

**Proposed Pebble Project  
Preliminary Draft Environmental Impact Statement  
Review Comments**

**Reviewer:** NARF Technical Team  
**Date:** December 21, 2018  
**Chapter:** Chapter 5: Mitigation  
**Section:** Sections 5.1 – 5.3  
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**Comments**

**5.1.3 NEPA Guidance.** The first step discussed in this subsection is to identify and describe potential impacts to resources potentially affected by the Proposed Action and alternatives; however, nowhere in this preliminary draft environmental impact statement (PDEIS) is there a clear and accessible summary of the potential impacts associated with the Proposed Action and its alternatives. This summary of potential impacts is needed before the scope of mitigation can be determined. A summary of impacts would be best placed at the end of Chapter 4, just prior to this Chapter 5 or included within Chapter 5.

Each potential impact should be organized by element of the environment, and proposed mitigation should be described in order of preference listed on Page 5-1: "1) *avoidance*, 2) *minimization*, 3) *and compensatory mitigation*." In each case, this section should identify which of the types of mitigation described in Table 5-1 will be employed to mitigate the potential impact. Any mitigation described by the USACE as part of the Applicant's Proposed Mitigation should be referenced to a specific part of the permit application. Assumptions about what the applicant could or might do and non-binding written statements that are not part of the permit application are not sufficiently certain to ensure that they will be carried out. General references to required permits are also not sufficient. Specific mitigation measures that would be required as permit conditions must be provided in the EIS.

This section of the PDEIS identifies and includes Council on Environmental Quality (CEQ) requirements and regulations concerning mitigation measures in the NEPA process. The section concludes that "*The Pebble Project EIS complies with federal guidance by considering mitigation during alternatives development and by disclosing mitigation as components incorporated into the Proposed Action as efforts to avoid and minimize potential impacts.*"

As indicated in comments previously provided on the PDEIS, adequate opportunity to review and consider the complete EIS has not been provided. It is highly likely that once that opportunity is provided additional mitigation measures that should have been evaluated in the PDEIS will become evident. An example is the consideration of backfilling the mine pit with additional bulk tailings material to reduce or eliminate impacts to geology during the post-reclamation period. In addition, also noted in previous comments, we do not agree that the alternatives development process has adequately considered alternatives recommended by this and other cooperating agencies as measures that could avoid or minimize potential impacts. Therefore, it is presumptuous and inappropriate for this PDEIS to assume that it complies with federal guidance. The PDEIS should be re-issued in its entirety, and adequate time must be given to cooperating agencies to review and comment, especially with respect to additional mitigation measures.

**Section 5.2 Avoidance and Minimization Measures Under NEPA. Section 5.2.1. Best Management Practices, Industry Standards, and Standard Permit Requirements. 5.2.1.1 Permitting for Large Mine Projects in Alaska.** This first subsection describes the permitting process for large mine projects in Alaska as summarized by the Alaska Department of Natural Resources (ADNR).

**5.2.1.2 Best Management Practices.** This second subsection identifies not only best management practices (BMPs), but also industry standards and permit requirements. While this subsection may be inclusive of most or all permit requirements, it is not inclusive of BMPs and industry standards, which in many cases are essentially the same.

One publication that contains references to many of the applicable BMPs and industry standards that should be considered in the EIS is the *Initiative for Responsible Mining Assurance (IRMA) Standard for Responsible Mining, IRMA-STD-001* dated June 2018.<sup>1</sup> In particular with respect to this EIS process, the agencies should consider the BMPs and industry standards identified in Chapter 2.5 Emergency Preparedness and Response; Chapter 2.6 Planning and Financing Reclamation and Closure; and Chapter 4 Environmental Responsibility Requirements including Chapter 4.1 Waste and Materials Management, Chapter 4.2 Water Management, Chapter 4.3 Air Quality, Chapter 4.4 Noise and Vibration, Chapter 4.5 Greenhouse Gas Emissions, Chapter 4.6 Biodiversity, Ecosystem Services and Protected Areas, Chapter 4.7 Cyanide Management, and Chapter 4.8 Mercury Management.

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<sup>1</sup> [https://responsiblemining.net/wp-content/uploads/2018/07/IRMA\\_STANDARD\\_v.1.0\\_FINAL\\_2018.pdf](https://responsiblemining.net/wp-content/uploads/2018/07/IRMA_STANDARD_v.1.0_FINAL_2018.pdf)

Section 5.2 is a good example of a section that is too general to be of use in determining actual mitigation requirements; it is simply a description of a process that an agency follows and contains no information regarding the mitigation measures that might be used to mitigate environmental impacts from the proposed project.

***Section 5.2.2 Mitigation Measures, Best Management Practices, and Environmental Protections Incorporated into the Project.*** Review of this PDEIS revealed many instances where the USACE is assuming that mitigation actions would be taken based on assurances from PLP that are not actually in the permit application as permit conditions. These statements are non-binding and cannot be relied on for evaluation in the EIS.

**Table 5-2.** For each mitigation item in Table 5-2, please indicate where in the Permit Application this mitigation measure can be found. Please describe which type of mitigation this is (avoidance, minimization, or compensatory mitigation). Do not include primarily economic or other programs that are not related to elements of the environment (e.g., the last two rows of Table 5-2.)

Following the table, this section should clearly identify those potential impacts from the proposed project that are not fully mitigated. For example, none of these projects elements mitigate the loss of headwaters and loss of fish rearing and spawning habitat within the mine site footprint. For these project elements, further mitigation needs to be identified by the USACE, agencies, or the public. Otherwise, such impacts would need to be identified as impacts from the proposed project that cannot be mitigated or compensated for.

***Section 5.2.3 Additional Mitigation Identified for Consideration in Permit Decisions.***

According to the PDEIS “Appendix M includes a list of specific measures suggested during the scoping process,” and it directs the reader to “See Appendix M for a preliminary assessment of all measures identified during the EIS process.”

Appendix M has not been provided for review, making it impossible to evaluate the full range of potential impacts and alternatives and mitigation measures that are available. Depending on the statutes, regulations, and permitting process, not all proposed mitigation measures will need to be evaluated based on cost or logistics. In some cases, potential impacts from the proposed project that cannot be mitigated cannot be permitted. In such cases, the permit application and alternatives would need to be modified and revised to avoid, minimize, or compensate for the impact in question. Otherwise, the proposed project may not be permitted.

**Table 5-3: Mitigation and Monitoring Measures Assessed as Likely to be Implemented.** This table provides a very short list of potential mitigation and monitoring measures that are likely to be implemented. Surely the agencies have more concerns about the proposed project than is reflected in this table.

Table 5-3 identifies four “*Measures assessed as likely to be implemented*” from the list of specific measures suggested or identified during the EIS process.

Appendix M has not been provided as part of the PDEIS for review by cooperating agencies; therefore, it is impossible to evaluate the adequacy or completeness of the list of specific measures suggested and/or identified and assessed, including those identified in the PDEIS as “Likely to be Implemented.” However, given the limited number of measures the PDEIS identifies as likely to be implemented, the PDEIS should provide discussion as to why this is the case given the large numbers of additional measures recommended or otherwise identified by the cooperating agencies during the EIS process thus far. Given the expectations of stakeholders and the public for this EIS and their attribution in this section, Appendix M should be provided to cooperating agencies, and they should be afforded the opportunity to review and comment on this section with respect to the information in Appendix M prior to production and release of a Draft EIS.

**Section 5.3 Avoidance, Minimization, and Compensatory Mitigation Under the Clean Water Act.** The PDEIS states, “*PLP is developing a Compensatory Mitigation Plan (CMP) in coordination with federal, state, and local governments, and landowners (Appendix M)*” and that “*This will be updated when the draft CMP is available.*” Likewise, the PDEIS states, “*The USACE has completed a draft 404(b)(1) evaluation for compliance with the CWA prior to issuance of the ROD (Appendix F)*” and “*This section will be updated for the Draft EIS after the draft 404(b)(1) analysis is complete.*”

As previously noted in comments on Section 5.2.3, Appendix M has not been provided, and the draft Section 404(b)(1) evaluation (Appendix F) referenced in this section has similarly not been provided for this review. Without this important information it is impossible to determine the extent to which impacts have been addressed consistent with the requirements of Section 404 program regulations. Given the potential for significant adverse impacts to wetlands from the proposed project, the CMP and draft Section 404(b)(1) evaluation should be provided to the cooperating agencies, and they should be afforded the opportunity to review and comment on this section of the PDEIS with respect to the information in the CMP and draft Section 404(b)(1) evaluation before a Draft EIS is produced and released.

Given the current wilderness state and undisturbed natural ecosystem of the proposed project affected area, it is difficult to imagine where mitigation banks could be established or where compensatory restoration could be performed to mitigate the permanent adverse impacts that the proposed project poses to lakes, streams, wetlands, and other elements of the environment. No such compensatory mitigation projects are currently discussed in the PDEIS or proposed by the permit applicant, USACE, or other agencies.

Referring to the sixth (last) paragraph of Section 5.3, the CMP and Draft 404(b)(1) evaluation must be provided to the cooperating agencies and tribes for review and consultation prior to issuance of the ROD.

**General.** The Wetlands, Wildlife, Fish, and Vegetation sections provide an incomplete, inadequate, and narrow discussion for a project of this size that spans a large landscape encompassing several watersheds and will have impacts to multiple aquatic and terrestrial species in Bristol Bay and Cook Inlet. Additionally, the use of "Values" in the titles is odd. It would be more appropriate to just use "Terrestrial Resources" to include a discussion of habitat and wildlife and instead of "Fish Values," it would be more appropriate to use "Aquatic Resources" to include a discussion of habitat and fish and other aquatic species.

The proposed project will require intact streams, tributaries, wetlands, and ponds to be removed, altered, discharged into, dredged, and filled in a mostly pristine, wild, and functioning watershed for over 25 years, resulting in removal of an interconnected ecosystem and loss of the biodiversity and functional habitat and services provided to the watersheds that aquatic and terrestrial resources rely on. Mitigation or restoration on this scale has never been attempted. Re-creating a functioning watershed is virtually impossible. Humans cannot improve intact ecosystems. Removing streams, tributaries, wetlands, and ponds from a watershed for over 25 years will result in loss of natural process and function and will adversely impact inputs to downstream areas, such as sediment transport, loss of interstitial spaces due to lack of sediment transport, compaction of substrates, detritus, nutrients, water chemistry, macroinvertebrates, prey, high and low flow regimes, groundwater upwelling, aquifer recharge, hyporheic function, hydrological and geomorphological processes and function, temperature regimes, physical and biological processes, riparian and terrestrial habitat, soil ecology, etc.

In addition, constructing and operating a mine of this size with its associated infrastructure, combined with altering, filling, dredging, disposal of wastewater, and discharging into streams, tributaries, wetlands, and ponds in watersheds for over 25 years will impact, irrevocably damage, and will most likely eradicate distinct anadromous and resident fish populations found in the

smaller tributaries. These smaller and unique stocks are essential to the overall health of fisheries because they provide genetic diversity that improves resiliency throughout the watershed. The proposed project would cover and otherwise adversely impact large areas of the upper watersheds, resulting in severe fragmentation of habitat that's vitally important to aquatic and terrestrial species (salmon in particular) and other anadromous and resident fish.

The EIS must evaluate direct, indirect, and cumulative impacts to all aquatic and terrestrial species. The EIS must also evaluate direct, indirect, and cumulative impacts to the prey resources that fish rely on during all life history phases. A robust evaluation of this type needs to be based on statistically sound scientific baseline data and existing conditions information as well as the Traditional Ecological Knowledge and Wisdom (TEKW) of Alaska Native communities.

Without figures and maps it is impossible to do an in-depth and specific review of these sections. Suffice it to say, aside from the proposed mine itself having a massive footprint across several watersheds, the infrastructure required to support the mine will stamp a large destructive footprint across a large, mostly pristine, and wild geographic areas including close to 70 miles of roads and additional spur roads with 97 river and stream crossings, 11 bridges, and 88 culverts. The roads will cross through and over several watersheds and large fish bearing rivers, streams, tributaries and through a mosaic of wetlands, lakes, ponds, bogs, marshes, riparian and upland areas.

An 18-mile ice breaking ferry route will require ferry terminals and a port with associated offices, storage facilities, power plants and extensive road causeways built over and into the marine environment. A 187-mile gas pipeline with associated fiber optics going overland and under Cook Inlet and Iliamna Lake. The project will require extraction of major quantities of water from rivers, streams, lakes, and ponds.

The EIS Analysis Area must include not just the areas of actual ground disturbance but all adjacent and connected areas. The EIS Analysis Area must include all areas of the four major projects (mine, roads, gas pipeline/utilities, port/ferry terminals) and their components in the Bristol Bay and Cook Inlet Watersheds as well as those areas bordering these watersheds including nearby national parks and refuges (particularly Katmai bears and McNeil River bears) that will be impacted by impaired migratory routes, reduced populations of fish and wildlife, etc. The EIS Analysis Area must be expanded to include aquatic and terrestrial migratory corridors for all aquatic and terrestrial species in fresh, estuarine and marine waters.

Bristol Bay and Cook Inlet support important salmonid species that will be irrevocably impacted by the proposed project including Chinook salmon, coho salmon, chum salmon, pink salmon, sockeye salmon, and steelhead trout (Chambers et al., 2012; USEPA, 2014a). Other important fish

species that are used by local people include rainbow trout, arctic char, Dolly Varden, grayling, and whitefish. Important non-salmonid species, like pike and suckers, are also used by local people. These fisheries are an integral part of the aquatic food web and provide an abundant biomass and prey resource for several aquatic and terrestrial species in the freshwater and marine areas of Bristol Bay and Cook Inlet watersheds as well as in the other waters including the Pacific Ocean. The EIS must quantify and evaluate the impacts related to the loss of this large prey resource that sustains aquatic and terrestrial species within the project area and across all areas of their adult migratory routes.

The baseline information in these sections is inadequate and at times contradicts itself (as in the case of caribou populations). The documents state that caribou are not in the area so won't be impacted, but then it goes on to say that ADF&G culls wolves to protect the caribou herds and that the tribes are concerned with caribou populations and have seen a reduction in numbers.

The EIS must provide sufficient baseline data and existing conditions information. Relying on the insufficient baseline data collected by the project proponent and presented in the 2004-2008 environmental baseline report and the 2009-2013 supplemental baseline data reports does not provide sufficient information for the aquatic and terrestrial species that rely on this large landscape. These reports alone do not provide adequate information to establish baseline conditions for the area to evaluate direct, indirect, and cumulative impacts to natural resources.

Baseline studies conducted for this project in 2004-2008, including the methods used to collect and analyze data for fish use and presence more than likely differ greatly from the methods that are being used now in 2018. The EIS must use up-to-date methods to adequately evaluate aquatic and terrestrial resources. Extensive habitat models exist to evaluate the presence and habitat use of aquatic resources. These methods must be used to further evaluate the direct, indirect, and cumulative impacts of the proposed project to aquatic resources and fish and fish productivity in the watersheds. Additionally, it is unclear what fish tissue criteria were used. This information should be provided so that the reviewer can determine if the appropriate criteria were used.

These watersheds and geographic regions and their aquatic and terrestrial species have been and continue to be studied by local, private, and nonprofit entities, and resource agencies at the state and federal level including tribes. The EIS must incorporate information from these other sources and studies, new data collected as part of the EIS evaluations and from models that evaluate species, habitat, biological and physical watershed processes. The EIS must also incorporate Traditional Ecological Knowledge and Wisdom (TEKW) in all evaluations and when developing the information for baseline and existing conditions.

Additionally, extensive habitat models exist using resource selection functions to evaluate the effect of development on brown bears on the Kenai Peninsula. The EIS must use these methods to further evaluate the direct, indirect, and cumulative impacts of the proposed project to wildlife and terrestrial resources.

The climate change discussion in these sections is far too general for a project of this size and timeframe. The discussion should be far more specific and include information from the new Intergovernmental Panel on Climate Change (IPCC) report that was recently issued. Information on the impacts of sea level rise should be included. Catastrophic events such as landslide, flood, avalanche, major weather should be discussed. Loss of carbon sequestration due to major removal of vegetation and how this impacts greenhouse gas (GHG) emissions should be included. Loss of habitats and shifting migration patterns should be discussed for both aquatic and terrestrial species.

It seems that the whole affects analyses for both aquatic and terrestrial species and habitats is aimed at trivializing the impacts a project of this size will have. Most information is reduced to a paragraph or two. It is misleading to say this is a 20-year project when the buildout will occur over 78 years. And several other mining projects would use the proposed Pebble Project infrastructure. Based on probable ultimate size of the proposed project and other projects that intend to use the Pebble infrastructure, this project will be there forever. It is unclear how the EIS can claim that a project of this size will result in an increase of rearing habitat for juvenile salmonids.