approved. Baffinland is confident its socio-economic assessment is satisfactory for the purposes of this NIRB-led review and adequately demonstrates how Inuit will benefit from the Project. However, Baffinland can commit to the following: 1 Baffinland commits to continue to work with QIA to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. References: Baffinland Iron Mines Corporation (Baffinland). 2019a. Technical Comment Responses – Phase 2 Proposal – Mary River Project – Baffinland Iron Mines Corporation - NIRB File No. 08MN053. March 25, 2019.Nunavut Impact Review Board (NIRB) and Nunavut Water Board (NWB). 2018. Next Steps in the NIRB's Reconsideration and NWB Consideration of Baffinland Iron Mines Corporation's "Phase 2 Development" Project Proposal and associated Water Licence Application. NIRB File No.: 08MN053, NWB File No.: 2AM-MRY1325. Letter issued October 12, 2018. References: Jason Prno Consulting Services Ltd. (JPCSL). 2019. 2018 Socio-Economic Monitoring Report for the Mary River Project. Report prepared for Baffinland Iron Mines Corporation. March 31, 2019.			
QIA-38	QIA	Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.	Baffinland believes the following commitment can address this recommendation/request: 1. Baffinland commits to the development of socio-economic monitoring thresholds and actions, in consultation with the Mary River Socio-Economic Monitoring Working Group (SEMWG). Once finalized, these will be reflected in an updated Socio-Economic Monitoring Plan.	Human	Outstanding	
QIA-39	QIA	Although there are still concerns regarding the socioeconomic assessment, specifically how Inuit may benefit from the Project, QIA is committed to working with BIMC to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA.	Baffinland appreciates QIA's commitment to working collaboratively to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. However, Baffinland would like to reiterate that through its various submissions to NIRB, the Company has comprehensively demonstrated how Inuit will benefit from the Project and how potential adverse effects will be addressed. For greater clarity and conciseness, Baffinland has prepared: 1) a summary table of measures the Company will use to deliver benefits for the Phase 2 Proposal (in our response to QIA-37); and 2) a summary table of measures the Company will use to mitigate and monitor effects for the Phase 2 Proposal (Appendix O). While similar summary tables were provided to QIA in Baffinland's response to QIA Technical Comment #39 (Baffinland 2019a), some additional updates have been made herein.	Human	Resolved	Deferred

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			Socio-economic issues will continue to be addressed by Baffinland though several documents and management plans, rather than one overarching document. Together, these documents outline how Baffinland will work with Inuit, QIA, the Government of Nunavut, and the Federal Government regarding socio-economic issues and the Phase 2 Proposal. Some of these key documents and management plans include: • Mary River Project Inuit Impact and Benefit Agreement (IIBA) o Including related documents such as the Inuit Human Resources Strategy (IHRS; TSD 28- Management and Monitoring Plans , Appendix AG) and Inuit Procurement and Contracting Strategy (IPCS; TSD 28, Appendix AH) • IQ Management Framework (Baffinland 2019b) • Adaptive Management Plan (Baffinland 2019c) • Health and Safety Management Plan (TSD 28, Appendix K) • Human Resources Management Plan (TSD 28, Appendix AB) • Community and Stakeholder Engagement Plan (TSD 28, Appendix Z) • Socio-Economic Monitoring Plan (TSD 28, Appendix Y) Baffinland is confident its socio-economic assessment is satisfactory for the purposes of this NIRB-led review and adequately demonstrates how Inuit will benefit from the Project and how potential effects will be mitigated and monitored. The Phase 2 Proposal is an amendment to the existing operation and as such Baffinland does not believe that a new IIBA is required to ensure that benefits of the existing project and Phase 2 Proposal are realized amongst Inuit. However, should QIA wish to make specific proposals to amend the IIBA that was renegotiated and approved in October 2018, the Company would consider these amendments. With this in mind, Baffinland can commit to the following: 1. Baffinland commits to continue to work with QIA to mitigate negative impacts and enhance positive Project opportunities and benefits through the revised IIBA. References: Baffinland Iron Mines Corporation (Baffinland). 2019a. Technical Comment Responses – Phase 2 Proposal – Mary River Project – Baffinland Iron Mines Corporation - NIRB File No. 08MN053. March 25, 2019. Baffinland. 2019b. Adaptive Management Plan (Draft). Submitted for review as part of the Phase 2 Proposal NIRB review process. August 23, 2019. Baffinland. 2019c. Inuit Qaujimanituqangit Management Framework – Phase 2 Proposal – Mary River Project – Baffinland Iron Mines Corporation - NIRB File No. 08MN053. September 2019.			
QIA-40	QIA	QIA recommends that the Proponent provide an update on the progress made developing the action plan and a	Baffinland has progressively made efforts towards the operationalization of its Climate Change Strategy (the Strategy) by identifying and implementing necessary next steps (i.e., through the	Corporate	Resolved	

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		timeline for submission of a full draft for review, at least one month prior to the November hearing.	development of actions to support implementation of strategy). Baffinland acknowledges that its existing strategy is a relatively short and high-level document that, although communicates overall environmental and social expectations, and lists a number of activities to support management of measures that mitigate and/or that respond to the Project's potential effects on climate change, the existing Strategy falls short on describing specific actions for implementation. To ensure effective implementation through time, Baffinland has retained the services of a third-party expert to further refine and elaborate on Baffinland's existing Climate Change Strategy. Implementation is a multi-step process, necessitating a deep dive into both internal processes and external opportunities, and can be broken down into two main stages: Stage 1) Development of an elaborated draft strategy, informed by both an external scan and internal baseline review, that provides goals, objectives and priority action areas and approaches, with specific questions and options; and Stage 2) Refinement of the strategy based on external engagement and development of a staged implementation plan. The general schedule for Stage 1 is as follows: Task 1: External scan for industry benchmarking (document review): completed Task 2: Internal Scan of Baffinland processes, opportunities and constraints (document review and interviews): in progress (aiming for end of October completion) Task 3: Current State Assessment and Options for Positioning based on results of tasks 1 and 2- Operations-level engagement to test positioning (aiming for end of November)- Executive-level engagement - Mid-December Task 4: Draft/Final Strategy - dependent on completion of previous tasks. In summary, Baffinland is currently moving through completing the various tasks of Phase 1 and is planning to complete by the end of the first quarter (Q1) 2020.Subject to the completion of Phase 1, external engagement processes will begin in either Q1 or Q2 of 2020 to provide meaningful engagement opportunities with external stakeholders to ensure acceptance of strategy and subsequent implementation actions. Consideration of IQ and Inuit perspectives will occur throughout both stages. Baffinland remains committed to informing the QIA on the progress of its efforts in developing an impactful and realizable Climate Change Strategy, based on meaningful actions.			
QIA-41	QIA	QIA recommends that 2018 NIRB monitoring recommendation 2 related to dust management be stringently applied to both the tote road, where crossing adjustments may be required if Phase 2 is approved, and to any future railway development, as these parallel linear	As described in Baffinland's response to NIRB's 2018 Recommendation 2, the Tote Road Monitoring Program is being implemented to assess water quality at select fisheries crossings, areas of recent construction, and areas historically prone to sedimentation events. This program was designed in consultation with QIA throughout 2018 to formalize and	Freshwater	Outstanding	

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		developments may have additive or cumulative effects on stream crossing habitats and Arctic char. QIA requests that the Proponent commit to establishing long-term monitoring sites to assess Project impacts on the water quality, sediment deposition, and biota in Phillips Creek. QIA requests that the Proponent commit to conducting further studies at Sheardown Lake to establish the actual depth of annual sediment deposition. QIA requests that the Proponent commit to establishing a meaningful sedimentation threshold based on mortality rates of Arctic char eggs exposed to Project-generated dust sediment.	improve upon the existing water quality monitoring conducted on the Tote Road. This program will be expanded to include the future railway development, both in proximity to the existing Tote Road Monitoring Program locations and along the rail route deviation from the Tote Road. Baffinland has committed to long-term monitoring of water quality within the Northern Transportation Corridor with the Tote Road Monitoring Program to assess the potential for project-related effects on water quality. Until monitoring of water quality indicates the potential for the Project to have an effect on water quality, the expansion of monitoring to include sediment quality and biota in Phillips Creek is not necessary. As noted in the 2018 Lake Sedimentation Monitoring report, a site-specific bulk density was obtained in 2018 to convert sedimentation rates to deposition thickness. There is no meaningful way to accurately establish a project specific sedimentation threshold based on mortality rates of Arctic char eggs, and no scientific studies are available to rely upon that evaluate the effects of sedimentation on Arctic char eggs. Laboratory research will not necessarily reflect reality in the field, and field-based research on sedimentation effects would not be able to account for the multiple variables that could impact hatch success. The Aquatic Effects Monitoring Program (AEMP) is designed to evaluate the health of arctic char in the mine impacted lakes, and has not indicated any measurable effect to fish populations to date. Baffinland will continue to implement the AEMP and evaluate the health of arctic char populations. Should impacts to arctic char populations be identified through the AEMP studies, the source of these effects will be evaluated though review of all potential variables including sedimentation. It should also be emphasized that the Phase 2 proposal will result in an overall reduction in dust emissions and deposition rates at the Mine site and along the transportation corridor once in operations. Baffinland will continue to utilize the 1mm threshold for sedimentation effects.			
QIA-42	QIA	QIA requests a commitment by the Proponent that 2018 NIRB monitoring recommendations regarding Restriction of Fish Passage (8) and Survey and Monitoring of Arctic Char (16), will be stringently applied to both the tote road, where crossing adjustments may be required if Phase 2 is approved, and to any future railway development. QIA requests that the Proponent commit to gathering additional baseline data on fish habitat (e.g., water quality, sediment) and fish use of potential stream crossings prior to any future railway development; conducting monitoring to ensure that fish passage, populations, and habitat quality are maintained; and developing and using non-lethal metrics to monitor Arctic char health over the long term at these stream crossings. QIA requests that BIMC provide	Baffinland has committed to continue to address existing fish passage issues on the Tote Road, and to address fish passage issues on the railway during the design phase, with verification monitoring post-construction. Baffinland has conducted habitat assessments and surveys to determine fish presence/absence and use of habitat in the spring and summer/fall 2019 along the rail and in relation to other associated infrastructure in water. Information collected includes various fish metrics (non-lethal) that provide information on fish abundance and general condition including fork lengths and catch-per-unit-effort. Baffinland committed to fish passage monitoring in its response to technical review comments on the water licence amendment application. Baffinland will evaluate fish passage along the alternative rail line but	Freshwater	Outstanding	

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		information at least two weeks prior to the November hearings on how use of the alternative rail line route may affect fish passage.	this may not be done before the November NWB technical meetings. This can be done before the NWB public hearing; however, this is mainly an issue for the Fisheries Act authorization. There are more streams/drainages requiring a culvert along Route 3 (132) compared with Route 1 (87), however, the catchments are much smaller along Route 3 because most are draining the Km67 hill. In terms of fish presence, there are 11 confirmed fish-bearing streams and 23 probable fish-bearing streams (34 streams that are confirmed or probable fish habitat) compared to only 14 streams along Route 1. Again, however, the probable fish habitat designations are conservative and likely some will prove to be not fish-bearing, especially given that catchment sizes are generally smaller along Route 3. In terms of the freshwater assessment, Route 3 is not significantly different than Route 1, and the assessment conclusions hold (Table 1). Table 1 Comparison of Fish Presence of Route 1 and Route 3 Deviations Fish-bearing Potential Route 1 Route 3 Arctic Char NSS Arctic Char and/or NSS Yes 14 11 1 11 Probable 22 11 23 No 73 99 120 98 87 132			
QIA-43	QIA	QIA requests a commitment that the Proponent, in consultation with the MEWG, expand its marine sediment monitoring program to ensure that the potential effects and contributions of alluvial transport and marine sediment redistribution by proposed shipping increases and dock construction (freight and ore dock 2) are understood and to inform adaptive management. QIA recommends that the Proponent revise its Marine Environmental Effects Monitoring Plan prior to the 2020 field season to include changes to its marine monitoring program.	Figures associated with this response are provided in Appendix C. In general, the majority of annual sediment transport in Arctic river systems occurs during freshet (i.e. spring melt), with an additional amount occurring during storm events (i.e. heavy rainfall). The freshet period in the Arctic is relatively short (typically less than one or two months) and is often characterized by diurnal peaks in discharge (Figures 1 through 3 showing freshet event occurring in each of the years between 2016-2018). The sediment characteristics of arctic river systems are often glacially influenced, consisting of fine glacial till, sands, and coarse gravels. In Golder's 2017 MEEMP and AIS Monitoring Report, an increase in fine sediments was reported along the West Transect (extending westward from the existing ore dock towards the mouth of Phillips Creek). Aerial imagery shows a delta extending outwards from the mouth of Phillips Creek approximately 500 m into Milne Inlet and large sand and gravel spits situated on either side of the mouth of Phillips Creek (Figure 4). These features suggest that Phillips Creek plays a role in the geomorphology and sediment transport regime at the head of Milne Inlet. Additional imagery indicates that similar spit like sediment deposits are present both to the east and west of the ore dock along the shoreline at the head of Milne Inlet. These sediment deposits indicate that both longshore and cross shore sediment transport occurs in this environment. The delta extension into Milne Inlet is formed by a balance of freshwater and sediment discharge from Phillips Creek interacting with physical processes in Milne Inlet (i.e. waves and currents). The large sand and gravel spits at the entrance to	Marine	Outstanding	

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			Phillips Creek are an indicator of longshore transport to the south and west along the shoreline at the head of Milne Inlet that is capable of reworking sediments delivered to the shoreline by Phillips Creek. The longshore transport is mainly driven by wind wave activity in Milne Inlet. The deflection of the main channel of Phillips Creek from east to west over the period of air photo record supports this interpretation. We acknowledge QIA's recommendation to consider monitoring sediment transport via Phillips Creek into Milne Inlet to understand how alluvial transport may be affecting sediment deposition near the head of Milne Inlet and possibly within proximity of the existing ore dock. In response to this recommendation and to the 2018 NIRB Recommendation No. 11, Baffinland has committed to conducting a desktop review of available data to evaluate the hydrological, geomorphological and sediment transport regime at the Project site. The review will include a forensic analysis of historical sediment data collected in Milne Inlet in relation to historical freshet events, tidal cycles, wind/wave events during the open water season, and similar physical forcing processes in Milne Inlet. The following sub-tasks provides an overview of this proposed work: • Hydrological Regime Review o Review available hydrologic data for Phillips Creek and Robertson River, including discharge and water levels. o Conduct a literature review of arctic river systems, including the response of hydrologic parameters to spring melt and rainfall events. • Geomorphological/Sediment Transport Regime Review: o Review historic aerial imagery of the Project site and Milne Inlet (available from the National Air Photo Library). o Conduct a literature review of sediment characteristics at the Project site and adjacent regions of Northern Baffin Island. o Analyze sediment data collected in Milne Inlet in terms of the relation of the sampling periods and the sampling results to freshet events, tidal cycles, open water wind/wave events and similar physical forcing processes. The results of the desktop review will inform what, if any, additional monitoring may be required to better understand contributions of alluvial sediment from Phillips Creek. Our preliminary review of available data would suggest that the following data collection additions have a reasonable potential to benefit the longer-term understanding of the hydrological, geomorphological and sediment transport regimes of Milne Inlet, and potential outcomes following the desktop review may consist of the following actions: • Aerial image surveys of the head of Milne Inlet, including the mouth of Phillips Creek, to capture the spatial extent of the sediment plume (if any) and spit and delta features during and after freshet as well as the location of the main channel and secondary channels of Phillips Creek across the delta. It is possible that in any given year that no visible			

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			sediment plume is visible if the date of imagery collection is not coincident with the potentially short duration peak flow event (see Figures 1 to 3 for examples of peak flow duration). • Collection of continuous water levels in Phillips Creek during ice-free season (typically June to October). Baffinland will keep QIA and other MEWG members updated on relevant outcomes associated with this assignment. • Baffinland would also like to confirm that the Marine Environmental Effects Monitoring Plan (now called the 'Marine Monitoring Plan') will be revised prior to the 2020 field season to include all changes to its marine monitoring programs.			
QIA-44	QIA	QIA requests that the Proponent commit to monitor the physical and chemical properties of incoming ballast water, treated and untreated, to inform risk assessment and adaptive management (see also TC 45 request that NIRB reconsider Project Certificate Conditions related to ballast water). QIA requests that the Proponent commit to continue gathering seasonal CTD profiles and other data (e.g., wind, current, freshwater runoff) needed to calibrate and verify the hydrodynamic model. QIA requests that the Proponent update and rerun the ballast water dispersal model to assess the physical and chemical effects on the marine environment (including any downslope currents and pooling) of exchange, treatment, or both together to inform mitigation and monitoring prior to the 2020 shipping season.	Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island. Baffinland has collected new oceanographic data (including CTD profiles at selected locations and time series of water levels, salinity, temperature, wind speed and directions, and currents through the water column) in both 2018 and 2019 open water seasons. Baffinland will continue to collect seasonal CTD profile data in Milne Inlet and Milne Port. We will also continue to collect extended seasonal time series of water level and current (speed and direction) data throughout the water column, as well as conductivity (salinity) and temperature data at mid-depth and in surface waters. In addition to the calibration and validation of the ballast water dispersion model conducted using pre-existing oceanographic data, the 2018 oceanographic dataset has also been used as a basis for comparison with the ballast water dispersion model (TSD 18 – Ballast Water Dispersion Model). The simulations of the 2018 shipping season provide additional information with which to assess the physical and chemical effects of ballast water on the marine environment that are supplemental to the information provided in TSD 18. These updated results have been summarized in a technical report (Appendix N). In addition to comparison with new oceanographic data, the simulations of the 2018 shipping season included the following improvements: • Higher resolution and topographically corrected wind predictions • Refined estimates of discharge from Phillips Creek • Direct observations of ballast water volume, salinity and temperature In addition, six simulations were run to evaluate the sensitivity of the	Marine	Outstanding	

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			model results to initial ballast water temperature and salinity including a realistically broad range of these parameters. Finally, a box model analysis was setup to assess the potential increase and/or decrease in temperature and salinity in distinct water masses (i.e., above and below the thermocline) throughout the model domain due to ballast water discharge at the end of the 2018 open-water season simulations covering a period three months in length. As with the previous model – data comparison provided in TSD 18, the ballast water model showed good agreement with observed water levels, temperature and salinity at selected depths. The model showed similar reasonable agreement with observed currents speeds. The collective simulations and box model analysis indicate that ballast water is diluted to negligible concentrations within a short distance of the discharge location at the end of the shipping season. Sensitivity simulations show that ballast water dispersion is relatively insensitive to the initial ballast water temperature and salinity. Outside the direct vicinity of an ore carrier discharging ballast water, the potential incremental increase or decrease in temperature and salinity of ambient water as a result of ballast water is negligible in comparison with seasonal fluctuations in these parameters and inputs from fresh water sources. The conclusion is that TSD 18 and the 2019 Ballast Water Model Validation Report (Golder 2019) and appendices provide a reasonable basis to inform ballast water mitigation and monitoring for the project. The results presented in these reports were determined across a range of ballast water discharge conditions (i.e. frequency, volumes, salinity, and temperature) and ambient water properties (i.e. currents, temperature, salinity, and freshwater discharge). In all cases, the indicated ballast water dispersion is relatively insensitive to changing conditions (see discussion above). Therefore, it is determined that re-running the ballast water dispersion model under conditions similar to those run in the previous reports is not warranted.			
QIA-45	QIA	QIA recommends that NIRB reconsider Project Certificate Conditions related to ballast water and hull fouling (PCCs 86 through 91) and revise them based on the best available information from experts at Fisheries and Oceans Canada, Transport Canada and the MEWG to ensure that they better serve their intended purposes, particularly preventing the introduction of foreign species. QIA requests that prior to any further increase in Project ore shipments, the Proponent commit to monitoring ballast water of Project ore vessels to determine the efficacy of exchange and treatment methods, including the use of both, and to using this and other new information to update the invasive species risk analysis and inform adaptive management designed to prevent invasive species introductions, as	Baffinland has committed to implementing a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. Baffinland remains committed to continue conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island. Baffinland is committed to working with the MEWG to further refine its ship hull biofouling monitoring program prior to any further increase in Project ore shipments. Any changes in this monitoring program will be	Marine	Outstanding	

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		required under PCC 88. QIA requests that the Proponent commit to working with the MEWG, Transport Canada and other parties to develop a scientifically defensible monitoring program for assessing the presence and abundance of foreign species on the hulls of Project vessels, determining the efficacy of their antifouling measures, and informing adaptive management to prevent introduction of invasive fouling species at Project ports and anchorages; and revise Section 5.2.2 of the SMWMP accordingly. QIA requests that the Proponent commit to working with the MEWG to consider: a) how best to collect hull fouling species for taxonomic identification; b) expanding AIS monitoring to include monitoring of the ballast water of incoming project vessels at Ragged Island and/or Milne Port for species presence and abundance; and c) using DNA barcoding to help identify invasive species collected by monitoring programs. QIA recommends that NIRB revisit the requirements of PCC 89 to ensure that this monitoring program provides greater certainty regarding the efficacy of mid-ocean exchange and treatment, and provides the data necessary to better understand and mitigate risks from foreign species transported in ballast water of Project vessels. QIA requests that the Proponent commit to providing, in the Ballast Water Management Plan, information on what actions have been taken in the past, and will be taken in the future, when a Project vessel is found to contain ballast water that is non-compliant with Federal regulations. QIA requests that the draft Ballast Water Management Plan be revised to address comments from QIA and other reviewers and provided to the MEWG for review prior to the 2020 shipping season.	reflected in revisions to Section 5.2.2 of the SMWMP. eDNA methods for detection of non-native and/or aquatic invasive species in ballast water is currently still in the research and development stage, and is not practical at this time to explore as a monitoring tool for this purpose. Baffinland has committed to undertaking a pilot study for biological monitoring of ballast water based on guidance and methods provided by DFO specialists - this program will be implemented in 2020. eDNA will be considered as a future monitoring tool option when the science is developed for this type of practical application. A description of what actions were taken following a ballast water non-compliance event would be provided in Baffinland's Annual Report to NIRB. Any ballast water non-compliance event would trigger direct communication by Baffinland with Transport Canada, as per federal guidelines and outlined in the Ballast Water Management Plan. Any response or outcoming actions would be based on advice provided by Transport Canada. The draft Ballast Water Management Plan will be revised to address comments from the MEWG for review prior to the 2020 shipping season.			
QIA-46	QIA	QIA requests that the Proponent commit to having thresholds and Early Warning Indicators for noise impacts on marine mammals (as required under the Project Certificate) established prior to any shipping activity under Phase 2. QIA requests that the Proponent commit to developing a formalized process for incorporating IQ and Community Based Monitoring into the Early Warning Indicators and thresholds process, as part of the adaptive management process.	Baffinland will continue to work with members of the Marine Environmental Working Group on the selection of appropriate Early Warning Indicators (EWIs) for noise impacts on marine mammals, for implementation prior to the start of Phase 2 shipping. Baffinland has already started the process of including Inuit in the development of EWIs for the Project, including a dedicated session spent with the MHTO. This initiative is being actively worked on through the MEWG and will likely benefit from the future establishment of the Inuit Advisory Panel (IAP) as part of the Phase 2 proposal. Baffinland views the creation of the IAP to be a critical step to addressing concerns about the integration of IQ and Inuit perspectives into operations and planning at the Project level. The objectives of the IAP will be to incorporate IQ in the development of monitoring programs and interpretation of results, development of management plans, development of Inuit and IQ-derived metrics for Early Warning	Marine	Outstanding	QIA-46

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			Indicators, and development and implementation of adaptive management strategies, as needed.			
QIA-47	QIA	No actions needed if community representatives are satisfied with the Proponent's Draft Communication Protocol for Shipping. The Proponent is requested to provide evidence re: community satisfaction on the public record at least two weeks prior to the November hearing. QIA requests that the "[s]ummary of Shipping mitigation and management measures implemented throughout the shipping season" (s. 4.3, p. 8) include information on non-compliance events (e.g., vessel speeds, vessel locations, salinity of ballast water).	As noted by QIA, Baffinland provided a detailed Draft Communication Protocol as part of the Phase 2 submission. The communication protocol is considered a live document, and will be updated on an annual basis, as needed, based on feedback about the effectiveness of the communication system received by MHTO during annual pre- and end-of-season shipping meetings. Additional communication tools or frequencies may also be adjusted ad hoc throughout the shipping season to address real-time concerns, which would again be captured in annual updates to the protocol as needed. The 2019 shipping season summary (Appendix N) includes a report of non-compliance events. Baffinland notes that there are multiple channels used by Baffinland to engage and solicit the perspectives of the MHTO, the Hamlet of Pond Inlet, community members and hunters, and QIA representatives to communicate Baffinland's shipping schedule and vessel traffic management approaches prior to and during the shipping season. Some examples of these engagement efforts include: 1) Organizing pre- and post-shipping meetings held in Pond Inlet between Baffinland, the MHTO, and Hamlet of Pond Inlet, where Baffinland presents an overview of shipping activities and mitigation measures, and accordingly provides an opportunity for community members to ask questions and discuss potential issues. In 2019 a Baffinland-led pre-season shipping meeting was held June 25 in Pond Inlet as well as the May 1-2, 2019, NIRB facilitated workshop; 2) Hiring two full-time shipping monitors in Pond Inlet who started working July 10, 2019 to conduct live monitoring of vessels in the Project area using shore-based observation and tracking through the Automated Information System, and to act as the primary in-community liaison between Baffinland's Shipping Department, the MHTO and community members. Shipping monitors communicate to the community and hunters via public radio, VHF radio (for hunters on the water) and via Facebook to provide real-time updates throughout the shipping season; 3) Organizing focused marine monitoring program meetings between Baffinland and the MHTO in Pond Inlet, where Baffinland seeks further input and support, as necessary, on the proposed marine monitoring programs – Meetings held April 30 and May 3; 4) Training and employment of Inuit in various marine monitoring programs; 5) Providing the opportunity for both MHTO and QIA to comment on draft marine monitoring reports circulated to MEWG for comment prior to releasing final versions; 6) Providing hard copies of final versions of monitoring programs to the MHTO;	Human	Outstanding	

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			7) MHTO membership, attendance and participation in the MEWG over multiple periods throughout the year: • Spring teleconference where the scope of the marine monitoring programs is presented for preliminary feedback – April 23, 2019; • Face-to-face summer meetings where final study designs for each of the marine monitoring programs are shared with the group for a second round of comments prior to finalization – June 19, 2019; • End of summer and early-Winter meetings where preliminary results of the marine monitoring programs are shared for feedback on data analysis and integration prior to development of final reports; • Ad-hoc breakout sessions on specific topics that require further tailored discussions. 8) Confirmation that the floe edge is no longer in use by hunters prior to the start of the shipping season (see Appendix N).			
QIA-48	QIA	QIA requests that the Proponent develop a standard set of terminology and quantitative definitions of ice conditions and processes, with Inuktitut terminology as available, to ensure consistency in reporting. As part of this process, QIA recommends that the Proponent provide additional quantitative information on the operational definition for the presence (or conversely absence) of landfast ice, particularly whether all ice must no longer be fast to shore along the Northern Shipping Route. QIA requests that the Proponent provide quantitative, repeatable information on how dates for various sea ice process (including "fast ice" as used in the Enfotech memo) are defined and measured.	Baffinland agrees with the QIA on the need to develop and adopt harmonized definitions and terminology in matters relating to Project shipping. As such, Baffinland will ensure there is a consistent description of ice conditions amongst its relevant management plans and standards of practice and that these terms are translated to Inuktitut for use more generally. It is noted that the Project relies on different resources, including visual observations locally, as well as publicly available information, primarily from the Canadian Ice Service (CIS). CIS publishes numerous products reflecting the observations collected by remote sensing (satellite) to determine, among other things: • The presence and concentration of ice • The stage of development (thickness and age) of the ice • The onset of fast ice (defined for purposes here as a consolidated, unbroken coverage of ice attached to the shore, or spanning the breadth of an inlet (for example) • The breaking up of fast ice (when consolidated coverage begins to decay and detach from the shore, develop cracks, or melt pools) Dates for all such events will always be variable and undefined except by reasonable forecasting. Baffinland commits to providing dates and information on the conditions under which the shipping season was opened and closed each season in its Annual Report to NIRB.	Human	Outstanding	
QIA-49	QIA	See above re: TC 46 and formalized role of IQ/Community-based monitoring as a path forward.	Baffinland has committed to the creation of an Inuit Advisory Panel (IAP) as part of the Phase 2 proposal. Baffinland views the creation of the IAP to be a critical step to addressing concerns about the integration of IQ and Inuit perspectives into operations and planning at the Project level. The objectives of the IAP will be to incorporate IQ in the development of monitoring programs and interpretation of results, development of management plans, development of Inuit and IQ-derived metrics for Early Warning Indicators, and development and implementation of adaptive management strategies, as needed. Baffinland already supports community-based wildlife monitoring	Human	Outstanding	

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			through the IIBA and agrees project impacts to marine mammals could be a community priority to investigate. However, Baffinland continues to maintain the communities monitoring priorities are for them to determine, not Baffinland or the QIA.			
QIA-50	QIA	QIA requests that the Proponent provide information on 2018 (and 2019) vessel transits during the spring shoulder season, showing their routes in relation to observed ice conditions. QIA requests the Proponent formally commit to not having vessels go into North Water Polynya (Pikialasorsuaq), subject to vessel safety.	All 2018 Project vessel transits during both early (spring) and late shoulder seasons were included as maps in Appendix A '2018 Daily Ship Traffic Maps with Ice Coverage during Shoulder Seasons' of the Icebreaker Effects Assessment (Golder 2019). Similar maps showing the 2019 vessel transit/routes are forthcoming (as shipping is still ongoing) and will be submitted to QIA and all other MEWG members as part of the 2019 Ship-based Observer Report and also in Baffinland's Annual Report to NIRB. Baffinland formally commits to not having vessels go into the North Water Polynya (Pikialasorsuaq), subject to vessel safety. This commitment will be recognized in the Shipping and Marine Wildlife Management Plan and the Standing Instructions to Masters. Reference: Golder Associates Ltd. 2019. Assessment of Icebreaking Operations during Shipping Shoulder Seasons on Marine Biophysical Valued Ecosystem Components (VECs). Submitted to Baffinland Iron Mines Corp. Report No. 1663724-102-R-Rev1-30000. 17 May 2019. 343 p. Submitted to the NIRB on May 13, 2019	Marine	Outstanding	
QIA-51	QIA	QIA requests that, at least two weeks prior to the Public Hearing, the Proponent provide a tabular summary of the aerial survey-derived density data used in the supplementary icebreaking assessment to estimate the number of animals impacted by icebreaker transits. This summary should include which of the three survey reports were used for each species, for each month, and report the variability in the estimates (confidence intervals, coefficient of variation for the estimates, the range of densities per strata, etc.). QIA requests that the Proponent commit to releasing the report from the 2015 aerial surveys, so it is available on the Public Registry, at least a month prior to the November hearing. If the report is still in draft format, QIA requests that the Proponent commit to having it released for review by the MEWG and subsequent posting to the Public Registry. QIA requests that the Proponent commit to revise the assessment of the proportion of Eclipse Sound narwhals that are assumed to exhibit avoidance of the icebreaking noise source per icebreaker transit using the most recent abundance data for the summer stock, and use that information for adaptive management. QIA requests that the Proponent provide information on how the presence of pack ice east of the floe edge would affect the noise modeling results in the	Table 1 (Appendix C) provides a tabular summary of the aerial survey-derived density data used in the supplementary icebreaking assessment to estimate the number of animals impacted by icebreaker transits, and includes information on which of the survey reports were used for each species, for each month, and variability estimates for the density estimates. The draft 2015 aerial survey report (titled 'Marine Mammal Aerial Surveys in Eclipse Sound, Milne Inlet and Pond Inlet, 01 August-17 September 2015, dated 14 March 2016) was provided as Appendix N6 in the 2015 Annual Report to the NIRB and has been available on the NIRB public registry since March 31, 2016 for review by the QIA or any other interested parties. Comments on Appendix N6 of the 2015 Annual Report to the NIRB were submitted by both the QIA and DFO following the NIRB's correspondence to Parties on August 3, 2016 entitled: Opportunity to Address Comments Received Regarding Baffinland Iron ore Mine Corporation's "Mary River Project 2015 Annual Monitoring Report". Baffinland provided subsequent responses to these comments on August 24, 2016. Consistent with several previous communications to the MEWG, the report was never finalized due to the number of deficiencies identified in the survey design and data analysis, which were described in the peer review conducted by Golder Associates (Golder 2017). Revising the icebreaking assessment using the most recent narwhal abundance data (Marcoux et al. 2019) would not be appropriate in this	Marine	Outstanding	

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		floe edge drifting scenarios. QIA requests that the Proponent provide a more detailed summary of narwhal catch data that puts harvests into the necessary context, summarizing annual harvests linked to moderating factors such as quota limits (by season, if appropriate) that can influence total harvests. This information should be used to inform adaptive management. QIA requests that the Proponent clarify where in Finley et al. (1990) the justification for a 135 dB re 1 µPa SPL threshold for narwhal avoidance can be found.	case, given that the recent abundance estimate is based on data collected in August when narwhal numbers in the RSA are at their peak. During the shoulder seasons, the number of narwhal in the RSA is considerably lower than that during peak season. During the early shoulder season, many narwhal have still not entered the RSA and individuals belonging to other summering stocks (e.g. Admiralty Inlet stock) are migrating through the RSA. During the late shoulder season, many narwhal have already left the RSA. Densities used in the icebreaking assessment were extracted from previous aerial surveys that were flown in the shipping route during the season when icebreaking activities take place. For the early shoulder season, densities were extracted from surveys flown from 29 July to 4 August in 2007, 2008, and 2014. For the late shoulder season, densities were extracted from surveys flown from 14-21 October in 2013 and 2014. Underwater propagation of sound is poorer in ice-covered scenarios compared to open-water environments. The reason for this is that the ice (and the roughness under the ice layer) causes energy losses when the sound interacts with the ice-water interface. These losses are already accounted for in JASCO's model by applying an ice loss factor via Equation B-3 in the report. For the specific example in this question: sound travelling to the east of the floe edge would be more quickly attenuated by the presence of ice compared to conditions in open water. As described in TSD 25 (Socio-Economic Assessment), the Nunavut Wildlife Management Board (NWMB), in co-management with the Department of Fisheries and Oceans Canada (DFO), establish quotas (termed "total allowable harvests", or TAH) for narwhal harvesting in Nunavut. Given that Baffinland has no responsibility for the establishment of quotas, it does not feel it appropriate to elaborate on the extent to which quota limits have or have not influenced total harvests. However, Baffinland will continue to review information provided by DFO on annual harvests as a lens for assessing potential effects of shipping activities on local hunters and harvesting activities. Narwhal catch data is provided by the MHTO to DFO at the end of each season, and this information is not presently available to third parties in adequate time to inform adaptive management measures for the following year. However, in 2018 as part of updates to the IIBA for the Mary River Project, Baffinland established the Wildlife Monitoring Program (Article 17.8 of the IIBA). The Wildlife Monitoring Program is a community-based monitoring program, specific to the research interests of the community of Pond Inlet. To that end, Baffinland has provided the MHTO with $205,000.00 in 2019 to conduct community-based monitoring programs, which the MHTO has elected to use to study fish health and narwhal harvesting efforts. Should the MHTO wish to share these results with Baffinland, results may influence future studies conducted by Baffinland or the MHTO			

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			The origin of the 135 dB is from Richardson et al. (1995) and is based on noise levels that bowhead whales were shown to "tolerate" when in heavy ice (without leaving the area) when exposed to icebreaking playback sounds at levels up to 135 dB. This threshold did receive review and approval by Fisheries and Oceans Canada (V. Lesage, J. Lawson, S. Ferguson and R. Stewart) during the previous FEIS review in consultation with Dr. John Richardson. References: Golder Associates Ltd. (Golder). 2017. Peer Review: Marine Mammal Aerial Surveys in Eclipse Sound, Milne Inlet and Pond Inlet, 01 August – 17 September 2015. Submitted to Baffinland Iron Mines Corporation. 31 March 2017. 40pp. Marcoux, M., L.M. Montsion, J. B. Dunn, S.H. Ferguson and C.J.D. Matthews. 2019. Estimate of the abundance of the Eclipse Sound narwhal (Monodon Monoceros) summer stock from the 2016 photographic aerial survey. Canadian Science Advisory Secretariat (CSAS) Research Document 2019/028. Fisheries and Oceans Canada. Central and Arctic Region. 20 p. Richardson, W.J., C.R. Greene Jr., J.S. Hanna, W.R. Koski, G.W. Miller, N.J. Patenaude and M.A. Smultea. Acoustic Effects of Oil Production Activities on Bowhead and White Whales Visible During Spring Migration Near Pt. Barrow, Alaska – 1991 and 1994 Phases: Sound Propagation and Whale Responses to Playbacks of Icebreaker Noise. OCS Study MMS 95-0051. LGL Report TA954. Submitted to the U.S. Mineral Management Service. October 1995. 570 p.			
QIA-52	QIA	QIA recommends that prior to Project shipping in Canadian waters via any alternative to the nominal routes identified in the FEIS (Southern Route: Steensby Inlet-Foxe Basin-Hudson Strait-Davis Strait- Labrador Sea) and ERP EIS (Northern Route: Milne Inlet-Eclipse Sound-Pond Inlet-Baffin Bay-Davis Strait- Labrador Sea) the Proponent be required to complete, for public review, a comprehensive environmental effects assessment, including potential cumulative and transboundary effects, of proposed shipping along the alternative route(s). QIA recommends that NIRB include a Project Certificate Condition that requires the Proponent to report the routing and timing of all Project vessel transits in relation to sea ice.	Per our clarification letter provided Sept. 20, 2019 to the NIRB, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N).	Marine	Outstanding	
QIA-53	QIA	QIA recommends that NIRB establish a new Project Certificate Condition to ensure that "prior to the onset of ore shipments by Project vessels from Steensby Port, BIMC complete a cumulative impact assessment of approved, existing, and reasonably forseeable Project shipping that integrates the impacts of all shipping-related Project activities on all VECs and VSECs, in the context of other human activities, natural stressors such as climate change,	Baffinland has already undertaken a cumulative impact assessment for Phase 2 Shipping, which included taking into account approved, existing and reasonably foreseeable shipping activities. This assessment was comprehensive and employed appropriate and standard methodology for cumulative effects which took into account human activities, natural stressors and climate change considerations. In addition, in response to concerns raised at the Technical Session, this assessment was updated by way of a memorandum dated August 23, 2019, filed with the NIRB,	Marine	Outstanding	QIA-53

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		and developments, and considering all interactions." QIA requests that the Proponent commit, prior to Phase 2 shipping, to identifying and implementing mitigation and adaptive management measures to prevent shipping-related impacts to marine mammals, including polar bears, in ecologically important areas outside the RSA.	entitled "Mary River Project – Phase 2 Proposal – Revised Addendum to Technical Supporting Document 27 – Cumulative Effects Assessment." Section 4.0 of that memorandum provided an update to the marine mammal's cumulative effects assessment contained in TSD 27 taking into account the cumulative effects of marine shipping. Baffinland's position is therefore that a comprehensive cumulative effects assessment has already been undertaken, using appropriate and accepted methodology, and no further cumulative effects assessment is required. With respect to the QIA's request that Baffinland commit to mitigation and adaptive management measures to prevent shipping-related impacts to marine mammals outside the RSA, Baffinland does not feel this is required given that vessel management within the RSA allows for effective and comprehensive mitigation of effects in areas of Inuit traditional land use and harvesting and within the area where incremental effects have the greatest potential to interact with the effects of existing and reasonable foreseeable activities on marine mammals. BIM has committed to precedent setting mitigation measures that will effectively reduce impacts to marine mammals in the RSA and are confident that cumulative effects from the Project and other shipping in the RSA will not be significant. Hence, for the purposes of the Phase 2 proposal BIM feels the appropriate actions have been undertaken. BIM does recognize that there may be interactions between its vessels and other activity outside the RSA and agrees to participate as a key stakeholder in regional federal government initiatives and programs including federal initiatives aimed at evaluating regional cumulative effects in the Eastern Canadian Arctic. Baffinland notes past support it has provided to regional monitoring efforts conducted other agencies in the region, including: • Provision of critical support for DFOs Tremblay Sound tagging program (2017, 2018 and 2019) and aquatic invasive species monitoring (2016). • Commitment from Baffinland to provide support and/or seek collaborative opportunities with Parks Canada on their guardianship program for TINMCA • Ongoing collaboration with ECCC for seabird monitoring, and provision of seabird monitoring data collected during the SBO program to CWS • Provision of funding to MHTO for community-based monitoring (Article 17.8 of IIBA)			
TC-01	TC	TC recommends, should the project be approved to proceed, that the Proponent contact TC's NPP Office prior to the submittal of any information to confirm regulatory requirements under the CNWA.	Noted. Baffinland will contact Transport Canada's NPP Office prior to the submittal of any information to confirm regulatory requirements under the CNWA, should the project be approved to proceed.	Marine	Resolved	Baffinland will contact Transport Canada's NPP Office prior to the submittal of any information to confirm regulatory requirements

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						under the CNWA, should the project be approved to proceed.
TC-02	TC	Transport Canada is of the opinion that one random sample of the tanks is sufficient to verify compliance in only one circumstance; if the vessel takes on ballast water in one location and also carries out the exchange in similar waters on the open ocean. This usually means that one tank is exchanged after another until all exchanges are completed in the shortest possible distance from each other. However, if a vessel takes on ballast water from more than one location, and either treats it using a system or carries out exchange using a long exchange zone, Transport Canada recommends at least four tanks be sampled. Additionally, if ballast water is taken up in two different locations, Transport Canada again recommends that four tanks be sampled at each location, for a total of eight samples.	Baffinland wishes to once again emphasize that current ballast water sampling by Baffinland remains a voluntary measure that exceeds federal and international guidelines for ballast water management, including those mandated by Transport Canada. Baffinland has developed a comprehensive, stand-alone Ballast Water Management Plan for the Project. The BWMP includes a Standard Operating Procedure that provides detailed instructions for salinity testing of ballast water tank on carriers calling at Milne Port, including directives for accessing on-board ballast tanks, selecting ballast tanks for testing, equipment set-up and deployment, detailed sampling and data entry procedures, guidance on instrument calibration, maintenance and storage, and reporting requirements. Salinity and temperature testing is conducted on all vessels prior to being authorized by the port captain to discharge in Milne Port. It is also noted that all vessels calling to Milne Port are required to operate in accordance with Transport Canada's Ballast Water Control and Management Regulations (Regulations; SOR/2011-237) pursuant to the Canada Shipping Act, 2001 (S.C. 2001, c. 26) and the International Maritime Organization's International Convention for the Control and Management of Ship's Ballast Water and Sediment (IMO 2017). Additional measures that Baffinland has put into place that exceed regulatory and industry standards include • The requirement for all vessels calling on Milne Port that treat their ballast under the D-2 Standard to also perform a ballast water exchange prior to treatment. This practice will continue until Baffinland provides updated ballast water dispersion modelling that more accurately reflects the spectrum of salinity and temperature that can be expected to be discharged at Milne Port. • Implementing • a pilot ballast water biological monitoring program for ships currently only subject to the D1 standard (open water exchange). This program has been designed to reflect a more appropriately scoped form of a ballast water sampling protocol provided by DFO to Baffinland in 2017 and will include sampling from one ballast tank on a total of five vessels per shipping season. • Continuation of conducting temperature and salinity test sampling of one randomly selected ballast water tank for all vessels calling to Milne Port, and biological sampling in the marine receiving environment to monitor for non-native species in Milne Port and at Ragged Island. The Ballast Water Management Plan will be updated to reflect the commitments described post EA.	Marine	Outstanding	TC is reviewing Baffinland's response with TC's ballast water experts.
TC-03	TC	Considering the deep drafts of a vessel, prevailing ice conditions, and limited hydrography and surveying of the NWP, combined with the availability of ice breakers, search	Per our clarification letter provided Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed	Marine	Resolved	n/a

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		and rescue and environmental response challenges, TC recommends a more detailed effects assessment be undertaken, including an assessment of the likelihood of a spill to occur and the ability to respond to a spill should an accident occur.	with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)			
TC-04	TC	TC recommends that the Proponent provide a consistent definition of “open water season” throughout all of its documentation and that the Proponent clarify whether the supply and transfer of fuel is also being considered for the amended shipping season of July 1st to November 15th or whether it will remain limited to mid-July to mid-October.	For the purposes of shoulder season vessel traffic management, Baffinland considers uninterrupted transits through ice concentrations of 3/10 or less as the open water shipping season. This will be considered in any relevant management plans or operating procedures. The supply and transfer of fuel is being considered for the amended shipping season, July 1 to November 15.	Marine	Resolved	For the purposes of shoulder season vessel traffic management, Baffinland considers uninterrupted transits through ice concentrations of 3/10 or less as the open water shipping season. This will be considered in any relevant management plans or operating procedures.
TC-05	TC	TC recommends that the SSRP, Page 30 and 31, Alert Procedures/Notification Table and Page 71 of Appendix 1 - Contacts Directory be updated to include the following and remove any reference to particular TC contact information:• The master of a vessel in waters under Canadian jurisdiction must report any discharge or anticipated discharge from the vessel to a marine safety inspector or a marine communications and traffic services officer (NORDREG in case of the Arctic). Reporting procedures should adhere to part 3 of Vessel Pollution and Dangerous Chemicals Regulations https://laws-lois.justice.gc.ca/PDF/SOR-2012-69.pdf.	Baffinland will make the recommended change to the SSRP.	Marine	Resolved	Baffinland will make the recommended change from TC-05 to the SSRP.
TC-06	TC	TC recommends that the Proponent demonstrate its ability to maintain its preparedness and have the capacity to respond to a spill during fuel transfer at the oil handling facility in the event that there is also a spill from a transiting vessel along the shipping route at the same time.	Baffinland will update the SSRP to designate additional Tier 2 response equipment at Milne Port to enable a dual response as proposed by Transport Canada.	Marine	Resolved	Baffinland will update the SSRP to designate additional Tier 2 response equipment at Milne Port to enable a dual response as proposed by Transport Canada.
TC-07	TC	TC recommends that the use of lifeboats should be avoided and not included as part of the spill response equipment.	Baffinland agrees that the use of lifeboats should be avoided and will be removed as part of the spill response equipment on pages 88 and 103 of the SSRP.	Marine	Resolved	Baffinland agrees that the use of lifeboats should be avoided and will be removed as part of the spill response equipment on pages 88 and 103 of the SSRP.
TC-08	TC	TC recommends that the SSRP be updated to remove reference to the use of oil-water separation.	Baffinland will update the SSRP to make it clear no oil discharge is permitted in Arctic waters per the ASSPPR.	Marine	Resolved	Baffinland will update the SSRP to make it clear no oil discharge is permitted in Arctic waters per the ASSPPR.
TC-09	TC	TC recommends that the SSRP fully account for all potential locations of spills in its response planning, including the alternative route that has been proposed by the Proponent via Navy Board Inlet and the North West Passage.	Per our clarification letter provided Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Marine	Resolved	n/a
TC-10	TC	TC recommends that the potential conflicts between trains and caribou be considered in the execution of safe railway	Potential conflicts between trains and caribou have already been considered in the execution of safe railway operations. A response	Marine	Resolved	n/a

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		operations. Similarly, the NIRB might want to consider the effect of train whistling, and the location and design of wildlife crossings as part of the review process, and when formulating terms and conditions to mitigate these effects, as established between the Proponent and any affected groups.	regarding train whistling has already been provided in the January 2019 Advance Technical Comment Responses to Transport Canada's technical comment #10, as follows: "Unnecessary use of the whistle is prohibited as per Rule 14 of Canadian Rail Operating Rules (CROR) which reduces the potential impact of train whistling on wildlife. Train whistles are expected to be infrequent and short in duration and are not expected to contribute substantially to noise related effects." (Baffinland Iron Mines Corporation 2019a) A complete list of caribou protection measures related to the railway are provided in Section 3.3.2 of the revised TEMMP (Baffinland Iron Mines Corporation 2019b). References Baffinland Iron Mines Corporation. 2019a. Advance Technical Comment Responses Phase 2 Proposal - Mary River Project. Baffinland Iron Mines Corporation. 2019b. Terrestrial environment mitigation and monitoring plan BAF-PH1-830-P16-0027, rev 4.1. 154 pp.			
WWF-FWS 01	WWF	WWF recommends that with respect to annual reporting, the NIRB analyze parties' comments, undertake its own independent analysis and interpretation of Baffinland's monitoring results, provide direction to Baffinland in the design of and subsequent alterations to its monitoring programs, and provide results of its own interpretation of impacts and effectiveness of mitigation strategies.Given the obvious holes in monitoring and data collection and the subsequently weak and uninformed basis from which its impact predictions are based, WWF recommends that no increase to through put beyond the current operation at 6 Mtpa be approved until such time as Baffinland has appropriate thresholds and indicators in place to inform adequate monitoring programs, and until such time as the same have been accepted by NIRB and intervenors and have proven able to render adequate monitoring information.WWF recommends that under no scenario the project be permitted to haul beyond 6 Mtpa of ore with trucks on the current road given that the option to increase production and rely on haul trucks without railroad construction has not been adequately assessed during the Phase 2 proposal.	Baffinland would like to respond to WWF's recommendation that no shipping or ore haulage occur above 6Mtpa, and make it clear that both requests are unsubstantiated. Baffinland's marine monitoring programs are robust for reasons explained to WWF regularly in response to annual monitoring report comments. Furthermore, Baffinland is committed to the development of Early Warning Indicators but must reiterate this is not a conventional undertaking and all members of the MEWG are expected to provide meaningful input. To date WWF has not provided such meaningful input, however, Baffinland encourages their future involvement in the process. As Phase 2 levels of shipping are not expected to occur before 2022 Baffinland is confident that Early Warning Indicators will be developed by that time based on a rigorous investigation of IQ and Inuit perspectives, scientific literature, and the expert opinions of MEWG members. With respect to ore haulage above 6Mtpa, The Phase 2 FEIS Addendum did accurately define and assess short term haulage of 12 Mtpa of ore along the southern half of the Northern Transportation Corridor. This activity was considered in assessments interactions tables, and assessed as necessary based on the level of assigned interaction. The surface water and landforms technical supporting documents each concluded elevated trucking represented a minor interaction and did not provide further assessment. The atmospheric, terrestrial wildlife, and exposure potential assessments, however, assigned the activity greater interactions and assessed accordingly. References to specific sections within these assessments is provided here: • TSD 7 Atmospheric Assessment o Section 3.4 'Effects Assessment' o Appendix E 'Updated Noise Impact Assessment' • TSD 10 Terrestrial Wildlife Baseline and Impact Assessment o Section 3.4.1.2 'Movement'	Corporate	Outstanding	

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			• TSD 11 Evaluation of Exposure Potential from Ore Dusting Events in Selected VECs o Section 3.1 'Air Dispersion Analysis Outcomes for Dust Deposition' o Section 3.2 'Selection of Dus Deposition Rates for Future Predictions' Baffinland does believe it has provided an adequate assessment of the short-term haulage of 12 Mtpa on the Tote Road and would refer WWF to our response to the Government of Nunavut's recommendation in GN-01 to clarify reasonable time limits for this activity to occur. Baffinland's Perspective on the Integrity of the NIRB's Monitoring Approach Baffinland would also like to provide its perspective on the integrity of the annual reporting process as it is administered by the NIRB, but emphasize that the NIRB is the ultimate authority in this subject and that what is provided here is Baffinland's perspective only. Since the Project was operationalized, the NIRB has conducted biannual Site Visits. During these Site Visits, monitoring officers from the NIRB tour the Project site and gather information regarding current operations and the implementation of Baffinland's monitoring programs. Subsequent to each of these Site Visits, the NIRB provides Baffinland with a follow-up Site Visit report. These reports provide details on the observations made by the monitoring officers while on site, and includes recommendations or corrective actions that must be undertaken by Baffinland to address any concerns or issues raised by the monitoring officers. At the end of each year, the NIRB produces their own independent Annual Monitoring Report. The NIRBs Annual Monitoring Report summarizes the Board's findings and recommendations based on information obtained from review of Baffinland's Annual Monitoring Report, Site Visits, reviewer comments on Baffinland's Annual Report to the NIRB, and Baffinland's responses to reviewer comments on the Report. Within the NIRBs Annual Report, an independent assessment of Baffinland's compliance with the Terms and Conditions for the Project is also presented. The NIRB has also more recently (i.e. starting in December of 2018) joined the Marine and Terrestrial Environmental Working Groups as an observer agency to better understand discourse between reviewers and Baffinland on the design of monitoring programs and subsequent analysis and results. Annual recommendations made by NIRB in their Annual Monitoring Reports has resulted in meaningful corrective actions being undertaken by Baffinland, a few of which have been summarized below to illustrate the effectiveness of this process: NIRB 2016-2017 Annual Monitoring Report • Board Recommendation No. 1: Baffinland must reinstall the tidal gauge at Milne Port in accordance with PC Condition No. 1 and 83. Subsequent Action: Baffinland reinstalled the tidal gauge at Milne Port in 2017.			

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			• Board Recommendation No. 20: Baffinland should exceed requirements of PC Condition No. 12, and commence regular stack testing at incinerators. Subsequent Action: Baffinland committed to exceeding requirement of PC Condition No. 12 by agreeing to perform stack testing every five years on the incinerators at Milne Port and the Mine Site. • Board Recommendation No. 11: Baffinland should increase sediment sampling for the MEEMP program, specifically to better evaluate sediment transport from Phillips Creek. Subsequent Action: Baffinland expanded the sediment sampling program in 2019 and also committed to performing a desktop review to evaluate the sediment transport regime at Milne Port. • Board Recommendation No. 16: Baffinland must develop an action plan for monitoring fouling on the hulls of Project vessels. Subsequent Action: Baffinland implemented a remote operated vehicle monitoring program in 2018 to survey hulls of Project vessels for evidence of biofouling. Baffinland also includes a concordance table with the Board Recommendations in each of its Annual Report to the NIRB to ensure even greater transparency with reviewers. It is also noted that Baffinland has a comprehensive monitoring program that includes indicators for all of the VECs and VSECs that were identified in consultation with Project stakeholders throughout the Environmental Assessment process. Annual reporting includes several reports, not limited to: The Terrestrial Environment Annual Monitoring Report; the Marine Environment Effects and Aquatic Invasive Species Monitoring Report; the Ore Dock Construction Monitoring Report; the NWB/QIA Annual Report; the NIRB Annual Report; Marine Mammal Monitoring Reports (e.g. Bruce Head Monitoring Report). This approach is consistent with the draft Post-Environmental Assessment Monitoring Plan put forth by the NIRB.			
WWF-FWS 02	WWF	WWF recommends that as part of the reconsideration of the Mary River Project Certificate, the NIRB include a Monitoring Framework to be appended to the Certificate for review and comment by parties. We also recommend that the NIRB include a timeline for the finalization of the Framework within the Appendix itself, to ensure parties are able to track the development and participate at relevant stages.Given the absence of adequate (comparable, integrated, consistent) results from project monitoring, the inability to measure or interpret impacts and trends from that data, and proposed mitigation measures that cannot therefore be related to observed impacts, current predictions about impacts from Phase 2 are not supported by any empirical evidence related to the current operations andmonitoring programs.WWF therefore recommends, given this uncertainty with regard to current operations	The NIRB has already initiated the development of the Mary River Monitoring Framework for attachment to Project Certificate 005, circulating a draft Appendix A Framework for public comment in 2017. Baffinland supports this initiative and will continue to participate in the development process following the completion of the Phase 2 reconsideration process. Please see Baffinland's response to WWF-01 regarding the lack of substantiation in WWF's recommendation to not increase throughput above 6Mtpa. Summary of Baffinland's Approach to Monitoring Baffinland has a comprehensive monitoring program that includes indicators for all of the VECs and VSECs that were identified in consultation with Project stakeholders throughout the Environmental Assessment process. Annual reporting includes several reports, not limited to: The Terrestrial Environment Annual Monitoring Report; the Marine Environment Effects and Aquatic Invasive Species Monitoring	Corporate	Outstanding	

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		and limited understanding of impacts, no further mine throughput and transport beyond the approved 6 Mtpa be approved until such time as these critical aspects of the adaptive management framework are implemented and are informing the current level of activity.	Report; the Ore Dock Construction Monitoring Report; the NWB/QIA Annual Report; the NIRB Annual Report; Marine Mammal Monitoring Reports (e.g. Bruce Head Monitoring Report). This approach is consistent with the draft Post-Environmental Assessment Monitoring Plan put forth by the NIRB. A description of Baffinland monitoring programs and approach are outlined in the publicly available Management and Monitoring Plans for the Project. Specifically, with respect to monitoring of the marine environment, Baffinland's Marine Mammal Monitoring Plan (MMP) describes monitoring actions that Baffinland uses so the Project does not unduly prejudice (as defined in the Nunavut Agreement, Section 12.5.5) the integrity of the marine environment and wildlife in the Project area. The MMP is driven by monitoring requirements outlined in Project Certificate No. 005 and subsequent amendments to the Certificate as well as community and MEWG inputs. The MMP is a "living" document and will be revised regularly as new information becomes available, methods are further developed, refined or replaces and /or to account for adaptive management measures. Monitoring programs for each year are updated, as needed in consultation with the QIA, MHTO and the MEWG. It is noted by Baffinland that various monitoring methods and programs identified in the MMP will be conducted at varying frequencies throughout the life of the Project. Flexibility in this plan is needed to account for preferences or modified input from MHTO, the presence of a response variable (e.g. relative abundance and distribution of narwhal in the RSA), the potential for data availability (e.g some features may not exist in sufficient quantity to provide a robust evaluation of Project effects), and an evaluation of cost versus effort (e.g. the effort required to collect sufficient data may be unreasonable when there is a low to nil possibility that the Project will have a significant impact, or only a small interaction with a response variable).Annual updates to the MMP will also consider regional monitoring efforts and/or research initiatives conducted by other agencies, universities and institutes and/or non-government organizations who have a jurisdictional interest and/or responsibilities for monitoring in the Project area (i.e. DFO) as appropriate. An integrated and holistic summary of all marine environment monitoring programs and results are reported annually in the Annual Report to the NIRB under PC Conditions No. 76 and 101.			
WWF-FWS 03	WWF	WWF recommends that the NIRB revise conditions relating to the working groups, taking into consideration any revised Terms of Reference filed by working group members, and that revised terms and conditions be issued to reflect a more responsive role for the NIRB, a requirement that Baffinland integrate advice received with unanimous support from members, and provide	Baffinland notes that in recent Terrestrial and Marine Working Group meetings (June 20 and 21, 2019, Iqaluit) the functionality of the Working Groups and updates to the Terms of References were discussed. It was noted by WWF and other members during these meetings that they had observed improved changes to the functioning of the Working Groups. Notwithstanding, proposed changes to the ToR's have been ongoing throughout the summer 2019, with drafts	Corporate	Outstanding	

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		rationalefor not integrating the same into its plans and programs. The NIRB should have ultimate authority to make decisions where Baffinland does not agree with advice from working groups.Revision should also clarify a requirement that working group discussions, debates, and recommendations be filed publicly with the NIRB.While the working groups can and should provide advice and oversight of monitoring programs and plans for the project, the ultimate responsibility for ensuring Baffinland's monitoring programs are mitigating significant impacts rests with the NIRB. Through an amendment to the Project Certificate, this must be clarified via revisions to the existing Terms and Conditions 49 and 77, as well as any others deemed necessary by the NIRB.	available to the NIRB for review. In response to recommendations made by several Working Group members to date, Baffinland has submitted proposed revisions to the ToRs in Appendix O of this submission that reflect a more consensus-based approach to decision making that more clearly identifies how recommendations are identified, supported, communicated, and tracked. Regardless of Baffinland, or any Working Group members, suggested revisions to the ToR's, the NIRB will always remain in the Working Groups activities and to will continue to be provide direction to Baffinland as it deems appropriate through the annual monitoring and reporting process. For a greater understanding of how the Terrestrial and Marine Environment Groups function and the scope of monitoring programs and reports they provide input on please see Baffinalnds response to MHTO-7d.			
WWF-FWS 04	WWF	The limited assessment provided within Baffinland's FEIS Addendum and supporting documentation is not adequate to support shipping additional ore via the Northern Transportation Corridor.Should any shipping through the northern route be allowed to proceed by the NIRB, and/or is approved by the responsible Ministers, it is WWF's recommendation that the shipping route, including portions of Tallirutiup Imanga and critical habitat at Pikialasorsuaq, as well as species outside of Canada's waters that depend on areas inside the Nunavut Settlement Area, and all Project-related shipping activities, be subject to the development of a strategic Marine Spatial Planning exercise.See final submission for full response.	Based on discussions between Baffinland and Parks Canada, Baffinland's shipping operations within the RSA are consistent with the proposed zoning outlined in Parks Canada's Draft Zoning Map for Tallirutiup Imanga National Marine Conservation Area (TINMCA), as presented to communities during their Spring 2019 consultation activities. For example, consistent with recommendation included in the draft Zoning Map for TINMCA, Baffinland has also identified Tremblay Sound and Koluktoo Bay as restricted areas within the RSA (characterized by Parks Canada as Zone A areas). It is further noted that the self-imposed and voluntary mitigations (i.e. speed restrictions) Baffinland has applied in Zone B areas of the TINMCA exceed all regulatory requirements for vessel management and are demonstrably more conservative than mitigations taken by any other vessel travelling in the area, including Federal and Territorial procured-vessels (Appendix M). Other seasonal feature considerations to be addressed in the draft Interim Management Plan for TINMCA is the floe edge, polynyas and sea ice. Through the Phase 2 Assessment, Baffinland has clearly demonstrated an understanding of the importance of these areas both from an ecological and community perspective, implementing commitments to: • keep vessels 40km away from the most easterly point of the floe edge at the start of the shipping season; • eliminating winter shipping through the Northern corridor based on community feedback regarding the importance of sea ice as a travel route; and • ensure all vessels do not travel or drift in Northern Baffin Bay to ensure there is no disturbance to the North Water Polyna. Baffinland acknowledges that the request to undertake a Marine Spatial Planning exercise was directed to NIRB, however, it is noted that this exercise is more typically associated with land use planning and is well outside the scope of the environmental impact statement guidelines or	Marine	Outstanding	

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			standardized impact assessment practices. Should the NIRB wish to facilitate a MSP exercise in the future, either directly or through the Nunavut Marine Council, Baffinland will would participate as the only operator with precedent-setting mitigation in place in the given region.			
WWF-FWS 05	WWF	There is inadequate baseline information and consideration of impacts from shipping via Navy Board Inlet and through the Northwest Passage to even consider routing through these options. As such, the NIRB's assessment of the Phase 2 proposal should not include any alternative routings proposed by Baffinland at this time.Should Baffinland desire to ship via a western routing, WWF recommends that an application for amendment to the current Project Certificate be filed with the Board. Considering information currently before us, we do not support the inclusion of westward passage of vessels or Navy Board Inlet routing for any Project ships within the present assessment.	Per our clarification letter provided to NIRB and MHTO on Sept. 20, 2019, Baffinland is not seeking approval from NIRB under the Phase 2 assessment to proceed with shipping via Navy Board Inlet or the NWP as part of the Phase 2 Project Proposal (Appendix N)	Marine	Outstanding	
WWF-FWS 06	WWF	WWF recommends that the NIRB require Baffinland to utilize lighter distillate fuels (i.e. non-HFO, non-IFO) in its own and contracted shipping vessels, including its ore carriers calling to port in Nunavut.Furthermore, we recommend that Baffinland only contract ships for work in Nunavut waters if they are fitted with double hulled fuel tanks to protect the waterways and marine species living here from a potentially disastrous spill of HFO/IFO.	Use of lighter distillate fuels Ships being used by Baffinland will comply with all applicable shipping regulations, including those established to reduce emissions. As of January 1, 2020 the International Maritime Organizations (IMO) Global Sulphur Cap 2020, vessels will no longer be able to use fuels with greater than .5% Sulphur without scrubbers. Further to this, the IMO is contemplating a ban on Heavy Fuel Oil (HFO) in the Arctic, subject to an ongoing investigation by the federal government given the potential consequences to northern economies. Baffinland is participating in this investigation and will comply with any regulatory outcomes. Use of double hulled fuel tanks All vessels loading at Milne comply with the latest construction standards, including MARPOL Annex 12 A that deals specifically with fuel space locations within large commercial vessels. Those standards have evolved to include specific tank protection measures reducing the possibility of spills, and also limiting the potential volume of releases to the extent reasonably possible. Furthermore, BIM has established operating procedures beyond regulation within the RSA to further mitigate and reduce risks associated with events that might give rise to accidental releases. Such measures include traffic management (no passing zones, speed restrictions, traffic simulations, etc) and has vessel selection criteria through Rightship that considers not only the navigational safety of the operation, but also considers the traditional use of the waters within the RSA. Response to Baffinland Oil Spill Probability: Updated Analysis for Phase 2 Expansion Proposal Vessel Traffic Following correspondence from WWF on August 15th, 2019 advising Baffinland of a recently commissioned update to the Mary River 2016 shipping oil spill probability analysis Baffinland conducted a thorough	Marine	Outstanding	WWF-FWS 06

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
			review, which is attached to this submission. The following key points are established: • The assumptions used to estimate the Tug Boat transit data may not be indicative of Project traffic values. • The data used to generate the spill probabilities extend back to 1980, and thus given the marked reduction in marine incidents since that time, the calculated probabilities may be overstated. In Baffinlands review we also identify several subjects within the updated analysis that require further discussion between with WWF before any results can be integrated into an updated draft of the Spill at Sea Response Plan. Baffinland advises WWF that in response to a request from ECCC-FC6, Baffinland Baffinalnd is committed to conduct additional Arctic diesel fuel spill modelling to account for shoulder season shipping and update the SSRP as necessary (Appendix M). This will occur prior to the 2020 shipping season.			
WWF-FWS 07	WWF	WWF recommends that Baffinland be required to develop and implement adequate indicators and thresholds as well as robust monitoring plans to gain useful information about the regional caribou herd, and that no increase to mine throughput or transport beyond 6 Mtpa is approved until such time as it has evidence to support the current assertion of no impact and to support projections of no significant impacts with a 12 Mtpa development scenario WWF recommends that the NIRB set specific monitoring requirements for Baffinland to acquire accurate data about caribou abundance, distribution, and responses to the currently approved activities.	Currently, the available data (from the GN) on caribou density and abundance on North Baffin Island is inadequate to develop a robust definitive study of quantifiable Project impacts on caribou, which is why IQ was the primary source of data used to determine Project impacts on caribou. However, Baffinland recognizes the value in contributing to regional monitoring, and has been contributing to GN-led studies since 2009. Baffinland is also in the process of developing an MOU with the GN to support caribou research in the North Baffin region, with the goal of addressing some of the gaps identified here.	Terrestrial	Outstanding	WWF-FWS 07
WWF-FWS 08	WWF	Existing Term and Condition 3 requires that Baffinland provide within its Annual Reporting, results of any emissions calculations conducted to determine the level of sulphur dioxide (SO2) emissions, NOX emissions and GHG generated by the Project using fuel consumption or other relevant criteria as a basis. WWF recommends that Baffinland be required to demonstrate how it has decreased its GHG and black carbon emissions annually. Similarly, existing Conditions 4, 8, and 9 require the use of various methods to measure and report on emissions - in the example of Condition 4, Baffinland is required to undertake continuous monitoring at port sites to capture ship generated SO2 and NO2 emissions at the Port, and to continue this for several seasons to determine that emissions are at acceptable levels.	Baffinland recognizes the importance of managing our greenhouse gas emissions, including black carbon. As committed to during the review, Baffinland is developing a comprehensive Climate Change Strategy, which is explained further below. A critical component of this strategy will relate to the marine environment, where important developments are occurring at the international level that our world class fleet of vessels and ship contractors are poised to comply with, including the 2020 Sulphur Cap and a potential ban on Heavy Fuel Oil in the Arctic. For more detailed discussion of Baffinland's Climate Change Strategy please see the response to QIA-40, and for a more detailed discussion of Baffinland's shipping contractors and their commitment to emissions management please see the response to ECCC-FC4. Baffinland does not believe revisions to existing terms and conditions 3, 4, 8, and 9 are required. Baffinland is already committed to the development of a comprehensive Climate Change Strategy and has initiated work to this end. The Strategy will satisfy the objectives of the terms and conditions in questions, as well as WWF's recommendation		Outstanding	

ID#	Agency	Recommendations/Requests	Response	VEC/VSEC	Status of Resolution	Baffinland Commitment
		WWF recommends that Baffinland be required to demonstrate annual improvements above and beyond federal targets for these emissions. Specifically, the objective of Condition 9 is to "Provide feedback on the Project's emissions." These conditions should be revised to require additional measures and steps from Baffinland to demonstrate improvement over predicted values and emissions targets.	for Baffinland to demonstrate our efforts to reduce greenhouse gas emissions year over year.			

Appendix 2 – List of Documents Translated into Inuktitut

Title of Document Translated (Inuktitut)	Summary	Full
Addendum to the Final Environmental Impact Statement, Mary River Project – Phase 2 Proposal	✓	
Technical Supporting Document 05 Mary River Inuit Knowledge Study Mapbook		✓
Technical Supporting Document 06 Climate Change Assessment	✓	
Technical Supporting Document 07 Atmospheric Assessment	✓	
Technical Supporting Document 08 Landforms, Soils, and Permafrost Assessment	✓	
Technical Supporting Document 09 Vegetation Baseline and Impact Assessment	✓	
Technical Supporting Document 10 Terrestrial Wildlife Baseline and Impact Assessment	✓	
Technical Supporting Document 11 Evaluation of Exposure Potential From Ore Dusting Events in Selected VECs	✓	
Technical Supporting Document 12 Migratory Birds Baseline and Impact Assessment	✓	
Technical Supporting Document 13 Surface Water Assessment	✓	
Technical Supporting Document 14 Freshwater Biota and Habitat Assessment	✓	
Technical Supporting Document 15 Freshwater Fish Habitat Offsetting Plan	✓	
Technical Supporting Document 16 Ice Conditions Report	✓	
Technical Supporting Document 17 Marine Environmental Effects Assessment	✓	
Technical Supporting Document 18 Ballast Water Dispersion Model	✓	
Technical Supporting Document 19 Fuel Spill Modelling Report	✓	
Technical Supporting Document 20 Hydrodynamic Modelling Report - Milne Port	✓	
Technical Supporting Document 21 Invasive Species Risk Assessment	✓	
Technical Supporting Document 22 Ship Wake and Propeller Wash Assessment	✓	
Technical Supporting Document 23 Marine Fish Habitat Offsetting Plan	✓	
Technical Supporting Document 24 Marine Mammal Effects Assessment	✓	
Technical Supporting Document 25 Socio-Economic Assessment	✓	
Technical Supporting Document 26 Labour Market Analysis	✓	
Technical Supporting Document 27 Cumulative and Transboundary Effects	✓	
Appendix O Attachment 3 Food Security Assessment of the Final Written Comment Responses Phase 2 Proposal – Mary River Project	✓	
Appendix A Response to Pond Inlet (Mittimatalik FWS) of the Final Written Comment Responses Phase 2 Proposal – Mary River Project		✓
Appendix B Response to Mittimatalik Hunters and Trappers Organization of the Final Written Comment Responses Phase 2 Proposal – Mary River Project		✓
Appendix O Attachment 1 Community Risk Assessment Workshop of the Final Written Comment Responses Phase 2 Proposal – Mary River Project		✓

Appendix P Attachment 1 Rail Alignment Summary Report of the Final Written Comment Responses Phase 2 Proposal – Mary River Project		✓
Final Hearing Presentation - Introduction		✓
Final Hearing Presentation - Public Consultation and Inuit Qaujimanituqangit (IQ)		✓
Final Hearing Presentation - Alternatives Analysis		✓
Final Hearing Presentation - Atmospheric Assessments		✓
Final Hearing Presentation - Terrestial Environment		✓
Final Hearing Presentation - Freshwater		✓
Final Hearing Presentation - Marine Environment		✓
Final Hearing Presentation - Socio-Economic Environment		✓
Final Hearing Presentation - Human Health and Exposure Potential Assessment		✓
Final Hearing Presentation - Management Plans and Monitoring Programs		✓
Final Hearing Presentation - Community Presentation		✓
Technical Meeting Presentation - Phase 2 - Technical Meetings, June 17-19, 2019		✓

Appendix 3 – List of Deliverables

Additional Information Requested by Intervenors and Agreed to By Baffinland	Baffinland Submission Date to NIRB
Updated Ballast Water Dispersion Modelling	10/16/2019
Direct Community Benefits Meeting Report	10/16/2019
2019 Shipping Season Mitigation Summary	10/16/2019
Additional Level Crossing Decision Matrix	10/16/2019
Rail Alignment Summary Report	10/16/2019
2019 Marine Monitoring Update Memo	10/16/2019
Inuit Advisory Panel Work Plan	10/16/2019
CRLU Monitoring Program	10/16/2019
Revised Working Group Terms of Reference	10/16/2019
Food Security Assessment	10/16/2019
Community Risk Assessment Workshop Report	10/16/2019
Crossing Selection Workshop Report	10/16/2019
Power Analysis for Baffinland's Marine Environmental Effects Monitoring Program	10/8/2019
Draft IQ Management Framework	09/18/2019
Draft Adaptive Management Plan	8/23/2019
Draft Revised Project Certificate 005 for Phase 2	8/23/2019
Revised CEA Addendum	8/23/2019
Community Information Tour Summary Report	8/23/2019
Statement on Approach to Consultation & Phase 2 Consultation Record for Pond Inlet	8/23/2019
Draft Community Communication Protocol for Shipping	8/23/2019
Draft Icebreaking Management Protocol	8/23/2019
Corrected SSRP	8/23/2019
Report on Stratigraphy and Paleontology	8/23/2019
Response to ECCC - Black Carbon	8/23/2019
Shipping Activity Animation	8/16/2019
GIS Files related to Animation	8/16/2019
Borrow Source Investigation Factual Data Report (Second Phase)	7/26/2019
Revised Analysis of the North Railway Barrier Effect to Caribou	7/22/2019
Memo: Estimate of Mobile Equipment by Tier	7/19/2019
Memo: Daily Ship Exposure Periods for Narwhal	7/15/2019
Memo: Response to Health Canada Written Submission	7/12/2019
Memo: Analysis of Ice Coverage in RSA and Baffin Bay	7/12/2019
Memo: Rationale for Exclusion of Marine Fish from Icebreaking Assessment	7/12/2019
Draft Air Quality Monitoring Framework	7/12/2019
Report on Evaluation of 2018 Major Training Programs	7/12/2019
Construction Training Plan	7/12/2019
Draft Spill at Sea Response Plan	7/12/2019
Alternative Shipping Routes Baseline and Effects Characterization	7/12/2019
Updated Energy Protein Model	7/12/2019
Notice of Errata - "Summer and Open-Water" use in Icebreaking Assessment	7/12/2019

Memo: Statement on Thermal Analysis	7/3/2019
Memo: Statement on Waste Rock and ARD	7/3/2019
Memo: Statement on North Water Polynya	7/3/2019
Memo: Impacts of Icebreaking on Ice	7/3/2019
Memo: Response to Transport Canada Written Submission pt 1&2	7/3/2019
Memo: Response to Natural Resources Canada Written Submission	7/3/2019
Memo: Response to WWF Written Submission	7/3/2019
Additional Fisheries Figures for Cumulative Effects	7/3/2019
Rail Alignment Maps Showing Proposed Quarry Locations	7/3/2019
Memo: Revised Black Carbon & CAC Emissions Estimate	7/3/2019
Memo: Statement on Ownership of Tote Road and Railway	7/3/2019
Memo: Consideration of Fine Materials and Soils in Railway Embankment Construction	7/3/2019
Memo: Response to Technical Review Comment QIA 21 – Water Quality Assessments - Magnitude Ratings and Quantitative Assessments	7/3/2019
Memo: Sensitivity Analysis of Ballast Water Modelling	6/15/2019
Revised Draft Conceptual Marine Offsetting Plan	6/10/2019
Memo: Scaled Predictions for PAH's, VOC's, and DPM	6/10/2019
CEA Addendum	5/13/2019
Icebreaking Assessment	5/13/2019
Memo: Additional modelling for one Cape size ore carrier at 13 kts at Eclipse Sound.	5/13/2019
Memo: Listening space reduction analysis at 1 kHz for 2018 acoustic monitoring data	5/13/2019
Memo: Sound level (SPL) contours to levels <120 dB re 1 µPa	5/13/2019
Memo: BIM Response to ECCC WRMP Questions Part 2	5/13/2019
Management Plans - Package 2	5/13/2019
Memo: Baffinland Vessel Traffic and Anchorage Study Final Report (Simulation Study Report)	5/13/2019
Borrow Source Investigation Factual Data Report	5/1/2019
Geotechnical Recommendations for North Railway Report	5/1/2019
Electronic filing of the ballast water certification documents	5/1/2019
Supplemental Information Package	5/1/2019
Memo: Updated Black Carbon Emission Estimates	5/1/2019
Memo: Updated CAC Emission Estimates	5/1/2019
Memo: Updated Annual Comparisons	5/1/2019
Memo: Updated NO2 Predictions	5/1/2019
Memo: Milne Inlet Effluent Loadings	5/1/2019
Memo: BIM Response to ECCC WRMP Questions Part 1	5/1/2019
Memo: Noise Modelling for Train Passes	5/1/2019
Memo: Confirmation of data availability and influence on assessment (snow geese)	5/1/2019
Memo: Conversion Factor Clarification	5/1/2019
Shapefiles - Mine to Steensby Inlet	5/1/2019
Freshwater Monitoring Program Fact Sheet, 2018 Aquatic Effects Monitoring Program Report, and 2018 QIA/NWB Annual Report	5/1/2019
Management Plans - Package 1	5/1/2019