



September 28, 2016

BURNCO Aggregate Mine Project
British Columbia Environmental Assessment Office
PO Box 9426 Stn Prov Govt
Victoria, BC V8W 9V1

Attention: Ms. Monica Perry

Dear Sirs/Mesdames:

**Re: Proposed Burnco Aggregate Project at McNab Creek, British Columbia -
CEA Registry Reference Number 11-03-54754**

We are writing in response to your request for public comment on the Environmental Impact Statement filed with your office by Burnco Rock Products Ltd. regarding the Burnco Aggregate Project proposed for McNab Creek, Howe Sound, British Columbia.

Our Society is committed to the conservation and stewardship of Howe Sound for the benefit of current and future generations. Having reviewed the EA application, supporting documents and attended the public information sessions, it seems clear to us that there would be significant social, health, environmental and economic harm caused by this project which cannot be mitigated.

Burnco's Environmental Impact Statement is largely focussed on specific, localized impacts at the proposed site but ignores or fails to adequately address the socio-economic and environmental impacts on the greater Howe Sound region. Any decision on this project should not be based on the proponent's constrained review of the environmental and socio-economic issues in the immediate area of the proposed project but must take into account the greater impact the proposed project could have on the Howe Sound region. The proponent's report shows little effort by the proponent to have engaged in discussion with neighbouring communities or other stakeholders to assess the adverse impact that this project would have on those stakeholders. There is little or no recent assessment of how this project would impact other initiatives for long term planning or sustainable development. There is no objective assessment on the impact this project could have on the tourism and film industries or other economic drivers for the region. Much of the reference material is outdated or deficient and cumulative effects assessment is deficient in many areas.



The adverse socio-economic impact that this type of industrial activity could have on the region should not be underestimated. Both the Provincial and Federal Governments have spent considerable energy and taxpayer funds in promoting the Sea-to-Sky corridor as an international tourist destination primarily with an emphasis on what it offers for eco-tourism and recreation. The number of tourist visits to the Sea to Sky Corridor has increased dramatically over the last few years and contributed hundreds of millions of dollars to the local economy. The development of a mine project such as this with the attendant impact on a fragile eco-system as well as noise, dust and light pollution can only be detrimental to these efforts to promote the area as a tourist destination. It will have serious, adverse economic consequences to other communities, businesses and users of the Sound. The EIS is lacking in its assessment of impacts on the tourism and recreation economy of the region.

In September 2002, twelve local governments and First Nations representing the communities in the Sea to Sky corridor signed Principles of Co-operation which identified the importance of community involvement in the consideration of issues affecting Howe Sound and the need to “work together for the greater good because territorial lines on a map mean nothing in terms of sustainability”. Among other principles identified in the document, the signatories recognized the “need to effectively manage and maintain a balanced relationship between community development and the protection of unique biophysical qualities of the region”. Recently, these communities have re-affirmed the need to proceed with a comprehensive planning process for the region.

The proposed processing facility is not permitted under current zoning. The fact that a proposal of this nature is being considered through an independent governmental assessment without any comprehensive land use plan having been developed for Howe Sound in spite of the stated desires of the communities and local governments in the area is astounding. Furthermore, initiatives are underway to pursue a marine or national park and to have the Howe Sound region recognized as a UNESCO Biosphere Reserve. The federal and provincial governments should be taking a leadership role to ensure that proper land use planning is undertaken prior to considering major industrial development proposals which can have dramatic socio-economic impacts on the surrounding region. In the absence of a comprehensive resource management plan, the Provincial Government should not be approving a project which is so completely at odds with other community interests, the pursuit of sustainable development for the region and is contrary to current land use zoning.

The significant adverse environmental impacts of a project of this nature have previously been considered and determined to be unacceptable by the Department of Fisheries and Ocean on at least two prior occasions before the current proposal. The proponent was well aware of the fact this project is not permitted under current zoning and of the fundamental concerns about the impact on fish habitat and on the Howe Sound region as a whole before it embarked on seeking approval for the pit mine.



There is overwhelming opposition to this proposal through the Howe Sound community and beyond due to the significant adverse impact this project would have if approved. This is not a situation where the proponent could be deprived of existing property rights. The proponent has elected to take a calculated risk in undertaking its application for approval of this project notwithstanding its prior knowledge of the fundamental concerns the project raises and the fact that existing zoning does not permit its intended use.

Environmental Impact

1. The Environmental Impact Statement has been prepared based on a project scope that has been substantially scaled back from Burnco's original proposal. The assessments that have been conducted are based on underlying assumptions as to both the scale of the project and the hours of operation. However at the 2013 a Burnco senior executive stated that it was their long-term intention to expand the mine even beyond what had been proposed at that time. We have significant concerns about relying on the results of environmental assessments which are predicated on these assumptions of a reduced scope of operations since Burnco has clearly expressed its desire and intention to ultimately develop a substantially larger mine which will be operated 24 hours per day. We remain concerned that the scope of the project as described in the EIS has been contrived for the purposes of achieving initial approval and because the Environmental Impact Statement relies on the assumptions as to project scope, it does not properly assess the ultimate impact that this project will have if approved.
2. Even based on the questionable assumptions of project scope, the EIS is deficient and fails to properly assess the overall impact of this Project. An independent professional review of the EIS conducted by LGL Limited, Environmental Research Associates, (a copy of which has been submitted under separate cover) has identified a number of key deficiencies and concludes by stating:

"it is our professional opinion that the BURNCO Aggregate Project EAC application did not effectively address potential adverse residual and cumulative effects to marine resources, recreational values and land management. We recommend that the British Columbia Environmental Assessment Office, in its environmental assessment report, conclude that the project will cause significant environmental effects."



3. We are concerned that the various aspects of the EIS assessment have been prepared in isolation and that this compartmentalized approach has not provided a proper evaluation of the overall impact of the project. For example, at the recent Open House, the air quality presentation showed an air particulate coverage area that extended well out into the surrounding marine environment. When asked to explain the visual presentation, the air quality consultant advised that the coverage area was an averaged overview of the area that would be impacted and there would be times (particularly during the ongoing periods of surface construction activity as the pit area is expanded which are expected to occur at least annually) when the particulate coverage area would be larger than shown on the presentation. When asked to explain how the marine impact assessment could be predicated on the hypothesis that there would be no sediment created by the project even though the air quality analysis showed an expansive area that would be exposed to particulates which would necessarily settle over the marine area, the air quality consultant indicated that she was not aware of any exchange of data or cross-evaluation between the consultant groups to confirm whether the working hypothesis used in the marine assessment that there would be no sediment created was reasonable or correct. Based on the air quality consultant's projections about air quality impacts and actual impacts at other aggregate loading locations, we suggest that the hypothesis used in the marine assessment that there will be no sediment impacting the marine area cannot be substantiated and is contradicted by the EIS's own air particulate assessment.
4. The information included in the EIS does not appear to substantiate the claim that there will be no sediment impact on marine life and the air quality assessments seem to indicate the contrary. The recent discoveries by the Vancouver Aquarium's Howe Sound Research Group of important reefs in the very near vicinity to the loading area and of other sponge reefs in the near vicinity make a more extensive review of potential sediment impacts imperative. Sponge reefs are extremely sensitive to sediment and these extremely rare and very fragile areas must be properly protected. The analysis provided by Burnco does not properly address the potential impact on the nearby sponge reefs. The assumption that there will be no sediment created is very questionable and there should be further studies to assess what impact there would be if dust and other particulates are created (whether during dredging, storage or loading) which seems to be a much more likely event than the assumed case.
5. The EIS provided seems to be confined to the immediate impact on McNab Creek and the existing compensation channel. However, this location is one of the few areas in Howe Sound which is shallow enough to serve as a natural feeding and habitat area for marine life and serves as a staging area for salmon returning to other locations in Howe Sound, including the Squamish River. There appears to be no assessment of what impact the destruction of the estuary will have on salmon returning to the Squamish River or on forage fish and other fish stock which use the surrounding marine area for feeding. The baseline studies that were conducted were very



limited in scope and did not cover seasonal periods and do not properly assess the migratory patterns of marine life in the area and the impact that the project could have on these populations.

6. Some of the baseline assessments used for various components of the EIS seem to be of questionable validity for the project location. For example, the baseline data for Air Quality was derived from data collected at Langdale, Squamish and Horseshoe Bay, all of which are urban areas with significant vehicular traffic and other factors affecting air quality. The air quality in a remote location such as McNab Creek can reasonably be expected to differ significantly from urban areas and it is unclear why an air quality monitoring station was not established at the site to provide accurate baseline data.
7. The EIS indicates that no adverse impact on groundwater or adverse run-off effects are expected and claims that the resultant pit lake will be benign and contribute to the ecosystem. However in one point in the analysis, the study suggests that the existing compensation channel acts like a wick drawing water in its direction. There is no explanation as to why a huge pit lake will not have a similar, but hugely exacerbated impact, and act as a gigantic sponge absorbing water from the surrounding groundwater resources.
8. The study also includes a conclusion that there is little liquefaction risk. This conclusion would appear to be at odds with a number of earthquake studies that highlight the potential risks in areas of sand and gravel which have a significant liquefaction risk. It is hard to understand how there would not be significant concern that a narrow strip of gravel and sand separating a large pit lake and the ocean would not be subject to liquefaction in the event of an earthquake. If this occurs, there presumably would be a significant interchange of the pit lake water and the foreshore. The analysis of this risk appears to be lacking and given that this area is in a high earthquake risk zone, that appears to be a significant omission.
9. There also appears to be little analysis of the impact of climate change and the rising level of the ocean. This project will permanently alter the estuary with only a low elevation strip of land between the pit lake and the ocean. If ocean levels rise as almost universally predicted, what will be the risk of the pit lake and ocean intersecting or the low elevation separation being breached?
10. The EIS does not include any substantive assessment of potential concerns about acid rock drainage. Acid rock drainage was a significant contributor to the environmental damage caused at the Britannia Mine. Remediation of the problems caused by this acid rock drainage cost taxpayers in excess of \$50 million. Acid rock drainage is caused by natural oxidization when sulphide minerals are exposed to water and air. It is logical to assume that the geology of the



McNab Valley could very well be similar to the Britannia Creek valley and it is our understanding that an assessment report from a survey conducted in the McNab Valley in 1980 indicates the presence of significant quantities of sulphide rock. Burnco is proposing to mine and crush this rock at its McNab Creek project. The mining and crushing activities will necessarily expose sulphide materials to water and air and create the precise conditions that resulted in the damage at Britannia Creek. It is very difficult to rationalize how Burnco can assert that their proposed activities will not have any adverse (if not disastrous) impact on the McNab Creek environment or have any confidence that the resultant pit lake will not be filled with acid rock run-off that is toxic to fish and aquatic life.

11. The EIS acknowledges that there will be a “temporary” loss of riparian ecosystem and wetland ecosystem as a result of the project. However this is rationalized by stating that “re-establishment to current conditions is expect to occur within 150 years”. There is no substantive explanation of why this “temporary” loss of riparian and wetland areas which are critical to the ecosystem will not have a lasting detrimental effect on the McNab Valley.
12. The McNab Creek watershed is known for extreme rain fall and is identified as a high velocity stream yet the EIS Summary states that “It is unlikely that there is a significant potential for debris flows and debris floods to occur upstream of the Proposed Project Area”. It is difficult to rationalize this conclusion in light of the known characteristics of the valley. There seems to be no critical assessment of the potential flooding risks associated with unusual storm level activity and upstream debris blockage. In a natural delta and estuary, the flooding risk is naturally compensated by the delta fan however the construction of the sediment laden pit lake adjacent to the creek should raise significant concerns about flood potential yet this seems to be dismissed without any substantive evaluation.
13. The EIS acknowledges that there will be loss of various bird habitat particularly during the operational phases but concludes in a number of instances that populations are predicted to recover after reclamation is completed. However those predictions of recovery do not appear to be supported by any concrete analysis that shows evidence of self-sustaining populations of bird species which can withstand the loss of habitat for a minimum of 30 years before reclamation is undertaken so that there is a surviving population that can allow for recovery.
14. The EIS appears to make no mention of the possible effects on the Christie Islet Migratory Bird Sanctuary which is in close proximity to the proposed project site and immediately adjacent to the proposed barge route. It seems to be a startling omission that the potential impacts on the Christie Islet Bird Sanctuary are not even addressed.



15. The analysis of the noise impacts is predicated on evaluation standards associated with industrial activity or urban locations. These threshold tests are not appropriate for this location. The McNab Valley is at the heart of one of the prime recreation areas in the Lower Mainland. Visitors and residents of the area are attracted to the location due to its natural beauty and tranquility. Youth's camps in the immediate vicinity introduce urban youth to wilderness environments. To quantify the impact that the project will have on the local environment by reference to industrial or urban testing standards ignores the fundamental reason that people are drawn to the location. Background noise levels that may be acceptable in urban or industrial environments will destroy the fundamental nature of this location and so the assessment methodology does not seem appropriate for the location in question. Additionally, from a review of the references, there appears to have been no effort undertaken to contact film industry representatives to assess what the noise, visual and dust impacts will have on the use of the area for filming.
16. The conclusion expressed in the EIS that there will be no cumulative impacts from noise appears to be fundamentally flawed. The consultant at the public information session was not aware the Box Canyon power generation site was in the same valley or was now in operation. He also acknowledged that there had been no assessment work undertaken of the cumulative impact that would result from the concurrent operation of the Burnco project and the Box Canyon power generation facility. If other activities in the immediate vicinity are not even taken into account, it is hard to understand how it can be asserted there will be no cumulative impacts.
17. The EIS study on the visual impact seems to be predicated on monitoring stations that, with one exception, are at sea-level. The study does not seem to take into account the potential impact on neighbouring locations at elevation even though there are a number of adjacent recreational properties with dwelling sites at higher elevations that will be impacted visually by this project. The analysis of the visual impacts appears to be deficient.

Social and-Economic Factors

18. Burnco has attempted to justify the proposed project by inferring that there is a limited supply of gravel and aggregate and that this project is necessary to meet construction demands in the Lower Mainland. However the fact is that gravel and aggregate are not scarce commodities. The Fraser Valley Regional District Aggregate Inventory Atlas identifies 87 high rated deposits in the region and suggests that there are sufficient identified sources of aggregate to meet demand for well over 100 years. These resources are available at a far lower environmental, social and economic cost than Burnco's proposal. This project is not required to meet the needs of the greater good, it is being proposed simply to benefit Burnco at a significant cost to the



public at large. Burnco will reap all of the benefits while the rest of the Howe Sound community and the residents of the Lower Mainland bear the significant costs of the project.

19. The proponent points to the jobs that will be created as the economic justification for its proposal however it makes no attempt to analyze what jobs may be lost by the re-allocation of its supply source. Since it will only be changing its own internal supply of commodities that are otherwise plentiful and readily available, it may be that the net increase in jobs will be less than is suggested and perhaps negligible as the sources it previously used to meet its requirements will no longer be required.
20. The EIS makes no attempt to quantify the potential economic impact on the established prawn fishery in the area even though the project can be expected to adversely impact the sustainability of the fishery. The McNab Creek area has been identified as having a prime rearing area for prawns. Due to the recent wasting disease that has decimated Howe Sound's starfish population resulting in an increase in sea urchins feeding on eel grass, juvenile prawn feeding areas are under stress with potential ramifications to the sustainability of the prawn population. The loss of rearing areas and impact on the prawn population due to this project and resultant impact on the prawn fishery has not been addressed in Burnco's submission.
21. Howe Sound is an extraordinary natural environment that is less than an hour away from a major metropolitan centre. The recreational opportunities it affords for residents of Metro Vancouver are unparalleled. The proximity to Howe Sound and the Sea to Sky corridor is a key factor in Vancouver being ranked as one of the most livable cities in the world and leads to immigration and investment which contribute greatly to Metro Vancouver's economy. The creation of a pit mine in a prime estuary will degrade the area and could cause an adverse economic impact on the growing and thriving tourism economy. There has been no attempt to quantify this cost.
22. The natural capital associated with this unique environment cannot be underestimated but has been ignored. In a recent study (M. Molnar 2015, Sound Investment: Measuring the Return on Howe Sound's Ecosystem Assets, David Suzuki Foundation) Howe Sound was assessed as having a natural capital value of up to \$4.7 billion. Yet the EIS makes no attempt to quantify the cost of the loss to Howe Sound's natural capital that would result if this project proceeds even though Burnco concedes that there will be significant environmental impacts in a number of areas and a degradation of valuable ecosystems. The Molnar study suggests that the annual value per hectare of ecosystem services in Howe Sound ranges from \$36,045 per hectare to \$624,879 per hectare. Based on these numbers, for the 70 hectares of lands that will be consumed by this project, the net economic cost to the general public through loss of natural capital will range from \$2,524,150 per year to \$44,041,530 per year. Even the median value of this range would



indicate a cost to the public of \$23,453,340 per year. Since this project will be consuming the last largely intact estuary in the region, it is likely that the true economic cost to the public of this project will be at the upper end of the range and could well exceed \$40 million per year.

23. This project is being proposed at a time when the extensive environmental remediation efforts undertaken in Howe Sound over the last few decades have begun to show results. The success of these remediation efforts is evidenced by the recovery of marine life with increased herring runs and salmon returning to creeks that had historically been too polluted to support the fishery. Killer whales, humpback whales and other cetaceans have been sighted with increasing frequency in the last few years including in Ramilles Channel and Thornbrough Channel which are in the immediate vicinity of the project. The return of these marine mammals to Howe Sound is evidence of the recovery of the Howe Sound environment which has been accomplished at considerable cost to both industry and the taxpayer. The estimated aggregate amount that has been expended on remediation efforts is in excess of \$200 million including more than \$50 million of taxpayer money. However, this recovery remains in a fragile state. It is completely contradictory to the efforts of both private and public bodies that a proposal for renewed mining activity in an environmentally sensitive estuary is being considered even while extensive environmental remediation efforts continue in other areas of the Sound at a significant cost. There is no attempt to quantify the costs associated with the inevitable environmental degradation that will result from this project or the potential adverse impact it will have on other remediation efforts being undertaken at both public and private expense.
24. The proposed project is incompatible with the established recreational activity in the immediate vicinity of McNab Creek and in Howe Sound generally. There is an established recreational community immediately adjacent to the proposed site of the project as well as another established recreational community directly across Thornbrough Channel. This project will necessarily impair the use and enjoyment of these properties and will adversely affect their market value. Additionally, there are three youth's camps in the immediate vicinity as well as various other youth's camps in the Howe Sound area which use the McNab Creek estuary and surrounding waters for outdoor activities. Furthermore, the immediate vicinity of the proposed project is extensively used by kayakers, canoeists and other recreational boaters and there are established yacht club outstations directly across the Channel. The noise, dust and light pollution that would necessarily result from this project are clearly incompatible with these existing uses. There has been no attempt to quantify or value the adverse impact this project will have on these other stakeholders even though the social cost will be significant.



25. The EIS concludes that there are no marine navigation impacts. However the increased barge traffic will run directly across a prime recreational boating area that during the summer months is used virtually on a daily basis by children from the neighbouring camps who travel in canoes and kayaks and cross Thornbrough Channel between McNab Creek and Ekins Point. Additionally, the proposed project is in the immediate vicinity of the newly designated marine trail that is designed to attract kayakers and other recreational users to the region. The proposed barge route transects the trail. The impact that this increased barge traffic could have cannot be readily quantified but could potentially endanger the safety of children and other recreational users of the maritime environment.
26. Currently, local organization and local governments in the Howe Sound region are working to develop an overall land and marine use management plan for the region. In conjunction with these efforts, it has been recognized that it is important to understand the impact of cumulative effects. The Ministry of Forests, Lands and Natural Resource Operations announced in 2015 that it would be proceeding with a cumulative effects framework for Howe Sound but the EIS does not refer to that announcement or take into account the work undertaken to date in connection with that planning initiative. In the absence of a proper understanding of the cumulative effects, it is impossible to properly assess the overall impact of the proposed project and the results of the preliminary work done should be taken into account in properly assessing the full impact of this project.
27. Approval of this project would have a negative effect on the efforts of local governments promoting the recreational and eco-tourism benefits of the Sea to Sky Corridor and Howe Sound. Renewed industrial activity without comprehensive, long-term planning can only have a significant detrimental impact on surrounding communities and the world's perception of British Columbia as "Super Natural BC". Full consideration should be given to the potential negative impact that this project and renewed industrial activity will have on the tourism and recreation potential of the region and the costs associated with that need to be taken into account in any socio-economic analysis of the value of this project. That analysis is missing from the EIS.
28. Similarly, due to its inherent natural beauty and proximity to Vancouver, there is extensive film production occurring in and around Howe Sound which has had a significant and ongoing positive economic impact for the region. A film location manager involved in a film which injected \$20 million into the local economy has stated that "the Burnco mine would be a strong deterrent for any film maker looking at working along the coastline". Noise, dust and visual impacts disrupt film activity and make the region less attractive to film production. Once again, the potential social cost to the region of this project thorough loss of film production activity could be significant but has been ignored in the EIS.



29. There has been no assessment of the social cost of project's adverse impact on recreational opportunities and outdoor activities even though it is proposed as a prime recreational location. What will be the impact on the livability of the region and Vancouver's reputation as one of the most livable cities in the world if the last largely intact estuary in the region is turned into an open pit mine for the next 30 years?
30. Dr. Murray Newman (the founding director of the Vancouver Aquarium) once said that "anywhere else in the world, Howe Sound would be a great national park". Although it has taken decades to come to fruition, those words may now be prophetic as there are ongoing initiatives to designate parts of Howe Sound as a National Park or a Marine Park. The core areas fundamental to such a designation include the marine areas adjacent to McNab Creek which are considered prime recreational areas that should be given full protection status. Such a designation will bring significant economic and environmental value to the area. To allow the proposed project to proceed would have a significant adverse impact on these efforts at a social cost that cannot be measured but should be taken into account in assessing this project.

In summary, we believe that this project simply does not measure up to the goals of environmental, economic and social sustainability which underlie the assessment process. The EIS that has been submitted does not adequately take into account or address a number of critical factors and fails to properly assess potential adverse residual and cumulative effects to marine resources, recreational values and land management.

The shortcomings of this assessment highlight the concerns that significant environmental and socio-economic costs of this project will be borne by the residents, neighbouring communities and other economic stakeholders of Howe Sound while any benefit will accrue solely to the property owner.

We strongly urge the Environmental Assessment Office to conclude that this project will have significant adverse environmental and socio-economic impact that cannot be justified and therefore should not be approved.

Yours truly,

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