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British Columba Environmental Assessment Office
PO Box 9426 STN PROV GOVT
Victoria, BC
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Regarding: Draft Provincial Referral Materials for the BURNCO Aggregate Project

The Sunshine Coast Conservation Association (SCCA) submits the following comments on the review of the Draft Provincial Referral Materials for the BURNCO Aggregate Project. These comments are compiled from concerns raised by professionals including fishery biologists. As stated in our previous submissions for the draft Application Information Requirements and the BURNCO Environmental Impact Statement (EIS), the SCCA is very apprehensive as to how fish habitat values in the fresh water, in the estuary and in the marine environments will be protected. In addition the proponent needs to recognize the importance of forage fish; our concerns focus on fish (including forage fish) and fish habitat values[1]. In addition, there are ongoing concerns to ensure Glass Sponge Reefs are not impacted by increased marine traffic and gravel spills; and that Grizzly bears and their habitat in McNab Valley are recognized and protected.

Need for BC Environmental Assessment to Comprehensively Include Federal Interests

The SCCA recognizes that the BC Environmental Assessment process focuses on provincial concerns regarding the proposed project. It is our understanding that the B.C. Environmental Assessment process is important to ensure that major projects meet the "**goals of environmental, economic and social sustainability."**[2] In the reviewing the documents the SCCA believes that the environmental impacts to the McNab Watershed are very difficult to predict, the economic sustainability is limited with the extraction of a non-renewable resource and the social impacts are high.

As this environmental assessment application was made under the former Canadian Environmental Assessment Act (CEAA) in 2010, it is understood that the Canadian Environmental Assessment Agency will have already submitted their Comprehensive Study Report (CSR) to the federal Minister prior to their final Public Comment Period.

[1] https://www.youtube.com/watch?v=cMyLcJ_CSvwX, and https://www.youtube.com/watch?v=UlY_PdNB0LUX
[2] http://www.eao.gov.bc.ca/ea_process.html

Further, as per the former CEAA, there will be no conditions attached should the Minister decide to grant an Environmental Certificate.

Both levels of government have been working closely together on sharing and evaluating the information provided by the proponent, and because the public won't know what is contained in the CSR prior to delivery to the Minister, this provincial Public Comment Period now takes on added importance as the last vehicle left to the public to inform the Assessments that are the basis of the respective Ministers' decisions. The Draft Provincial Referral Materials (dPRM), including the Table of Conditions, must therefore be more inclusive of the federal interests.

Required Prominence of Fish & Fish Habitat Values

Although the provincial Draft Assessment Report identifies fisheries and freshwater environment as one of the five key themes in their evaluation, as written, the dPRM, it does not adequately document the historic and current value to Canada and to the Province of salmon and trout species in McNab Creek; nor does it recognize and the importance of McNab Creek fish habitat, including estuarine habitat, to the rest of Howe Sound. For example on p. 10 of the Summary Assessment Report, it states that the "… Burnco Project would be located in the McNab Creek watershed, which supports runs of chum, pink and coho salmon, Dolly Varden char, rainbow and cutthroat trout." This sparse description not only minimizes the significance of the fish values but also fails to recognize the (historic) presence of Chinook and the current usage of McNab Creek by Steelhead (anadromous rainbow trout). Page 50, of the Draft Assessment Report itself, repeats the same statements and omissions.

As stated in our EIS review, highlights of historic values include McNab Creek being identified, in 1979, by the province as one of three more gently sloping streams on the west side of Howe Sound with a significant estuary (there being none on the east side) and therefore had significant capabilities, along with the Squamish River, for supporting the recreational fishery in Howe Sound[3]. Escapement records for McNab Creek go back to 1950 and include Coho, Pink, Chum and Chinook. Sport fishing for Cutthroat Trout and Steelhead was recognized as early as 1935.[4] Twenty years later, a provincial Fish and Fish Habitat Inventory (1999) noted that the Creek contained important spawning and rearing habitat for anadromous salmonids, Cutthroat and Steelhead (in spite of damaging industrial activity within the watershed). More current values are indicated that in 2009, only eight years ago, DFO still considered McNab Creek a major Chum system within the Howe Sound/Sunshine Coast Area with a management escapement goal of 10,000. Indeed, the importance of McNab Creek and its fish and fish habitat values, and the perceived significant negative impact of the proposed Project was the reason that DFO recommended that the proponent relocate or redesign the project in 2010.[5]

[3] http://www.env.gov.bc.ca/wld/documents/techpub/howesound/howesound_3.pdf, p89
[4] Williams, A. Bryan, Fish & Game in British Columbia, 1935, Sun Directories Ltd., p.113
[5] BURNCO'S McNab Creek Aggregate Mine Development Proposal, Review of DFO File on Behalf of RDG Pacific, Review Team, Final Report, March 6, 2011, MECTS 2011-505-0018

When DFO agreed to let the Applicant move forward with a comprehensive study process under the (old) CEAA in 2011, it noted that it still had serious concerns about the extent of the impacts on fish and fish habitat (Ibid, p.2.) One of the five points, specified that the "… options for adequate fish habitat compensation within McNab Creek or even the greater Howe Sound area are severely limited and may not allow the proposed development to meet DFO's fish habitat policies including the No Net Loss guiding principle."(Ibid, p.3)

No Net Loss Policy, Wild Salmon Policy & Precautionary Approach Requirements

We note that although the proposed Project is proceeding under the former CEA process, it is not proceeding under the former Fisheries Act (FA) but rather under the current FA that came into effect in 2013 which only protects the quality and integrity of fish habitats deemed to have commercial, recreational or Aboriginal fisheries by prohibiting unauthorized activities that may cause serious harm to fish. Serious harm is defined as the death of fish or any permanent alteration to, or destruction of, fish habitat. However, the Fisheries Act will soon be revised and we remain optimistic that the No Net Loss policy and the Harmful Alteration and Destruction Section will be re-instated.

Canada's Policy for Conservation of Wild Pacific Salmon (2005), more commonly known as the Wild Salmon Policy (WSP), which is still in effect and soon-to-be implemented (DRAFT 2018-2022 Wild Salmon Policy Implementation Plan – For Consultations, Fall 2017, Fisheries & Oceans Canada) places conservation of all Pacific salmon species as the first priority for this resource. Specifically, it represents the federal government's commitment to maintaining/rebuilding healthy and diverse populations of salmonids and their habitats. Geographically and genetically linked populations are known as Conservation Units (CU). Further the WSP incorporates the Precautionary Approach (as defined in "A Framework for the Application of Precaution in Science-based Decision Making about Risk", Canada, Privy Council Office 2003). It is possible that the species utilizing McNab Creek form part of the Howe Sound CU, the McNab Creek watershed, because of it geomorphology, including the estuary, will play an important role in rebuilding the stocks in our community with the attendant benefits to the commons. The current Environmental Assessments (EAs) must utilize the Precautionary Approach because the proposed Project has the potential to irreversibly damage wild salmon and their habitat not only during the operations and closure phases but also for centuries after the 28 ha wetted mine pit has been dug.

This EA does not currently incorporate the Precautionary Approach. Table 1: Project Design Measures Resulting from the EA Process, in the Summary (p.6) for example, states that the Change in Potential Effects only reduces potential adverse effects. Specifically the revised proposed Fish Habitat Offset Plan to increase the amount of available habitat and manage surface and groundwater flow will only reduce potential adverse effects on fish, wildlife and water.

Need to identify Steelhead & Chinook as Valued Components

In order to properly evaluate the effects on fish and fish habitat, both Chinook and Steelhead need to be considered as Valued Components and their needs assessed. Although this EA identifies Rainbow Trout as utilizing McNab Creek, it is commonly recognized that although the same species, they are not anadromous.

The SCCA has asked Dr. David Bates for his expert opinion as to whether Steelhead are present in McNab Creek. Dr. Bates is very well respected and has many years experience in the McNab watershed and has stated "McNab Creek has been and still is a Steelhead Creek" (personal communications, Nov. 13/2017, Sr Biologist, FSCI Biological Consulting). Combine this knowledge with the Provincial Government's goal to "*Ensure abundance of wild steelhead populations at levels that will produce societal benefits now and for future generations of British Columbians"*[6]; we believe that BURNCO's environmental professionals should have recognized Steelhead as a Valued Component.

There are historic records for Steelhead, and currently they are spawning in the Box Canyon tributary. The reach of McNab Creek within the Certified Project area at the very least provides access for adults and rearing for migrating juveniles[7].

It is difficult to determine if Chinook (Spring) Salmon are currently using McNab Creek to spawn. There is some qualitative information that Chinooks have been observed in the system but no detailed stock assessment for many years based on Fisheries and Oceans data. It must be remembered that salmon are opportunistic and will wander to recolonize streams. With enhancement occurring in the Squamish River watershed a future with Chinook present in McNab Creek is possible.

Need to Sample for Cutthroat Trout

Coastal Cutthroat trout are a blue-listed species in British Columbia. This vulnerable fish is likely in serious decline in this area[8]. The proponent makes the case that the development in the flood plain is not affecting any limiting factors for the populations. More detailed reporting is required to conclude this. The species should be sampled more extensively in the channels and a determination made that in fact there are no factors present in those channels that are key to population productivity. For example, are they spawning there? As indicated, the literature states that Cutthroat prefer natal areas in small tributaries (< 1m wide) located further upstream. However they also spawn in other types of habitats and, further, all migratory populations depend on these small groundwater channels to complete their life history whether they spawn upstream or not. The proponent should evaluate spawning of Cutthroat trout.

[6] http://www.env.gov.bc.ca/fw/fish/docs/Provincial-Framework-for-Steelhead-Management-in-BC-April-2016.pdf
[7] http://skagitcoop.org/wp-content/uploads/Yearling-Phase-I-Final-12-4-10.pdfX
[8] http://www.env.gov.bc.ca/wld/documents/fishfacts/cutthroattrout.pdf and http://speciesatriskbc.ca/node/8201

Need to Expand Valued Component Freshwater Habitat to Include Marine Habitat

The dPRM identify a number of the environmental impacts to the marine environment but nowhere does it identify the mouth of McNab Creek as an estuary.
The BC government has recognized the importance of estuaries to our province. In fact estuaries are very limited and only comprise "2.3% of BC's rugged coast line."[9] It is common knowledge that estuaries are critical to salmonid survival[10]. This project must examine the importance of the McNab Estuary to salmonids that return to McNab Creek but also those migrating from the Squamish watershed. Chinook (and Coho) smolt may very well be adapting to saltwater/and or feeding at McNab as they depart the Squamish River[11].

Fish habitat needs to be extended to cover the estuarine and foreshore areas, e.g. fresh water and marine habitats.

Need to Sample for Forage Fish as per Provincially Recognized Protocols

The SCCA is dismayed that the EAO has not required the Proponent to properly sample for the Chinook and Coho prey (beach spawning forage fish) as per the Proponent's response to the SCCA comments identified as Issues 1634 & 1636 in the Environmental Issues Statement, Public Issues Tracking Response, 2016.

The SCCA restates the need for baseline data to be collected on the absence or presence of suitable habitat for beach spawning forage fish, specifically Pacific Sand Lance and Surf Smelt. The consultants note "… local marine waters are known to support herring and other important forage fish species such as Pacific sand lance, capelin and surf smelt," and also, "no forage fish were identified during baseline sampling using beach seining techniques." Beach seining is not the accepted method for determining the absence or presence of intertidal spawning forage fish such as Pacific Sand Lance (PSL) and Surf Smelt. In addition, the beach seining dates would have missed the winter spawning PSL and winter spawning Surf Smelt.

Due to the variation of substrate that these forage fish utilize for spawning, forage fish specialist Ramona De Graaf MSc, Executive Director Sea Watch Society, should be brought in to conduct an on-site survey to determine feasibility of the McNab Creek estuary as a spawning site.

Positive forage fish spawning beaches have been found within the winter spawning window on the Sunshine Coast for both PSL and Surf Smelt, mandating further investigation of this area. Pacific Sand Lance (Ammodytes hexapterus) live near the shore year-round and spawn on sand or pebbled beaches in the mid to upper intertidal zone during the winter (November–February), often using the same beaches as the Surf Smelt (Schaefer 1936, Penttila 1995). Low, broad estuary situations such as McNab estuary are rare in Howe Sound.

[9] https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/species-ecosystems-at-risk/brochures/estuaries_bc.pdf
[10] http://www.cdnsciencepub.com/news-and-events/press-releases/PR-CJFAS-2016-0486.aspx
[11] http://skagitcoop.org/wp-content/uploads/Yearling-Phase-I-Final-12-4-10.pdf

If verified as a potential spawning site, the standard two-year survey should be carried out to determine absence or presence of Surf Smelt or PSL within the estuary, as the Proponent indicated their Response.
"If required by regulatory agencies, an intertidal forage fish spawn survey could be conducted in accordance with standard forage fish egg sampling procedures (Moulton and Penttila 2001) prior to the start of the piling program. Additional mitigation that might be implemented during construction to manage adverse impacts on spawning areas includes limiting machine access and avoiding grounding within the mid and upper intertidal zone. Moulton, L.L. and D. Penttila. 2001 [(Baseline Report (Appendix 5.1.A) 2.3.5 Beach Seining (Sec 2.3.5)]." This was stated in response to Issues 1634 & 1636 in the Environmental Issues Statement, Public Issues Tracking Response, 2016.

In-water works (that is construction of the barge load out jetty, conveyor system, floating dock and steel piles) may affect marine water and sediment quality. Effects from shading, sediment disturbance and resuspension would result in 2.5 m^2 of direct habitat loss for marine benthic communities primarily in the woody debris zone of the existing log handling area. Habitat loss may result in the mortality of sedentary or slow-moving benthic invertebrates through physical disturbance and smothering, and may impact prey availability for juvenile forage fish. (Marine Benthic Communities, page. 63 EAO – Draft Assessment Report, Oct. 27/17)

Forage fish make up a minimum of 50% of the diet of adult Coho salmon, and Pacific Sand Lance & Herring comprise 72% of an adult Chinook salmon's diet. Larval and juvenile Sand Lance form a major portion of a juvenile Chinook's diet. Chinook salmon, in turn, are a major food source for the SARA identified South Coast population of Orcas.

Shortfall of Management of Surface & Groundwater Flows Based Model

In addition to the shortfalls identified above (omitting Chinook, Steelhead and assessment of marine fish habitat including beach spawning forage fish), there remains grave concern of the effect of the mine pit on the surface and groundwater flows and resulting fish and fish habitat in McNab Creek and the foreshore water courses. The proponent's Water Management Plan is theoretical and not based on experience in a similar riverine-estuarine setting, let alone in similar bio/geo/climatic situation. This EA states that with respect to the wetted mine pit "BURNCO predicted a positive potential effect on the flows in McNab Creek by reducing the rate of flow loss in the groundwater systems …" (p.57, EAO Draft Assessment Report, Oct. 2017) In addition "Working Group members agreed with the model and predictions, but requested the collection of additional baseline data to increase confidence in these predictions and to ensure that adequate data … would be available if required".

The crux of both EAs is to determine if there is a possibility of negative impact on any of fish and fish habitat in McNab Creek and the other water courses as defined in the Regional Study Area (RSA).

In order to determine this there must be a rigorous, all-encompassing collection of data, which includes relevant phases of life cycle usage for all the fish species utilizing McNab Creek for a statistically valid duration not just vaguely defined "adequate" data and not predominantly in the engineered/compensation spawning channel. The duration should be set against the life cycles of the different fish species. For example, if a Coho returns to spawn four years after deposited as an egg, then the intervening four years represent 4 different runs that need to be documented and assessed. Dr. D. Bates considers at least 20 years as appropriate (personal communications, Nov. 13, 2017, Sr Biologist, FSCI Biological Consulting). It is suggested "that to begin with a reconnaissance overview assessment of the RSA to identify key habitats used by the VCs (including Steelhead and Chinook) be conducted and then a monitoring program be designed to assess their abundance (e.g. calibrated swim counts, calibrated red counts, pit tagging of juveniles)." This data must be collected before construction begins and continue for many years after closure. (Comments on the EAO Report on the Proposed BURNCO Development in McNab Cr., Stamford Environmental, Nov. 22, 2017, p.2)

It is assumed that although additional base line data was requested that the additional baseline data "… was not further assessed in the Application due to the prediction of a positive effect" (p.57) referred to positive effect on fish and fish habitat. However, it is not acceptable for the Proponent not to conduct an instream flow assessment, such as Physical Habitat Simulation, of the proposed projects effects on McNab Creek main stem "… because the groundwater and surface water modelling predicted small to moderate increases in base flows that would lead to increases in wetted usable fish habitat areas" (BURNCO Public Issues Tracking EACApp_EIS.xlsx Rev1.1 10Feb2017, Proponent Response, Issue 1602). Without complete baseline data, it will be difficult for the government to prove that any negative impacts are the results of the model:

> "If mine-related changes in surface water quality during the mine life consistently exceed provincial and federal water quality guidelines and concentrations can be distinguished from the baseline conditions, then biological monitoring will be triggered to determine if these changes have impacted aquatic resources in the downstream receiving environment. Relevant groundwater data will be reviewed as part of the adaptive management process." (Proponent Response, Issue 1625)

Underestimation of Climate Change Impact

The influence and arrival of climate change is underestimated in the Assessment, in the water management model and on fish and fish habitat. As explained in our EIS submission (Public Tracking Response, Rev1.1 Feb 2017, Issues1627, 1630, 1640-43 and 1645), the weather stations chosen (Chapman Creek and Gower Pt) do not accurately reflect the current conditions in the McNab Creek watershed and the evaluation of the last 30 years of records ending in 2010 do not capture the very recent worldwide record breaking temperatures. The Proponent's calculation that the effects of climate change will not arrive until after the construction and operations of the project are completed (approximately 18 years from now) remains disputed.

It is understood that some climate change effects were modelled into the Water Management Model, (using Chapman Creek data) with the prediction that the wetted pit would reduce seepage losses from McNab Creek that would otherwise occur if no mining were to take place. This statement presupposes that the upper portion of the engineered/compensation channel (WC2) would never be altered.

In this EA, Climate Change is considered a Valued Component - the greenhouse gas emissions produced by the proposed Project over its lifetime were evaluated for their contribution to climate change. However climate change is far more encompassing and is the 'wild card' in this EA. It is recognised by both levels of government that the effects of climate change are upon us now, as evidenced that there are both federal and provincial Ministers responsible for this issue. Indeed, the Minister responsible for this EA is the Minister of Environment and Climate Change Strategy (MoE & CCS)! Therefore this section of the EA should be expanded to identify all possible influences of climate change impacts on the project and how the project might further exacerbate negative impacts on the protection, management and conservation of the aquatic, terrestrial, air and biotic resources in the McNab Creek watershed. For example the expected Sea Level Rise, commonly believed to be at least half a meter (0.50m) by 2050[12] and its effects on the project (e.g. salt water wedge) should be identified here.

It is our opinion that climate change effects such as expected further sea level rise, storm surges, prolonged periods of reduced snow and reduced rainfall, frequency and severity of weather events such as storms and including rain on snow events impacting coastal British Columbia now, have not been adequately identified in this EA. Associated coastal hazards include coastal inundation and changes in drainage capacity, coastal erosion and changes to coastal habitats and loss of wetlands.[13] It is acknowledged that the uncertainty surrounding the severity of these changes will be difficult to evaluate. Nonetheless, the provincial government has already (2013) published resources (see above) to help authorities prepare for these impacts. The strategies include protection, accommodation, retreat and avoidance. They note that protection can be prohibitively expensive and may have limited effectiveness in vulnerable areas.

The BC EAO must consider how the values to the province of the salmonids and salmonid habitat in the McNab Creek watershed, including the estuary are best protected from the uncertain impacts of climate change. Only then can the impacts of the proposed Project, compounded with its own climate change impacts, on this ecosystem be evaluated; the strategy of avoidance may be the cheapest, most resilient course.

Grizzly Bear

The effects on Grizzly Bears have not been given adequate consideration. The Grizzlies in the upper Howe Sound Area are considered 'Threatened' and on the Sunshine Coast proper they are 'Extirpated'.[14]

[12] https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/resources/slr- primer.pdf, p.9
[13] https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/resources/slr-primer.pdf, p.3
[14] http://www.env.gov.bc.ca/soe/indicators/plants-and-animals/grizzly-bears.html

In 2016, on the Sunshine Coast, two Grizzly bears were in conflict with humans. One was killed and the other relocated. It is highly likely that these bears came from the threatened Squamish-Lillooet population unit. Grizzlies that are using the McNab Valley will be disrupted by a large gravel mine and the bears will be forced to find new territory which could lead to further human-bear conflict and possible loss of life.[15]

With the loss of habitat being the biggest threat to BC's iconic Grizzly Bears[16] there is an opportunity to secure vital habitat especially for the Squamish-Lillooet population by the provincial Minister refusing to grant an Environmental Certificate to this proposed Project.

Lack of Post Closure Plan

The length of the two-year Closure Plan and lack of post Closure monitoring and responsibility is unacceptable. If the EA is satisfied that all the final remedial actions can be completed in two years after operations have ceased, then there needs to be an additional phase where active monitoring takes place to ensure that the terrestrial and aquatic, including marine, ecosystems are functioning and recovering as predicted. It also must determine who will be ensuring the proper function of the offset channel and the wetted pit. In addition, a plan outlining the responsibilities, including financial, to remedy unexpected results needs to be implemented and accepted by the EAO prior to construction.

Table of Conditions Concerns

Should the uncertain climate change effects be determined not to further impact the fish and fish habitat values of the McNab Creek watershed, and that the best service of the alluvial fan is to provide tax dollars to the province then the Table of Conditions need to be strengthened. The following are some of the recommendations:

3. Consultation: "… the Holder must, to the satisfaction of the EAO e) Provide a copy of such consultation record to the EAO, the relevant party, or both, promptly upon the written request of the EAO or such party."

- The adjective "promptly" must be defined.

4. Compliance Verification & Reporting:

- Submitting the compliance reports to the EAO once a year is not frequent enough; the EAO must be able to adjust this requirement.
- Further these reports should be posted on the website as per Condition 22.

5. Project Status Notification:

- This should be posted on the website as per Condition 22 and then notifications should be posted in much less than 30 days.

[15] https://www.thestar.com/news/canada/2017/10/24/loss-of-habitat-is-greatest-threat-to-grizzly-bear-population-bc-auditor-says.html

[16] https://www.thestar.com/news/canada/2017/10/24/loss-of-habitat-is-greatest-threat-to-grizzly-bear-population-bc-auditor-says.html

7. Independent Environment Monitor: "b) Provide information to the EAO ..." DFO must also be informed.

- In addition the IEM should inform the Qualified Professional with respect to reclamation and the closure plan (Condition #23).
- All the reports and detailed work plans should be posted on website (Condition #22).

8. Construction Environmental Management Plan:

- The plan must also be developed in conjunction with MoE & CCS, with respect to Water Management, Grizzly Bears and Roosevelt Elk.
- A) Human-wildlife conflict – should specify Grizzly Bears and Roosevelt Elk.
- The Holder must provide the construction environmental management plan also to DFO and relevant divisions of the MoE & CCS.

9. Care and Maintenance Plan:

- The plan must be developed, provided to, and updated in consultation with DFO.

10. Generation of Excessive Noise:

- "excessive noise" must be defined.

12. Fish & Fish Habitat Plan:

- This Plan should include a plan of post Closure objectives specific to fish as per wildlife objectives (see Condition 15).
- Fisheries Management Plans should include the estuary, i.e. beach spawning forage fish habitat and salmon smolt transiting from other areas in Howe Sound.
- A) Fish and fish population monitoring Program: sufficient baseline data collection needs to be specified to species and their full life cycles. Please refer to Shortfall of Management of Surface & Groundwater Flows Based Model above.
- Should include Steelhead, Chinook and Cutthroat Trout.
    - "Monitoring results will be used to trigger adaptive management strategies, if unplanned negative effects result from the Project". The use of adaptive management strategies are welcome but need to be further defined in this Condition. Negative effects and the response time to implement adaptive strategies as well as what response will be required from the mine, all need to be defined prior to construction beginning.
- B) Fisheries Offsetting Plan – The Assessment Report identifies that the Proponent believes that the mine will not negatively impact fish and fish habitat in McNab Creek and the watercourses downstream of the mine pit. Nonetheless, an offset plan must be developed in case of unexpected consequences. The offset plan for the destruction of the upper reach of the WC2 spawning channel and reduction of water flows in the lower reach, which is set at a net gain of 722 square metres of fish habitat, cannot be used for this purpose. The location and development of the Fisheries Offset Plan separate from the extension on WC2 should be developed prior to the granting of this EA Certificate.

- Harlequin Creek has been identified as the fall back option if the proposed WC2 offset plan is not utilized by salmon as expected. This option must also be further developed prior to granting of this EA Certificate.

13. Environmental Flow Needs Plan:

- The EFN Plan must define what will happen to the mine, during any of the phases if the EFN cannot be met. This course of action should become part of this Condition.
- This Plan should be posted on the website as per Condition #22.

14. Water Management Plan:

- The plan must be developed with the respective divisions of MoE & CCS – water and wildlife
- If the EFN cannot be met, construction and operations must be halted until such time that the EFN is restored and a plan approved to prevent further occurrences.

15. The Wildlife and Protection Plan:

- This plan must include the provincially identified threatened population of the Lillooet-Squamish Grizzly Bears.
- MoE & CCS must be involved with respect to the Roosevelt Elk and Grizzly Bears

16. Noise Management Plan:

- If scientific studies show that certain noises and levels have a negative impact on any of the fish and wildlife identified in this EA, and that the noises are a result of construction or operations activities, then the Proponent should act swiftly to mitigate any negative impacts.

19. Marine Transportation:

- Requirement for Glass Sponge Reef Avoidance Plan - The SCCA is pleased that the proponent conducted comprehensive surveys which included systematic dive and towed video surveys in the depth ranges corresponding with the internationally significant known (Glass) sponge reef occurrences in Howe Sound. These were conducted within the subtidal footprint of the Proposed Project, including within200 m of all marine infrastructure, and the Marine Resources Local and Regional Study Areas. (BURNCO Public Issues Tracking EACApp_EIS.xlsx Rev1.1 10Feb2017, Proponents Response 1646).
- These identified locations (not all were provided with latitude and longitude) and those recognised in 2014 and the 13 most recently recognized (Fall 2017) by DFO within Howe Sound[17] need to be plotted against the marine transportation route. It is understood that the reefs are likely at depths that would not be disturbed by the tug and barge transiting over them. However, if there is any ongoing loss of aggregate, over the lifespan of the operations, during transportation (the barges are not covered) or if there should be any adverse weather conditions, for example, that could cause loss, the deposition of the aggregate would be lethal with no chance for recovery (personal

[17] futureofhowesound.org/wp-content/uploads/2017/10/Intro-Deck-Howe-Sound-Sponge-Reefs-DFO.pdf

communications, G. Dennison, Past Director, Marine Life Sanctuaries Society, Nov. 2, 2017). The underwater currents would have to be analysed to determine where on the route such a loss might settle and under which weather/sea conditions barging would be delayed. The Plan should be developed in conjunction with DFO and at least a determination made if damage/death from these scenarios can be avoided prior to the Environmental Certificate being issued.

22. Public Consultation:

- The niche portal for the website should be through the BCEAO and information should be updated as it becomes available.
    - Complaints from the public should also go through the EAO, and unresolved disputes dealt with by the province.
    - Compliance and enforcement reports should be listed on this website.

23. Reclamation Management:

- It is noted that only "progressive reclamation activities" are defined in the Table of Conditions (p.2) and they are defined as activities undertaken before closure" and that "for the purposes of the conditions in this Certificate, Progressive Reclamation Activities are not a Project phase" (Definitions, p.2). Therefore this Condition should deal with Reclamation activities and not the Closure Plan which should be a separate Condition.
    - It is understood that the two are linked, but as Closure is a separate phase there should be a specific Condition attached to it. See discussion above Lack of Post Closure Plan.
    - The Reclamation and separate Closure Plans must be developed with, approved by, and provided to all the Ministries responsible. For example MoE & CCS and DFO.

Capacity of BCEAO to Enforce Compliance

Finally, we wish to raise our grave concerns that the BCEAO and other relevant Ministries have the capacity to ensure and enforce compliance. The goals of **'environmental**, **economic and social sustainability' will be impossible to meet if the appropriate legislation is not in place nor enforceable**.

Conclusion

The SCCA remains unconvinced that the proposed aggregate mine, especially with unpredictable climate change, will have an insignificant effect on the fish and fresh water and marine fish habitat values in the McNab Creek watershed. Should the water management model not function forever as planned and millions of tonnes of a non-renewable resource are removed leaving behind a 28ha, 35m deep wetted pit, the capacity to remedy the situation will be bleak.