ATTACHMENT B USACE'S SUPPORTING ANALYSES

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ATTACHMENT B1 RESPONSE TO COMMENTS RECEIVED SINCE DEIS

Over 14,000 submissions were received from the close of the DEIS comment period through completion of the Record of Decision. Due to the volume of submissions, USACE combined comments into fifteen like topics and prepared responses to each (see Table B-1). These comments were considered in making a permit decision, which is documented in this Record of Decision.

Table B-1: Response to Comments by Topic

Topic—Subtopic	Summary of Comments	Response
USACE Process — Clean Water Act Compliance	A total of 12,476 submissions received that had comments related to USACE's CWA permitting process. Many of the commenters requested that USACE deny the Pebble Project permit or that EPA veto the project under Section 404(c) of the CWA. Some commenters requested that USACE provide a public notice and comment opportunity on the revised permit application for a CWA 404 permit; asserting that PLP's project modifications have made it difficult for the public to meaningfully participate in the CWA permitting process. Commenters also remarked that due to the number of project changes, substantive responses to RFIs, changes to modeling and analyses, and change to the preferred alternative, USACE should have revised the DEIS and allowed a second round of public comments. Commenters requested additional time for public review and input, as well as public hearings on a revised DEIS. Some commenters expressed concern that landowners have publicly stated that their lands are not available to PLP for this project, making all FEIS alternatives "not practicable". BBNC requested that USACE remove from consideration as the LEDPA all alternatives that would require use of their subsurface or surface estate, as the lands are unavailable to PLP. Other comments and concerns regarding the USACE's CWA processes include: • Assertions that the CWA application was deficient because it lacked baseline reports and insufficient field analysis. • Assertions that USACE prepared an EIS that violates the CWA. • Statements that insufficient information exist to make a reasonable judgment as to whether or not the proposed discharges can comply with Section 404(b)(1) Guidelines.	USACE has determined that PLP's permit application is complete. PLP has submitted modifications to their original permit application and such modifications are normal in the permitting and NEPA processes. The content of a complete application that compels the USACE to initiate the evaluation and review of applications is found in 33 CFR Part 325.1(d). USACE reviewed the requests for an additional public notice and comment opportunity and determined that there were no substantial changes to the project or any significant new circumstances or information relevant to environmental concerns. In addition to evaluating the Applicant's proposed project under NEPA, USACE has evaluated the Applicant's permit application pursuant to Section 10 of the RHA of 1899 and Section 404 of the CWA, which includes a Section 404(b)(1) analysis (40 CFR Part 230) and public interest review (33 CFR Part 320) (see Attachment B2 and B3 of this ROD). USACE has considered all comments received in making a permit decision, which is documented in the Record of Decision. The 404(c) process is separate from the USACE requirement to process PLP's permit application and prepare an EIS. Per 33 CFR Part 320.4(g), a DA permit does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury

Table B-1: Response to Comments by Topic

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	• Statements that the project would cause or contribute to significant degradation of the affected resources. • Request that it be noted for the record as USACE evaluates the CWA 404 permit that: "during the NEPA public comment periods there were at least 1,108,507 engagement actions taken by individuals and interest groups in the form of meeting testimony, meeting attendance, written comments and email actions during scoping, the DEIS comment period, and since the FEIS was released. Many of the individuals that took action were Alaskans, notably, nearly 21,000 Alaskans commented on the DEIS, most of which are opposed to the development of the project." • Concerns about the adequacy of the 2019 and 2020 Preliminary Jurisdictional Determinations.	to property or invasion of rights or any infringement of federal, state, or local laws or regulations. The Applicant's signature on an application is an affirmation that the Applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The district engineer will not enter into disputes but will remind the Applicant of the above. The dispute over property ownership will not be a factor in the USACE public interest decision.
USACE Process — Compensatory Mitigation	Eight submissions contained comments on compensatory mitigation. Commenters stated that the proposed compensatory mitigation outlined in the Applicant's Draft CMP (FEIS, Appendix M2.0) is inadequate compared to the ecosystem functions that would be lost by the project. Commenters remarked that the off-site, out-of-kind actions proposed by PLP would not offset the losses from the project. Commenters stated that PLP should be required to compensate within watersheds closer to the project's impacts. Commenters asserted that the CMP does not comply with the national goal of no net loss of wetlands and aquatic areas. Commenters remarked that compensatory mitigation is not proposed for the project's temporary impacts for which the lost and degraded ecological functions could take years to recover. Commenters expressed concern that larger additional phases of development are inevitable and asserted that compensatory mitigation that should be required would be extraordinarily large. Commenters asserted that that the project fails to comply with CWA regulations with regard to compensatory mitigation, and the lack of appropriate mitigation measures should lead to a determination that the project would cause or contribute to significant degradation of the aquatic ecosystem.	As part of this ROD, the District made CWA Section 404(b)(1) factual determinations that discharges at the mine site would cause unavoidable adverse impacts to aquatic resources and, preliminarily, that those adverse impacts would result in significant degradation to those aquatic resources. Therefore, the District has determined that in-kind compensatory mitigation within the Koktuli River Watershed would be required to compensate for all direct and indirect impacts caused by discharges into aquatic resources at the mine site. The District has also determined that compensatory mitigation is required for unavoidable adverse impacts to aquatic resources from discharges associated with the transportation corridor and the port site. USACE requested that the Applicant submit a revised CMP. If a revised CMP is submitted, USACE will review the CMP to determine if the amount and type of compensatory mitigation offered is sufficient to offset the identified unavoidable adverse impacts to aquatic resources and overcome significant degradation at the mine site, and to determine whether the

Table B-1: Response to Comments by Topic

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		plan meets all requirements identified in the in the Code of Federal Regulations at 33 CFR Part 332 and 40 CFR Part 230 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.
USACE Process — Public Interest Review (Social Factors) • economics • aesthetics • historic properties • land use inclusive of subsistence • navigation • recreation • food and fiber production • consideration of property ownership • needs and welfare of the people	A total of 13,911 submissions included comments and concerns related to social public interest review factors. Commenters remarked that preventing the proposed mine from moving forward would protect American jobs, safeguard the culture of rural America, and ensure that the countries national outdoor heritage prospers. They also asserted that maintaining the existence of one of the last remaining natural, wild, and healthy salmon ecosystems is in the best interest of all our nation's citizens. Specifically, commenters expressed concerns that the proposed mine will harm and destroy: • The salmon fishery and thousands of jobs in the renewable commercial fishing industry. • The market and brand for Bristol Bay salmon will be lost as will the contribution of wild salmon to diets nationally and globally. • Salmon-based cultures of Alaska Native tribes and indigenous peoples and their subsistence way of life/lifestyles will be altered and lost. • Input of the Alaska Natives and other residents of the potentially impacted area should be/have been given far more weight in reaching a permit decision. • A source of income for the State of Alaska that is provided by the commercial fishing industry. • Recreational opportunities, including bear viewing, sport fishing and hunting and employment in those industries will be put at risk or lost. A commenter stated that food security, due to the pandemic, will be a critical issue for Alaskans. Salmon and wild game are renewable food sources that should be protected for the ability of people to feed themselves. Concern was raised about the section of road under the Applicant's Preferred Alternative that would share the alignment with the current road from Pile Bay to Williamsport on the route to Diamond Point Port. Commenters asserted that shared use of the Williamsport-Pile Bay road would cause congestion at Williamsport and	USACE's decision whether or not to issue a permit for the Pebble Project is based on an evaluation of the probable impacts of the proposed activity and its intended use on the public interest (see Attachment B3 of this ROD). These comments have been taken into consideration as part of the PIR for the project.

Table B-1: Response to Comments by Topic

Topic—Subtopic	Summary of Comments	Response
	Iliamna Bay that could impact other commercial uses. Commenters stated that PLP should release a new preliminary economic assessment for the proposed smaller and lower-grade mine. Commenters asserted that the base case mine plan evaluated in the EIS is not economic and the permitting process risks being compromised because the impacts and risks being evaluated are much smaller than those required for a full scale economically viable project. It was asserted that the project analyzed in the FEIS is not financially feasible and has no relationship to the actual project that PLP intends to develop. Commenters in support of the project noted that the project will bring needed economic benefits to the region by developing infrastructure, creating job opportunities in an area with high rates of unemployment and poverty, and making the U.S a leader in mineral extraction. Commenters also remarked that essential elements should be sourced domestically rather than to rely on foreign operations with less environmentally sound mining practices and adversarial governments.	
USACE Process — Public Interest Review (Physical Factors) • soils • flood hazards • floodplain values • shore erosion and accretion • water supply and conservation • water quality • noise	A total of 12,478 submissions included comments and concerns related to physical PIR factors. Comments were received on concerns over soil erosion, metals toxicity to soil, and contamination from fugitive dust, particularly in an expanded mine scenario. Commenters expressed concern about the project's destruction of thousands of acres of floodplains and wetlands within the mine footprint and asserted there would be degradation of thousands more acres of downstream wetlands and floodplains from seepage and lack of proper water treatment. Commenters also cited there was a high probability of extensive damage to downstream wetlands from a catastrophic unplanned tailings release. Destruction of over 100 miles of waterways was repeatedly noted as a concern, as well as alterations and elimination of streamflow. Comments stated that mine expansion would impact three separate drainage basins within the mine footprint, as well as numerous waterways across the transportation corridor. Water quality was another concern for commenters, including drinking water quality, with comments asserting that toxic chemicals will poison the region's streams and groundwater. Comments stated that the project would cause	USACE's decision whether to issue a permit for the Pebble Project is based on an evaluation of the probable impacts of the proposed activity and its intended use on the public interest (see Attachment B3 of this ROD). These comments have been taken into consideration as part of the PIR for the project.

Table B-1: Response to Comments by Topic

Topic—Subtopic	Summary of Comments	Response
	ongoing violations of water quality standards. Particular concerns were noted regarding copper and selenium contamination, and an increase in water temperature from project activities. Comments asserted that fugitive dust will adversely affect water quality. Many commenters were concerned about generation of acid and leaching of metals from tailings and waste rock, both through seepage and potential catastrophic release from storage facilities. Commenters questioned the effectiveness of the proposed water treatment system at the mine, which would treat an unprecedented amount of wastewater, noting that water treatment at the proposed scale has not been successfully accomplished at any other mine. Failures of the ore concentrate pipeline were cited as a potential threat to water quality across the project area. Lack of design for contaminated water storage facilities was also noted as a potential threat to water quality. Commenters stated that the potential for impacts to water quality would greatly increase if the mine were to expand.	
USACE Process — Public Interest Review (Biological Factors) • wetlands • fish • wildlife values (including endangered species)	A total of 12,478 submissions included comments and concerns related to biological PIR factors. Many commenters expressed concern about the project's impacts to undeveloped habitat that supports fish, wildlife, and "the most valuable salmon fishery in the world". Concern was expressed that dam failures could impact wetlands and waterways beyond those directly impacted by the project footprint, causing irreparable damage to the aquatic ecosystem. It was further stated that the ecological risks outweigh the potential financial benefits. Concern about project impacts on brown bear habitat and populations was expressed and commenters stated that upon initiation of the project, a monitoring plan would need to be implemented to evaluate the accuracy of the FEIS analyses and the effectiveness of the mitigation strategy. Risks of selenium to wildlife (fish, birds and other biota) through contamination and toxicity of the aquatic ecosystem was raised. Commenters asserted that the project would significantly degrade critical functions, ecosystem services, and biodiversity of the wetlands and waters in the Bristol Bay Watershed and in the Nushagak and Kvichak River watersheds. It was further stated that the proposed compensatory mitigation measures show no relationship to the magnitude and	USACE's decision whether to issue a permit for the Pebble Project is based on an analysis of impacts to the aquatic environment under the 404(b)(1) Guidelines and an evaluation of the probable impacts of the proposed activity and its intended use on the public interest (see Attachment B2 and B3 of this ROD). These comments have been taken into consideration as part of the PIR for the project.

Table B-1: Response to Comments by Topic

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	extent of significant harm that would occur to the affected wetlands and other aquatic resources in the Bristol Bay watershed. Commenters expressed concern that mine effects resulting in the loss of salmon production could cause a measurable decrease in the overall performance of the Bristol Bay portfolio.	
USACE Process — Public Interest Review (Other Factors) • conservation • energy needs • mineral needs • general environmental concerns • safety	A total of 12,492 submissions included comments and concerns related to other PIR factors. Commenters asserted a need to conserve the undeveloped environment within the project area, noting the value of the wetlands, waterways, fish and wildlife habitat. Commenters stated that nearly 100% of ecosystem function would be lost in the aquatic ecosystems within the mine footprint and that the project would industrialize a hundred miles of undeveloped land along the transportation corridor. Specific comments asserted there would be inevitable impacts from acute toxicity of copper on salmon, stating that copper is known to be one of the most toxic elements to aquatic species. Commenters noted that expansion of the mine site in the future would further damage the ecosystems that should be conserved. One commenter stated that developing the proposed mine can put Alaska on a path to providing a reliable power source in local communities. Several commenters noted that the proposed mine would be important as a domestic source of critical minerals. Comments noted that the U.S. currently relies on China and other foreign nations to supply these minerals and that the project would help the U.S. become mineral independent and become a major mineral player in the world. It was also noted that foreign countries may not utilize safe mining practices like we do in the US. Gold, copper, rhenium and molybdenum were mentioned as particularly critical for the U.S. to supply domestically. One commenter also asserted that we need minerals like copper to transition to a carbon neutral future. Commenters had general environmental concerns about the destruction of wetlands and streams within the project footprint, as well as the potential for damage to downstream ecosystems through seepage of acid and metals, release of improperly treated water, and unplanned catastrophic releases of tailings from dam failure.	USACE's decision whether to issue a permit for the Pebble Project is based on an evaluation of the probable impacts of the proposed activity and its intended use on the public interest (see Attachment B3 of this ROD). These comments have been taken into consideration as part of the PIR for the project.

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	Safety concerns were expressed regarding TSFs. Commenters noted that failure of dams holding back tailings and waste rock could lead to massive releases of tailings and contaminated process water downstream. TSFs were stated to be unsafe facilities due to their construction in a seismically active region, in a very wet climate, with only conceptual designs, and a lack of proper field investigation. Specific comments were made on technical details of the TSFs, including drainage and segregation properties of the tailings and location of the phreatic surface, that would impact the effectiveness and safety of the facilities. Commenters noted extensive safety concerns due to earthquakes, citing the region's elevated seismicity levels. Comments noted the geologic setting of the area close to a subduction zone with high seismicity and numerous faults, stating that there is a lack of information about area faults. Other commenters expressed concerns about the recent 7.1 magnitude earthquake centered near Anchorage. Comments noted that earthquake damage to project facilities could lead to catastrophic release of untreated contact water and tailings, causing downstream safety concerns and contamination. Specific comments were also received questioning the stability of the TSF embankments during a seismic event.	
NEPA Process — NEPA compliance, EIS Inadequacies	A total of 12,501 submissions included comments on the NEPA process and EIS inadequacies. Commenters stated that the EIS was rushed and the process had been politicized. Additionally, commenters asserted that the EIS is flawed because it failed to provide adequate information to evaluate the impacts of the proposed Pebble Project, such as: • Lacking a feasibility study to demonstrate that the mine is economic as proposed • Failure to use current data • Does not analyze a complete or large-scale tailings dam failure • Underestimates potential impacts • Comes to inaccurate conclusions • Looks at impacts from mining only a small portion of the deposit • Flawed cumulative effects analysis • Uses conceptual-level designs and lacks conceptual design for some facilities	The DEIS and FEIS were prepared in accordance with the NEPA (42 USC 4321 et seq.) and its implementing regulations promulgated by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500 1508), and USACE's implementing regulations codified at 33 CFR Parts 320 332. The FEIS contains data and information publicly available at its date of publication. The FEIS responded to comments expressed by the public and agencies on the DEIS (see FEIS Appendix D, Comment Analysis Report). Many of the comments received following publication of the FEIS, specifically on the NEPA process and EIS inadequacies, have been previously addressed in the CAR.

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	• Relies on conceptual level plans including the Reclamation and Closure Plan One commenter noted that the FEIS does not contain the results of the 2020 commercial fish harvest. Commenters stated that the FEIS did not include or only included a cursory description of the economic impacts of the following: • The project will create new jobs for some, but at the risk of losing jobs of many more. • Impacts to recreation fishing by sport anglers. • Negative impacts to the bear viewing industry. • Bristol Bay's role in the global supply of salmon. The FEIS ignores marketplace distinctions between wild salmon species, available recent harvest data, and the context of Bristol Bay's commercial salmon fishery. • The FEIS does not acknowledge the threat posed to the market status of Bristol Bay salmon by placing a copper mine in the middle of the fishery and includes factual misstatements about the branding of Bristol Bay salmon. Resource-specific reports were received that assert deficiencies with the impact analysis and conclusions in the FEIS. The reports assert that: • The FEIS mispresents the magnitude of the impact that the proposed mine is likely to have on ecologically, culturally, and economically important populations of salmon in the mine area, the Nushagak River, and all of Bristol Bay. • The FEIS analysis does not view the system in a dynamic way and this underestimates the importance of small components of habitat and populations to the long-term sustainability of the ecosystem. • The analysis of the effect of flow alterations and small changes in water temperature on the availability of fish habitat has a high degree of uncertainty. There may be significant ecological effects (e.g., time and size at emergence); and that there will be cascading effects of changes in the timing of life-history events (phenology); and the cumulative effects of the interaction of effects from increased	

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Topic—Subtopic	Summary of Comments	Response
	water temperatures and other environmental changes (stream flow). • Data and analysis in the FEIS are not adequate to fully understand and evaluate the effects of potential management alternatives on brown bear habitat and populations. In-depth analyses and evaluation of the ecological relationships of brown bears in the Project area are needed and upon initiation of the Project a monitoring plan needs to be implemented to evaluate the accuracy of effects analyses and the effectiveness of the mitigation strategy to ensure the continued wellbeing and likely survival of these brown bears. • The FEIS fails to fully address the ecotoxicological effects that selenium bioaccumulation and biomagnification will have on wildlife in Bristol Bay, such as waterbirds. • The FEIS does not contain sufficient or adequate scientific analysis to support its conclusions that Pebble Mine will cause no unacceptable adverse impacts to wetlands and will not contribute to the significant degradation of waters of the Bristol Bay watersheds. • Mine effects resulting in the loss of salmon production could cause a measurable decrease in the overall performance of the Bristol Bay portfolio. • The FEIS ignores the synergistic interactions of multiple metals, depending on unproven technology, and relying on ADEC criteria to protect aquatic life. As a result, this dismisses the significance of toxicological effects of mine development and the transportation corridor to fish, their habitat, and the food webs that support them. • The analysis of the effect of the projected altered temperature regime in the FEIS is highly flawed and the conclusions about the effect of the mine operation are indefensible and unsupported by the data and logic presented. • Simple before-and-after comparison of flows through the streams and reaches affected by the mine site is a better measure of habitat change and loss than one based on a proprietary habitat	

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	model with an implied level of precision that is unjustified by any of the observations. The implications of long term and persistent stream flow reductions will affect all organisms in the habitat across the North and South Forks of the Koktuli.	
NEPA Process — Alternatives	A total of 1,421 submissions included comments on alternatives. Commenters expressed concern about the "eleventh hour change" made to the preferred alternative status, with PLP selecting Alternative 3 as their preferred alternative. Commenters stated that they have not had a chance for public participation on all aspects of the Applicant's Preferred Alternative. Other commenters stated that all alternatives have been identified since the initial permit was sought and that it is disingenuous to suggest that alternatives have been "chosen in the eleventh hour". Commenters asserted that PLP's true aim is and always has been to mine the entire Pebble Deposit and requested that the USACE prepare a new DEIS that focuses on PLP's true plans for long-term operations that mine the entire Pebble Deposit. Commenters expressed concerns with the alternative analyses for the project (FEIS, Appendix B) and stated that the USACE dismissed other mine site location alternatives (including off-site alternatives) that could potentially achieve the basic project purpose with less environmental harm. Commenters stated that the only reasonable alternative relative to the development of the Pebble mine is the No Action Alternative.	The USACE regulatory process is iterative; therefore, the USACE works with applicants to identify additional avoidance and minimization measures that are often incorporated into the proposed project. These changes to the applicant's proposed project frequently result in updated project descriptions and potentially identification by the applicant as their preferred alternative. With the exception of the north Diamond Point port location and caisson dock design at that port location, all other aspects of the Applicant's Preferred Alternative were previously analyzed in the DEIS and available for public comment. Prior to development of the FEIS, USACE considered the need for a Supplemental DEIS following the requirements of 40 CFR Part 1502.9(c)(1) and determined that there were no substantial changes to the project or any significant new circumstances or information relevant to environmental concerns. Appendix B provides a detailed explanation of the screening criteria applied, and an explanation for why each of the many project options that were evaluated were either included as a component of one of the alternatives evaluated in detail, or eliminated from detailed analysis in the EIS.
NEPA Process — Covid-19 Related Concerns	A total of 1,413 submissions contained comments related to the Covid-19 pandemic. Comments requested that the USACE halt their permitting process on the Pebble Project until there is a Covid-19 vaccine, stating that now is not the time to make this decision.	Comments acknowledged
NEPA Process — Opposition or Support for Project	A total of 68 submissions contained general comments either in support of or in opposition of developing the proposed project.	Comments acknowledged
NEPA Process — Resubmittal of Previous Comments	Eleven submissions were copies of comment letters submitted in response to previous public comment periods.	In response to public notices published by the USACE for this project and in response to the

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		DEIS, numerous comments were received from local, state, and federal agencies; tribes; and the public. Cooperating Agencies were also provided opportunity to comment on the Preliminary FEIS. All comments received through previous comment periods were fully considered and addressed in the FEIS.
National Historic Preservation Act — Section 106 Process	Six submissions contained comments specific to the Section 106 process. Commenters asserted that the USACE has not made reasonable and good faith efforts to identify historic properties within the undertaking's area of potential affects. It was further stated that tribes have advised the USACE of the existence of historic properties within the proposed Pebble Mine's area of potential effect, including traditional cultural properties, cultural landscapes, and places of traditional religious and cultural significance, but these properties have not been determined eligible for inclusion in the National Register because the USACE has failed to fulfill its Section 106 obligations. A report entitled The Nughil Vetnu Riverscape, prepared by archaeologist Monty Rogers, M.A. on behalf of the Nondalton Tribal Council, was transmitted to serve as a basis for continued consultations.	USACE's Special Public Notice dated July 24th, 2020 requested comments concerning potential historic properties that may affected by work under the requested permit. Input from the public and Section 106 consulting parties regarding historic properties potentially affected by the Pebble Project are being considered as part of the overall Section 106 process.
National Historic Preservation Act — Programmatic Agreement	A total of 22 submissions were received in response to USACE's Special Public Notice dated July 24th, 2020, with specific comments and suggested edits on the PA and the draft CRMP.	All comments on the PA are being considered as part of the overall Section 106 process. The CRMP is a document being developed by the Applicant under USACE direction. PLP will address comments received on the CRMP.
Consultation	Five submissions included comments related to NHPA Section 106 consultation. Commenters asserted that there has not been meaningful Section 106 consultation throughout the process for identification of historic properties and that the PA does not provide tribes, and other entities concerned with protection of cultural resources and historic properties, enough consultation opportunities moving forward. Commenters stated that the information needed to identify, document, and evaluate historic properties potentially affected by the proposed Pebble Project cannot be obtained through meetings open to every consulting party held in Anchorage, or over the phone because the information is often highly sensitive and often	Consultation as part of the Section 106 process included, but was not limited to, 9 meetings with ACHP and consulting parties; 15 meetings with 19 Indian tribes or tribal groups; and 8 meetings with SHPO and/or ACHP. ACHP and consulting parties had multiple opportunities to comments on drafts of the Programmatic Agreement. In addition, comments regarding the Section 106 process and the Programmatic Agreement were sought from the public via public notice, and from 38 federally recognized tribes, and their corresponding ANCSA regional and village corporations via letter and

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	held by "Elders or Knowledge Bears" in the communities. Commenters asserted that the USACE failed to meet its NHPA obligations by moving forward with the publication of an FEIS and selecting the LEDPA prior to completion of the NHPA Section 106 process and without completing the required historic and cultural properties identification effort.	email. Continuing consultation under Section 106 is required by the stipulations of the Programmatic Agreement, if a permit is issued. Execution of the Programmatic Agreement, including signatures by ACHP and SHPO, satisfies the requirements of Section 106 of the NHPA, in the event the permit is issued.
Other Federal, State & Local Requirements	Five submissions included comments specific to State of Alaska requirements and permitting processes. These comments include concerns and suggestions on engineering and design of the tailings storage facilities which would take place during the State permitting phase. Commenters also expressed concern that fines which may be levied by the State in the event of a failure cannot repair the damage it would cause. Commenters asserted that should a failure of the mine occur that the owner company will file for bankruptcy and not be held responsible.	Final design of project components would take place during the State permitting phase. For the Pebble Project, the State has the primary permitting authority that addresses detailed design and engineering features associated with the mine, which are often refined between the permit application and issuance of State permits. Comments and concerns regarding the State's bonding and financial assurance process, including procedures in the event of a bankruptcy, were previously addressed in the FEIS Appendix D, CAR.

ATTACHMENT B2 EVALUATION OF THE DISCHARGE OF DREDGE AND FILL MATERIAL IN ACCORDANCE WITH 404(B)(1) GUIDELINES (40 CFR SECTION 230, SUBPARTS B THROUGH H)

The DA permit application evaluation requires a determination of compliance with the EPA Section 404(b)(1) Guidelines (40 CFR 230; Guidelines). The Final EIS (FEIS) contains appropriate analysis of all factors in the Guidelines, except as supplemented here-in as specifically needed to comply with the Guidelines.

In accordance with Section 404(q) of the CWA, EPA and USFWS notified USACE that the project may have unacceptable impacts to aquatic resources of national importance (ARNI). USFWS has further stated that the project would have unacceptable impacts to ARNI.

As part of the 404(q) process, USACE held weekly discussions with EPA and USFWS to discuss the determination of the LEDPA and the elements of the factual determinations. In discussion with EPA and USFWS, USACE first identified the LEDPA. The LEDPA determination is documented in B2.1.1.1. below. Discussions continued between the agencies as factual determinations were made regarding the LEDPA. After each weekly discussion, USACE revised the factual determination matrix and provided EPA and USFWS with the updated version to prior to the next weekly meeting to aid in the subsequent meeting discussion. As a result of these discussions, EPA declined to send USACE a letter stating that the project would have unacceptable impacts to ARNI. In accordance with the 404(q) memorandum between USACE and the Department of the Interior, USACE continues to coordinate with USFWS regarding the impacts of the proposed project on ARNI.

B2.1 SUBPART B—COMPLIANCE WITH THE GUIDELINES

B2.1.1Restrictions on Discharge (Section 230.10)

The following sections summarize the evaluation of anticipated impacts from the proposed Pebble Project (project) with the specific regulatory criteria on restriction of discharge as listed in 40 CFR 230.10.

B2.1.1.1 Finding of Practicable Alternatives (Section 230.10(a))

Environmental Analysis of Practicable Alternatives

Determinant factors in identifying which practicable action alternative would have the least environmental impacts consisted of the following: acres of impacts to wetlands; impacts to other special aquatic sites including acres of impacts to mudflats, acres of impacts to vegetated shallows, and proximity to the McNeil River State Game Sanctuary and Refuge; direct impacts (permanent and temporary) to stream crossings and to acres of riverine wetlands in the transportation and pipeline corridors; miles of impacts to streams, including miles of impacts to anadromous streams; acres of impacts to EFH at the port site; impacts to Lake Iliamna; impacts to endangered species; impacts to cultural resources; and impacts to subsistence.

There is no practicable alternative to the applicant's proposed project which would have less adverse impact on the aquatic ecosystem and that does not have other significant adverse environmental consequences.

☒ True ☐ False

LEDPA Determination

Based on review of the action alternatives, project described in the applicant's June 2020 application, identified as Alternative 3 with the concentrate pipeline and return water variant, and the caisson supported dock in the FEIS, is the LEDPA.

B2.1.1.2 Minimization of Potential Adverse Impacts (Section 230.10(d)) and Subpart H—Actions to Minimize Adverse Effects (40 CFR Section 230, Subpart H)

Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

The avoidance and minimization measures which have been adopted by the applicant, including those proposed by the applicant, and those proposed by an agency and adopted by the applicant, are documented in FEIS Table 5-2 (Attachment B10 of this ROD), and the applicant's June 2020 application. These measures were incorporated into the design of the project by PLP to reduce potential impacts on aquatic resources. These measures, in addition to the measures identified in the biological assessments prepared for NMFS and USFWS, as well as the EFH assessment prepared for NMFS, were considered in the factual determinations (Guidelines Subpart B) and technical evaluation factors (Factual Determination Matrix, Subparts C through F).

The USACE has reviewed the minimization measures proposed by the Applicant and has determined that the applicant has taken all appropriate and practicable steps which can be taken to minimize the potential adverse impacts of the proposed project.

As documented in the Factual Determination Matrix (Attachment B7 of this ROD), impacts to waters of the U.S. (WOUS) from discharges of dredged or fill material at the mine site have been determined to cause significant degradation to the aquatic ecosystem. USACE has determined that the avoidance and minimization measures which have been incorporated into the LEDPA do not reduce the level of impacts to below significant and that compensatory mitigation is thus required under the CWA.

B2.1.1.3 Subparts C through F - Technical Evaluation Factors (40 CFR Section 230, Subparts C, D, E, and F)

In weekly meetings, USACE, EPA and USFWS (404(q) agencies) discussed and made factual determinations regarding the LEDPA. In order to document the stepwise decision-making process of making the factual determinations, a Factual Determination Matrix (Attachment B7 of this ROD) was created. The Factual Determination Matrix is hereby incorporated into and supports the analysis below.

As documented in the Factual determination Matrix, the 404(q) agencies began to complete the matrix by determining, for each category of impact or effect under Subparts C through F, whether there would be a direct, secondary and indirect, and/or cumulative effects to the aquatic resources as a result of the alternative that had been identified as the LEDPA. The 404(q) agencies then determined the magnitude of the direct, secondary and indirect, and/or cumulative effects (Significant, Minor Effect (Long Term), Minor Effect (Short Term), Negligible Effect, or No Effect, or Not Applicable (N/A)). 'Significant' or 'significantly', as used in the factual determinations, is consistent with the definition as given in the preamble to the 404(b)(1) Guidelines (Vol. 45 FR No. 249 page 85343), and in this context means 'more than trivial'. The magnitude of the impacts at the mine site were determined based upon the scale of the North Fork and South Fork Koktuli River and Upper Talarik Creek watersheds. The magnitude of the impacts from the transportation

corridor, port facilities, and natural gas pipeline were determined based upon the Hydrologic Unit Code (HUC) 10 watersheds crossed by those components.

Next, the 404(q) agencies determined if the applicant proposed avoidance and minimization measures, which had been incorporated into the LEDPA, would reduce the magnitude of the impact to below significant. These measures are identified in the columns labelled Step 1 in the Factual Determination Matrix, and the numbers correspond to the numbered avoidance and minimization measures in FEIS Table 5-2 (in Attachment B10 of this ROD). As identified in Step 2 of the Factual Determination Matrix, EPA and USFWS were invited to provide additional analysis specific to the project and category of impact or effect to be considered in the factual determinations, and as such, both EPA and USFWS provided additional information to consider. USACE, EPA and USFWS identified avoidance and minimization measures throughout the development of the FEIS, some of which the applicant had already adopted. USFWS and EPA were invited to recommend additional avoidance and minimization measures. These measures were considered by the applicant, and those that the applicant agreed to adopt were considered in the factual determinations. The avoidance and minimization measures which have been adopted by the applicant, including those proposed by the applicant and those proposed by an agency and adopted by the applicant, are documented in FEIS Table 5-2 (in Attachment B10 of this ROD). The 404(q) agencies then determined if the additional avoidance and minimization measures would reduce impacts to below the level of significant (identified as Step 3 in the Factual Determination Matrix).

The determinations of potential short or long-term effects of proposed discharges of dredged or fill material on the physical, chemical and biological components of the aquatic environment are documented in the Factual Determination Matrix (Attachment B7 of this ROD). These factual determinations are used to evaluate compliance with the Restrictions on Discharges. The analysis of these findings, information considered, and the type and magnitude of impact identified for Subparts C through F are summarized at the end of each subpart in Factual Determination Matrix. The summary information from Subparts C through F, as well as the information identified in Subpart G was used to inform the determinations in Subpart B, 40 CFR 230.11 and 40 CFR 230.10.

After consideration of the proposed avoidance and minimization measures, as well as the remaining unavoidable impacts, and based upon the determination that the discharge of dredged or fill material would cause significant degradation to the aquatic ecosystem, specifically at the mine site, USACE determined that compensatory mitigation is required to offset the remaining unavoidable temporary and permanent impacts to the aquatic environment.

In-kind compensatory mitigation within the Koktuli River Watershed will be required to compensate for all direct and indirect impacts caused by discharges into aquatic resources at the mine site in order to decrease impacts to below the level of significant degradation. Direct and indirect impacts at the mine site total 2,825 acres of wetlands, 132.5 acres of open waters, and 129.5 miles of streams.

Compensatory mitigation is required for unavoidable adverse impacts to aquatic resources from discharges associated with the transportation corridor and the port site. Direct and indirect impacts associated with the transportation corridor and port site total 460 acres of wetlands, 231.7 acres of open waters, and 55.5 miles of streams.

The applicant submitted a final compensatory mitigation plan entitled Pebble Project, Compensatory Mitigation Plan, Final Report, and dated November 2020 (Final Report, attachment B5 of this ROD). In order to offset the direct and indirect impacts caused by discharges into aquatic resources at the mine site and the transportation corridor, the applicant proposed permittee responsible compensatory mitigation, in the form of on-site and in-kind preservation.

Specifically, the applicant proposed to preserve a 112,445-acre area in the Koktuli River watershed, including 31,026 acres of aquatic resources.

As documented in our Memorandum For Record, dated November 6, 2020 (Attachment B6 of this ROD), USACE has determined that the applicant's proposed compensatory mitigation plan, as described in their Final Report, dated November 2020, is not compliant with USACE regulations, including 33 CFR 332 and 40 CFR 230. In summary, the Final Report lacks detail commensurate with the scope and scale of the project, including complete information on site protection, a maintenance plan, performance standards, monitoring, long term management, and financial assurances. Also, 33 CFR 332.3(h)(2) requires that *where preservation is used to provide compensatory mitigation, to the extent appropriate and practicable the preservation shall be done in conjunction with aquatic resource restoration, establishment, and/or enhancement activities. This requirement may be waived by the district engineer where preservation has been identified as a high priority using a watershed approach described in paragraph (c) of this section, but compensation ratios shall be higher.* The applicant provided no justification to support a waiver of this requirement. In addition, the applicant proposed no compensatory mitigation to offset unavoidable direct and indirect impacts to aquatic resources from the port site. Therefore, the compensatory mitigation plan is insufficient to offset the proposed direct and indirect impacts to WOUS and would not ensure the activities requiring a Section 404 permit would comply with the 404(b)(1) Guidelines.

B2.2 SUBPART G—EVALUATIONS AND TESTING (40 CFR SECTION 230, SUBPART G)

B2.2.1 General Evaluation of Dredged or Fill Material (Section 230.60)

This analysis supplements the findings in the Factual Determination Matrix for Subpart G.

Discussion of impacts—Fill materials that would be placed in WOUS would primarily include gravel, rock, riprap, and aggregate. Non-PAG and non-metal leaching (non-ML) quarry rock would be selected and used in construction of mine site roads, embankments, and other mine-related facilities. Additional non-PAG/non-ML material sourced from the open pit may also be used for mine site construction, as available. Material sites (extraction sites) along the transportation corridor have been identified as potential material sources for construction of roads and the port facility. Due to the remote and undeveloped nature of the project area and based on review of the ADEC Contaminated Sites Program database, no significant contamination from anthropogenic sources is expected to be present in the project area (FEIS Section 3.14, Soils and Section 3.18 Water and Sediment Quality). The applicant has committed to use clean fill for all discharges of dredged or fill material, with the exception of the discharge of bulk tailings into waters within the boundaries of the bulk TSF.

Tailings, waste rock and other materials placed in the waters in the bulk TSF would not meet the standard for clean fill, however water collection and treatment at the site would avoid contamination of waters outside the area of permanent fill.

B2.2.2 Chemical, Biological, and Physical Evaluation and Testing (Section 230.61)

References—FEIS Chapter 4: Section 4.14, Soils; Section 4.18 Water and Sediment Quality; Appendix K3.18, Water and Sediment Quality, Section 3.18.2.3

Discussion of impacts—Geochemical testing of quarry rock has been carried out as part of the applicant's sampling and testing program (FEIS Section 3.18, Water and Sediment Quality). Rock to be sourced from the three mine site quarries has been drilled, logged and sampled at over

roughly 10-foot intervals, and then tested using a multi-element scan (including sulfur) following a 4-acid digestion. The quarry rock appears to be overall geochemically suitable for use as construction fill due to its low ML and ARD potential. Due to the presence of isolated hydrothermal mineralization, the rock fill should be monitored during quarrying to allow segregation and separate management of rock with ML/ARD potential. (PLP 2018-RFI 021c).

As described in FEIS Section 4.18, rock from material sites would be investigated during site evaluation before construction. If PAG material is identified, it would not be used for construction, and the material site would be relocated to an alternate location with non-PAG rock (PLP 2018-RFI 035).

The material to be placed in the bulk TSF has been characterized and is described in Chapter 2.2 of the FEIS.

B2.3 THE PROPOSED DISCHARGE OF DREDGED OR FILL MATERIAL (SECTION 230.10(b))

(1) The proposed activity would not violate applicable State water quality standards.

☐ True ☐ False

Evaluation of the request for certification under Section 401 of the Clean Water Act has not been completed by the State of Alaska as of the time of this decision. Due to the decision outlined in this ROD, a water quality certification is not required for activities under DA authority which are ultimately not permitted.

(2) The proposed activity would not violate toxic effluent standards or prohibitions under Section 307 of the Clean Water Act (CWA).

☐ True ☐ False

Evaluation of the request for certification under Section 401 of the Clean Water Act has not been completed by the State of Alaska as of the time of this decision. Due to the decision outlined in this ROD, a water quality certification is not required for activities under DA authority which are ultimately not permitted.

(3) The proposed activity would not jeopardize the continued existence of any species listed as endangered or threatened species under the Endangered Species Act of 1973 (ESA) or their critical habitat.

☐ True ☐ False

Consultation under ESA was not completed, due to the decision outlined in this ROD, as finishing consultation is not required for activities which are ultimately not permitted.

(4) The proposed activity would not violate the requirements of a federally designated marine sanctuary protected under Title III of the Marine Protection, Research, and Sanctuaries Act of 1972.

☒ True ☐ False

There are no marine sanctuaries in the vicinity of the project.

B2.3.1.1 Except as Provided Under Section 404(b)(2), No Discharge of Dredged or Fill Material Shall Be Permitted Which Will Cause or Contribute to Significant Degradation of Waters of the U.S. (Section 230.10(c))

The discharge shall not be permitted if it causes significant degradation to WOUS. Findings of significant degradation related to the proposed discharge are based upon appropriate factual determinations, evaluations, and tests required by Subparts B and C, after consideration of Subparts C through F.

(1) The proposed activity causes significant adverse effects through pollutants on human health or welfare, municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites.

☒ True ☐ False

The proposed avoidance, minimization, or compensatory mitigation measures would not reduce the impacts to aquatic resources from the proposed project to below a level of significant degradation.

(2) The proposed activity causes significant adverse effects through pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems.

☒ True ☐ False

The proposed avoidance, minimization, or compensatory mitigation measures would not reduce the impacts to aquatic resources from the proposed project to below a level of significant degradation.

(3) The proposed activity causes significant adverse effects through pollutants on aquatic ecosystem diversity, productivity, and stability to the loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy.

☒ True ☐ False

The proposed avoidance, minimization, or compensatory mitigation measures would not reduce the impacts to aquatic resources from the proposed project to below a level of significant degradation.

(4) The proposed activity causes significant adverse effects through pollutants on recreational, aesthetic, and economic values.

☒ True ☐ False

The proposed avoidance, minimization, or compensatory mitigation measures would not reduce the impacts to aquatic resources from the proposed project to below a level of significant degradation.

B2.3.1.2 Physical Substrate Determinations (Section 230.11(a), 230.20)

References—FEIS Section 4.16, Surface Water Hydrology; Section 4.18, Water and Sediment Quality; Section 4.22, Wetlands and Other Waters/Aquatic Sites; Section 4.24, Fish Values; Section 5.4 Monitoring.

Summary of impacts—Adverse impacts from direct, secondary, and cumulative impacts to WOUS as a result of the discharges of dredged or fill material were determined to be significant and no avoidance and minimization measures have been identified that would reduce the level of impacts below significant. This analysis is documented in the attached Factual Determination Matrix.

Actions taken to minimize impacts—The actions taken by the applicant to avoid and minimize impacts are listed in Section B2.1.1.2 above.

Compliance determination—The proposed discharges of dredged or fill material would cause significant degradation to the aquatic environment. The proposed avoidance, minimization, and compensatory mitigation measures would not change the determination. The compensatory mitigation proposed by the applicant would not reduce the proposed impacts below significant.

B2.3.1.3 Water Circulation, Fluctuation and Salinity Determinations (Section 230.11(b), 230.22 – 230.25)

References—FEIS Sections 3.22 and 4.22, Wetlands and Other Waters/Aquatic Sites; Section 3.24 and 4.24 and K4.24, Fish Values; Section 4.16, Surface Water Hydrology; Sections 4.18 and K4.18, Water and Sediment Quality; Section 4.26, Vegetation

Summary of impacts—Adverse impacts from direct, secondary, and cumulative impacts to WOUS as a result of the discharges of dredged or fill material were determined to be significant and no avoidance and minimization measures have been identified that would reduce the level of impacts below significant. This analysis is documented in the attached Factual Determination Matrix.

Actions taken to minimize impacts—The actions taken by the applicant to avoid and minimize impacts are listed in Section B2.1.1.2 above.

Compliance determination—The proposed discharges of dredged or fill material would cause significant degradation to the aquatic environment. The proposed avoidance, minimization, and compensatory mitigation measures would not change the determination. The compensatory mitigation proposed by the applicant would not reduce the proposed impacts below significant.

B2.3.1.4 Suspended Particulate/Turbidity Determinations (Section 230.11(c), 230.21)

References—FEIS Section 3.22 and 4.22, Wetlands and Other Waters/Aquatic Sites; Section 4.18, Water and Sediment Quality; Section 4.24 and K4.24, Fish Values

Summary of impacts—Adverse impacts from direct, secondary, and cumulative impacts to WOUS as a result of the discharges of dredged or fill material were determined to be significant and no avoidance and minimization measures have been identified that would reduce the level of impacts below significant. This analysis is documented in the attached Factual Determination Matrix.

Actions taken to minimize impacts—The actions taken by the applicant to avoid and minimize impacts are listed in Section B2.1.1.2 above.

Compliance determination—The proposed discharges of dredged or fill material would cause significant degradation to the aquatic environment. The proposed avoidance, minimization, and compensatory mitigation measures would not change the determination. The compensatory mitigation proposed by the applicant would not reduce the proposed impacts below significant.

B2.3.1.5 Contaminant Determinations (Section 230.11(d))

References—

The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material for all alternatives: (checked boxes apply)

☒ Physical characteristics (receiving waters, bottom sediments, slurry constituents).

☐ Hydrograph in relation to known or anticipated sources of contaminants.

☒ Results from previous testing of the material or similar material in the vicinity of the project.

☒ Known, significant, sources of persistent pesticides from land runoff or percolation.

☒ Spill records for petroleum products or designated (§311 of CWA) hazardous substances.

☒ Other public records of significant introduction of contaminants from industry, municipalities or other sources.

☒ Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities

An evaluation of the information above indicates that, with the exception of the proposed discharge of fill material into the bulk TSF, there is reason to believe the proposed dredged or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites. The material meets the testing exclusion criteria.

☒ Yes (for all proposed discharges of dredged or fill material, with the exception of the bulk tailings in the bulk TSF) ☐ No ☐ Unknown

Is the discharge site adjacent to the extraction site and subject to the same sources of contaminants, or are the materials at the two sites substantially similar?

☒ Yes ☐ No ☐ Unknown

If there is a high probability that the material proposed for discharge is a carrier of contaminants, are there constraints available that are acceptable to the permitting authority, and the Regional Administrator, to reduce potential contamination to acceptable levels at the disposal site?

☒ Yes ☐ No ☐ Unknown

For all discharges of dredged or fill material, the testing exclusion above applies. For the discharges of fill material that would be placed in WOUS in the bulk TSF, characterization of the material has occurred, and the material is a carrier of contaminants. The run-off from this material would be captured by the drainage system of the bulk TSF and collection ponds, treated to meet applicable water quality standards before being released into downstream surface waters. There is not a high probability that the material proposed for discharge would result in contaminants in excess of water quality standards occurring outside of the permanent fill footprint for the project.

B2.3.1.6 Aquatic Ecosystem and Organism Determinations (Section 230.11(e))

References—FEIS Section 4.23, Wildlife Values; Section 4.27, Spill Risk

Summary of impacts—Adverse impacts from direct, secondary, and cumulative impacts to WOUS as a result of the discharges of dredged or fill material were determined to be significant and no avoidance and minimization measures have been identified that would reduce the level of impacts below significant. This analysis is documented in the attached Factual Determination Matrix.

Actions taken to minimize impacts—The actions taken by the applicant to avoid and minimize impacts are listed in Section B2.1.1.2 above.

Compliance determination— The proposed discharges of dredged or fill material would cause significant degradation to the aquatic environment. The proposed avoidance, minimization, and compensatory mitigation measures would not change the determination. The compensatory mitigation proposed by the applicant would not reduce the proposed impacts below significant.

B2.3.1.7 Proposed Disposal Site Determination (Section 230.11(f))

No in-water dredge disposal sites are proposed for this project.

B2.3.1.8 Determination of Cumulative Effects of the Aquatic Ecosystem (40 CFR 230.11(g))

References—FEIS Chapter 4, Environmental Consequences (cumulative effects are discussed for each resource in Chapter 4).

Summary of impacts—Based upon the analysis in the FEIS sections referenced above, the analysis of cumulative impacts was incorporated into the analysis of impacts for all of the factual determinations in the Factual Determination Matrix.

Actions taken to minimize impacts—The actions taken by the applicant to avoid and minimize impacts are listed in Section B2.1.1.2 above.

Compliance determination—The proposed discharges of dredged or fill material would cause significant degradation to the aquatic environment. The proposed avoidance, minimization, and compensatory mitigation measures would not change the determination. The compensatory mitigation proposed by the applicant would not reduce the proposed impacts below significant.

B2.3.1.9 Determination of Secondary Effects of the Aquatic Ecosystem (40 CFR 230.11(h))

References—FEIS Chapter 4: Section 4.16, Surface Water Hydrology; Section 4.17, Groundwater Hydrology; Section 4.22, Wetlands and Other Waters/Aquatic Sites; Section 4.24, Fish Values

Summary of impacts—Based on the sections of the FEIS referenced above, the analysis of secondary effects was incorporated into the Factual Determination Matrix.

Actions taken to minimize impacts—The actions taken by the applicant to avoid and minimize impacts are listed in Section B2.1.1.2 above.

Compliance determination—The proposed discharges of dredged or fill material would cause significant degradation to the aquatic environment. The proposed avoidance, minimization, and compensatory mitigation measures would not change the determination. The compensatory mitigation proposed by the applicant would not reduce the proposed impacts below significant.

B2.3.2 Findings of Compliance or Non-Compliance with the Restrictions on Discharge (40 CFR 230.12)

The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reasons:

☐ There is a less damaging practicable alternative.

☒ The proposed discharge will result in significant degradation of the aquatic ecosystem.

☐ The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem.

☐ There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines.

ATTACHMENT B3 GENERAL POLICIES FOR EVALUATING PERMIT APPLICATIONS (33 CFR 320.4)

In addition to the determination of compliance with the 404(b)(1) Guidelines, the decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity, and its intended use, on the public interest.

This section addresses PIR factors relevant to the proposed project. The FEIS contains appropriate supporting analysis for all factors considered in the PIR, except as supplemented herein.

This PIR was applied to the Applicant's Preferred Alternative as described in the FEIS, and the applicant's June 2020 application, which was determined to be the LEDPA.

In order to document the stepwise decision-making process of the PIR, a Public Interest Review Matrix (Attachment B8 of this ROD) was created. The Public Interest Review Matrix is hereby incorporated into and supports the discussion of individual factors below, as well as the general criteria discussion (under 33 CFR 320.4(a)(2)) below. The discussion for each of the following PIR factors includes a general description of the existing resource and summary of both beneficial and adverse effects.

To develop the analysis in the Public Interest Review Matrix, USACE began to list the factors required to be included in the PIR. First, the list includes the factors identified in 33 CFR 320.4(a)(1). Second, factors which were identified in a USACE Memorandum for Record, (dated December 26, 2017, Attachment B9 of this ROD, here-in after referenced as USACE 2017) were also added in the PIR. Factors from USACE 2017 which were added to the PIR included soils, noise, subsistence, and the items identified in paragraph 6 of the memo. After identifying the factors to be considered, the broad comment-based categories of topics into which comments received during scoping and on the DEIS were assigned, were listed in the Public Interest Review Matrix next to the factors which the comment-based categories overlapped. Comments were identified from applicable sections of the Scoping Report (Appendix A of the FEIS) and SOCs in the Comment Analysis Report (Appendix D of the FEIS). The administrative record includes an index to the Comment Analysis Report to show how comments from each submission were coded into SOCs. The Public Interest Review Matrix describes how the comments were considered.

For each PIR factor, the context under which the factor would be evaluated was identified in the Public Interest Review Matrix. The preliminary determinations of the context for each factor was identified prior to scoping, in USACE 2017. The context for some of the factors was revised based upon comments received.

After considering the comments received, and based upon the analysis in the FEIS, the specific benefits and reasonably foreseeable adverse impacts of the project on each factor were identified. The five PIR factors which garnered the most comments were, in order of most comments to fewer comments: precedent for future projects (cumulative effects), fish and wildlife values, unique characteristics of Bristol Bay, safety, and economics. Comments on precedent for future projects (cumulative effects) were a much greater portion of comments compared to all other comments on public interest factors, almost twenty-five times more than the next highest PIR factor, and almost five and a half times more than all other factors combined.

USACE considered the comments, the analysis in the FEIS, and the specific benefits and adverse impacts, as well as the applicant's proposed avoidance, minimization, and mitigation while making determinations of the overall impact of the project on each factor. Effects of the project on a particular factor were determined to be adverse (detrimental), negligible (adverse), negligible

(beneficial), beneficial, or to have no effect. Some factors received no determination of effects as they referred to procedural processes rather than potential effects of the project on the public's interest. The Public Interest Review Matrix which documents the result of this evaluation is contained in Attachment B8 of this ROD.

The overall weighing and balancing of the impacts of the project, as well as the determination whether the project is contrary to the public interest, is documented in Sections B3.1 and B3.2 below. The PIR regulations do not prescribe a particular weight for each factor, and the relative importance of any individual factor varies with each permit application.

B3.1 PUBLIC INTEREST REVIEW FACTORS

B3.1.1.1 Soils – USACE 2017

The project would involve directly and indirectly disturbing, removing and covering over 10,000 acres of soil. Some of the soil would be stockpiled for reclamation and closure activities and some would be used in the construction of the infrastructure, however the original seedstocks and soil structure would not be expected to return to pre-project attributes. The cumulative impacts to soils would be from the project and the limited development in the villages of Newhalen, Iliamna, and Pedro Bay. The proposed project would have adverse effects on soils at the local level.

B3.1.1.2 Shore erosion and accretion - 33 CFR 320.4(a)(1)

The PIR includes an evaluation of the effect the proposed activity may have on shore erosion and accretion. Shore erosion and accretion in marine waters is identified by the accumulation of sediments at structures or features that impede longshore transport of marine sediments. In non-tidal waters, shore erosion and accretion are generally due to changes in hydrology or constrictions of streams and/or floodplains due to road crossings. Shore erosion can also be caused by removal of vegetation or other bank disturbance.

No longshore transport was identified at the port site. The proposed design of the port site, the caisson dock, would decrease disruption of sediment transport compared to a solid fill dock. The caisson design would allow for water and sediment to move through the dock area, instead of causing it to accumulate.

In non-tidal waters, the applicant has committed to utilize culvert designs that accommodate flows higher than base stream flows, and to utilize floodplain culverts and permeable roadbeds to allow for floodplain flows. Some erosion and accretion would be expected to occur in stream beds during construction, however this impact would be expected to be temporary.

Very few comments expressed concerns about potential impacts to shore erosion and accretion; however, the number of comments which mentioned shore erosion and accretion specifically was a smaller portion of the overall number of comments on the PIR factors. The relative number of comments on shore erosion and accretion would indicate that this topic was not one of the public's major concerns for this project. EPA commented requesting that sediment transport and potential impacts of the docks at the immediate and adjacent shoreline of the port sites be studied. The FEIS describes the potential for longshore transport at the port site.

The immediate and adjacent shoreline at Diamond Point is a mix of rocky slope and fine sediments. If the proposed project is permitted, the road to the dock would be constructed on rock, which would prevent erosion of the shoreline. The proposed project would cause a negligible adverse effect on shore erosion and accretion at the local and regional levels.

B3.1.1.3 Flood hazards - 33 CFR 320.4(a)(1)

A flood hazard exists when existing infrastructure is subject to inundation during a 100-year flood (i.e. probability of inundation in any given year is 1 percent). As "flood hazard" is typically used, it refers to the potential hazard to infrastructure and humans from flood events.

Flood magnitude and frequency are not known for the project area because data does not exist to calculate magnitude and frequency. The applicant has committed to design stream crossings in accordance with USFWS standards. If designed to USFWS standards, impacts such as bank erosion, scour, and flooding of areas upstream of the crossing would be minimized or avoided. During construction of the stream crossing there is potential for temporary, local impacts from upstream flooding, but these impacts would be avoided or reduced through implementation of Erosion and Sediment Control Plans and following industry standard BMPs.

The public has expressed concerns about potential impacts to flood hazards; however, the number of comments which mentioned flood hazards was a small portion of the overall number of comments on the PIR factors. Commenters expressed concern about the conclusion that baseline conditions throughout the project area include zero risk of flood hazard, and they recommended that other potential factors such as soil moisture content and extreme precipitation events be considered. Commenters expressed concerns about the risks associated with locating project facilities in floodplains.

There are currently no identified structures in locations where the proposed project would be constructed within a 100-year floodplain, specifically at the mine site, so there does not exist a flood hazard to existing structures. Impacts to streamflow at the mine site would include diversion/storage of streamflow in some tributaries, minor increased flow in some reaches, and substantial streamflow reduction across other reaches of area streams. Impacts related to flood hazards along the transportation corridor, port site and pipeline corridor would all likely be temporary and/or within historical and seasonal variation. Placement of fill would occur during construction of project facilities and would result in altered surface water flow and potential obstructions to flow, and changes in topography, while the facilities themselves might produce future flood hazards.

The project has been designed to ensure, to the maximum extent practicable, that the impacts of potential flooding on human health, safety, and welfare are minimized. The risks of flood losses are minimized by ensuring the flood capacity of the area is maintained with water management facilities. Typically, a flood hazard analysis is conducted during detailed design, and structures in the floodplain are designed accordingly. With no current structures within a 100-year floodplain in the proposed mine site, flood hazards would be adverse, but negligible. The impacts related to flood hazards in the transportation corridor and the port site would be adverse, but negligible. There would be no effect related to flood hazards within the marine environment.

B3.1.1.4 Floodplain values and management - 33 CFR 320.4(a)(1) and 33 CFR 320.4(l)

Under the PIR criteria, the impacts of potential flooding on human health, safety, and welfare should be minimized and whenever practicable the natural and beneficial values served by floodplains should be restored and preserved. Floodplains possess significant natural values and carry out numerous functions important to the public interest, including: (i) Water resources values (natural moderation of floods, water quality maintenance, and groundwater recharge); (ii) Living resource values (fish, wildlife, and plant resources); (iii) Cultural resource values (open space, natural beauty, scientific study, outdoor education, and recreation); and (iv) Cultivated resource values (agriculture, aquaculture, and forestry).

The applicant has demonstrated that their proposed project avoids and minimizes impacts to wetlands (and floodplains) to the extent practicable, while still meeting their purpose and need for the project; however, a large portion of the project must occur in or impact floodplains. The project was designed to impact the least acreage of wetlands as possible and lessen adverse impacts to the floodplain. Impacts from mine development to wetlands, other waters, special aquatic sites, and regionally important wetlands represent less than 1 percent of the Bristol Bay watershed. Outside the mine site footprint, floodplain function and values in each watershed would be permanently affected to some degree, but these changes are not expected to have a measurable impact based on the modeled flow changes and extent of impact. Potential impacts to floodplain functions and values during pipeline construction could result from excavation and placement of fill; removal of vegetation; compaction, rutting, and mixing of wetland soils where present; and the alteration of stream channels. Pipeline construction would occur over a period of 2 years; therefore, the duration of impacts to floodplain wetlands are anticipated to be temporary, because disturbed areas are expected to return to natural conditions soon after pipeline construction. Sections of the pipeline that require overland (buried) installation would also result in temporary impacts to wetlands and other waters.

The public has expressed concerns about potential impacts to floodplain values; however, the number of comments which mentioned floodplain values was a small portion of the overall number of comments on the PIR factors. Commenters expressed concern about the project's destruction of thousands of acres of floodplains and wetlands within the mine footprint and asserted there would be degradation of thousands more acres of downstream wetlands and floodplains from seepage and lack of proper water treatment. Commenters expressed concern regarding potential changes in surface water hydrology and erosion from pipeline installation (applies to impacts along the transportation corridor); and that considering hydrologic impacts independent of other habitat factors underestimates road impact to aquatic habitat.

Wetlands in floodplains provide numerous water resource values and functions, including tidal, storm and floodwater retardation; floodwater storage; aquifer recharge; filtration; nutrient cycling; carbon sequestration; and biodiversity. Disruption of wetland hydrology would interfere with all these wetland functions. The project features and facilities would directly or indirectly alter or degrade surface water or groundwater hydrology and aquatic habitats. This alteration or degradation of hydrology and related aquatic habitats would have numerous cascading effects, including a permanent loss of wetlands and other waters, a change in soil saturation (and ultimately soil type), and new vegetative species colonization in the area, as well as reductions in the connectivity, ecological function, and value of aquatic resources. Impacts to WOUS which would result from discharges of dredged or fill material under USACE authority are analyzed in detail in Section B2 above, the analysis of impacts under the 404(b)(1) Guidelines. Impacts resulting from dewatering, water withdrawals, and to water quantity are under the authority of the State of Alaska and, to the extent that they fall under USACE purview, are considered in the water supply and conservation factor (B3.1.1.8). Impacts to water quality are evaluated in Section B2 above, the analysis of impacts under the 404(b)(1) Guidelines, and the water quality factor (B3.1.1.7).

Floodplains provide important living resource values, including habitat for diverse fish and wildlife. Of particular interest to the public, fringe riparian wetlands provide important salmon rearing habitat. The proposed project would have an adverse effect on living resource values related to floodplain values at the local level. See fish and wildlife values factor (B3.1.1.6) for a discussion of living resource values of floodplains in the context of fish and wildlife, and the wetlands factor (B3.1.1.5) for a discussion of floodplains values in the context of the significant natural biological functions of wetlands.

In addition to the ecosystem functions provided by floodplains, certain wetland types and locations are valued by Alaska Natives for their subsistence value. Culturally important plants have been identified from an ethnobotanical study from the Yukon-Kuskokwim region. In a largely roadless area, rivers and lakes provide transportation and critical habitat for subsistence and commercial resources; therefore, lakes, rivers, and their associated wetlands are highly valued by residents of and visitors to the Bristol Bay region and are often the focal point of communities with high recreational, economic, subsistence, and heritage value. Flats wetlands provide habitat for prey species, and therefore have hunting value. Expansive wetland flats can be a defining characteristic of the landscape with aesthetic value. The considerable sequestration of carbon in large organic flats wetlands provides opportunity for scientific research, especially related to climate change. Slope wetlands are widely used for subsistence and recreation. Due to the provision of habitat for waterfowl, depressional wetlands are attributed hunting and subsistence use values. Coastal wetlands are dynamic and productive habitats that support a variety of subsistence resources. As an uncommon component of the broader coastal landscape, they are attributed high aesthetic, recreational, and uniqueness value. Due to the increased variability of coastal processes in the context of a changing climate, coastal fringe wetlands are ascribed additional value for the opportunities for education and scientific research they provide. Marine and freshwater waterbodies function to mitigate and retain storm and floodwater flows are additionally valued for recreation, hunting, fishing, and navigation opportunities. Additional discussion of floodplain functions related to cultural resource values can be found in the

See the aesthetics factor (B3.1.1.16), the land use factor (B3.1.1.19), and the historic, cultural, scenic and recreational values factor (B3.1.1.18). See the recreation factor (B3.1.1.15) for additional discussion in the context of recreation. The proposed project would have an adverse effect on cultural resource values related to floodplain values at the local level.

There are no cultivated resources in, or within the vicinity of, the proposed project area; therefore, there would be no effect to cultivated resource values.

The proposed project would have an adverse effect to floodplain values, specifically at the mine site. This adverse effect would be lessened by the implementation of water management measures at the mine site. The impacts to floodplain values in the transportation corridor and the port site would be adverse, but negligible. There would be no effect to floodplain values within the marine environment.

B3.1.1.5 Wetlands - 33 CFR 320.4(a)(1) and 33 CFR 320.4(b)

The wetlands in the project area are productive and un-impacted resources which provide a number of functions. Under the PIR criteria, the unnecessary destruction or alteration of wetlands should be discouraged as contrary to the public interest. Wetlands considered to perform important public interest functions include: those that serve biological functions such as habitat or nesting, etc.; those that serve as sanctuaries or refuges; those that when altered could affect sedimentation, drainage, or salinity, etc.; those that significantly shield areas from storm damage or serve flood storage functions; those that are groundwater discharge areas; those that serve significant water purification functions; or those that are unique in nature or scarce in quantity. In the proposed project area, wetlands have most characteristics identified as performing important public functions, including: providing habitat for fish, wildlife and birds; food chain support; moderation of surface water flows and maintenance of base flows; water purification functions; and provision of unique or important areas, including areas that are culturally important. Many of the criteria indicating important public functions under the PIR are evaluated as part of the CWA 404(b)(1) analysis. Wetlands are special aquatic sites which are protected by law. Congress's stated intent in passing the CWA was to protect the physical, chemical, and biological integrity of WOUS, including wetlands. Under the PIR, permits will not be granted which involve the alteration

of wetlands identified as important based on the criteria discussed above unless the District Engineer concludes, based on the analysis of those criteria, that the benefits of the proposed alteration outweigh the damage to the wetlands resource. When evaluating whether a particular discharge should be permitted, the District Engineer should apply the 404(b)(1) Guidelines.

In the South Fork Koktuli River, North Fork Koktuli River and Upper Talarik Creek, the percent of impacted wetlands and other waters would increase from 0 percent currently, to 6 percent under the proposed project, to 23 percent under the expanded mine scenario. The analysis in the 404(b)(1) factual determination matrix (Attachment B7 to this ROD) and Section B2, above, lay out the analysis of the direct, indirect, and cumulative impacts to wetlands, and supports the determination that the proposed project would cause significant degradation to wetlands as defined by the CWA. EPA has special expertise in the 404(b)(1) Guidelines. USACE collaborated with EPA and USFWS to develop the analysis that supported the finding of significant degradation. The applicant's proposed compensatory mitigation plan is insufficient to offset the proposed direct and indirect impacts to WOUS and would not reduce impacts below significant degradation.

The public has expressed concerns about potential impacts to wetlands; however, the number of comments which mentioned wetlands specifically was a smaller portion of the overall number of comments on the PIR factors. The relative number of comments on wetlands would indicate that this topic was not one of the public's major concerns for this project. The public expressed concerns about impacts from fugitive dust, fragmentation, and other secondary impacts to wetlands; about cumulative effects to wetlands; about wetlands of regional importance; about losses of wetlands functions; and about the adequacy of compensatory mitigation. The proposed project would cause an adverse effect to wetlands, particularly at the local and regional levels. The District Engineer has concluded, based on the 404(b)(1) Guidelines (as discussed in Section B2 above), the expressed public concerns about wetlands, and the information in the FEIS, that the benefits of the proposed alteration of wetlands do not outweigh the damage to the wetlands resource.

B3.1.1.6 Fish and wildlife values - 33 CFR 320.4(a)(1) & (c)

As part of the PIR, and in accordance with the Fish and Wildlife Coordination Act, district engineers are required to consult with the Regional Director, USFWS, the Regional Director, NMFS, and the head of the agency responsible for fish and wildlife for the state in which work is to be performed (in this case the State of Alaska, Department of Fish and Game), with a view to the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the activity proposed in the permit application. USACE is required to give full consideration to the views of those agencies on fish and wildlife matters in deciding on the issuance, denial, or conditioning of individual or general permits.

Over the course of the development of the FEIS and permitting process, USACE extensively consulted with the USFWS, the NMFS, and with the State of Alaska regarding the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the activity proposed in the permit application. USACE began formal ESA consultation with both USFWS and NMFS regarding the affect the proposed project would have on threatened and endangered species (TES). Consultation under ESA was not completed, due to the decision outlined in this ROD, as finishing consultation is not required for activities which are ultimately not permitted. Additionally, USACE and NMFS completed expanded consultation for EFH under the Magnuson-Stevens Fishery Conservation and Management Act. See Sections B4.3, B4.4, and B4.5 of this document for additional details regarding compliance with environmental regulations pertaining to fish and wildlife values. USACE considered comments from these agencies in the review of the proposed project, and for this PIR factor.

The project features and facilities presenting potential risks to aquatic resources primarily involve those that ultimately could directly or indirectly alter or degrade surface or groundwater and aquatic habitats. This includes construction of mine infrastructure, access roads, and related facilities; mining and earth moving activities; pumping/dewatering and other activities involving groundwater, surface water, and stormwater; wastewater or contact water conveyance, treatment, and disposal; storage and handling of fuel, process chemicals/by-products, and hazardous waste; and other site management practices near and upslope, or otherwise hydraulically connected to surface waters that might be a source of contamination. The discharge of dredged or fill material from the project would result in the loss or change of breeding and nesting areas, escape cover, travel corridors, and preferred food sources of resident and migratory wildlife species associated with the aquatic ecosystem. Impacts to non-federally listed wildlife are grouped into several categories: birds (raptors, waterbirds, land birds and shorebirds), terrestrial wildlife (caribou, moose, brown and black bears, gray wolves), small terrestrial vertebrates (furbearers and wood frogs), and marine mammals. Wildlife associated with aquatic ecosystem includes resident and migratory mammals, birds, and wood frogs. Overall, there would be a loss of 10,168 acres of habitat occupied by a variety of wildlife species. This includes waters, wetlands, streams, and other aquatic features that provide important foraging, nesting, resting, migrating, and breeding habitat for species. Additional habitat would be temporarily disturbed during construction, including trenching the natural gas and fiber-optic cable route through Cook Inlet including Cottonwood Bay.

The fish and wildlife values category garnered the second highest PIR related comments; however, it should be noted that the top factor (mineral needs and precedent for future projects) had greater than twenty-five times the number of comments than fish and wildlife values. The public expressed a whole litany of concerns about potential impacts to fish and wildlife values, with the majority of those comments related to impacts to fisheries. Comments and concerns by cooperating agencies with special expertise were given particular consideration.

Cooperating agencies with special expertise expressed many concerns regarding fish values. The concerns raised included the loss and fragmentation of fish habitat and the long-term impacts to fish ecology; potential long-term impacts to the Bristol Bay salmon portfolio and population fitness from direct and indirect impacts; the bioaccumulation and biomagnification of metals in aquatic organisms, particularly mercury; alterations to groundwater inputs and the potential impacts to fish spawning, rearing and overwintering habitats; impacts from culverts being blocked or failing and the potential impacts on fish migration to preferred spawning and rearing habitats; changes in water temperatures and the potential impacts on egg incubation and fish emergence times; the impacts to salmon smolt from ferry operations, particularly during winter months when ice breaking would be necessary; and the magnitude of headwaters habitat lost.

Cooperating agencies with special expertise expressed many concerns regarding wildlife values. The concerns raised included loss of habitat and habitat fragmentation with development of the project; the magnitude of behavioral disturbance on large wildlife species, including caribou, moose and bears; potential impacts from project operations on wildlife and TES, specifically impacts from noise and vessel traffic in Cook Inlet; potential impacts to brown bear ecology and habitats, particularly impacts from the transportation corridor on bear behavior and denning habitats; potential impacts from ferry operations on harbor seals inhabiting Iliamna Lake, particularly during winter months when ice breaking would be necessary; and the potential disturbance impacts to the Mulchatna caribou herd and loss of habitat around the mine site.

The Applicant's proposed project would result in a permanent loss of fish and wildlife habitat, fragmentation, and degradation from development of the mine site, placement of fill for transportation component facilities, and installation of the natural gas pipeline and fiber optic cable. The proposed project would have an adverse effect on wildlife that would vary by species.

Impacts would differ for species in the terrestrial versus marine environment. Behavioral disturbance along with potential for injury and mortality would be the greatest impacts to species in the marine environment. Habitat loss and disturbance would be the greatest impacts to terrestrial wildlife. Potential project impacts to brown bears in this region are unknown and could extend for several miles around project facilities.

The proposed project impacts to EFH are extensively discussed in the EFH Assessment. The proposed project would have direct impacts to fish values as a result of the direct loss of habitat in the mine site area; however, the project modeling has shown that the impacts under ideal conditions would not extend down to the Bristol Bay Fishery.

The potential for impacts to fish and wildlife in McNeil River State Game Refuge and Sanctuary has been minimized by the applicant's preferred alternative. As the proposed project no longer crosses Iliamna Lake, there would be no impacts to the Iliamna Lake seals. The Amakdedori port site and the structures in Iliamna Lake evaluated as part of the original project description in the DEIS are no longer included in the proposed project description, so associated comments were not considered further.

The proposed project would have an adverse effect on the fish communities at the local level due to localized direct and indirect impacts to fish habitat. The impact to fish values at the regional level would be adverse, but negligible. Under ideal conditions, at the state, national, and global levels, there would be no effect. The proposed project would have an adverse effect on conservation of wildlife resources at the local level with the direct loss of habitat and disturbance from project activities, and the potential to cause behavior modification due to disturbance. Regionally, the project could adversely affect wildlife in the vessel transit corridors because if present they would be directly harassed by vessels' presence. The project would have an adverse effect on endangered species.

B3.1.1.7 Water quality - 33 CFR 320.4(a)(1), 33 CFR 320.4(b)(2)(vii), and 33 CFR 320.4(d)

Applications for permits for activities which may adversely affect water quality are to be evaluated for compliance with applicable effluent limitations and water quality standards during operation and construction. In addition, when examining the impacts of the proposed activity on wetlands, water quality functions are also considered. This could include examining effects on wetlands which serve water purification functions as well as evaluating point and non-point source pollution during the construction and subsequent operation of the proposed activity.

Certification of compliance with applicable effluent limitations and water quality standards required under provisions of Section 401 of the CWA are considered conclusive with respect to water quality considerations, unless the Regional Administrator, EPA, advises of other water quality aspects to be taken into consideration.

The project would result in direct and indirect adverse impacts to water quality and chemistry as a result of alteration of mined rock and its interaction with air and water, the discharge of treated effluent, project-related fugitive dust, seepage from mine site facilities, and potential sedimentation. Wetlands which provide water purification functions, including those with submerged aquatic vegetation, would be lost and degraded as a result of the proposed project. The analysis in the 404(b)(1) factual determination matrix lays out the analysis of the direct, indirect, and cumulative impacts to wetlands, and analyzes the impacts of suspended particulates, turbidity, and salinity gradients.

The public has expressed concerns about potential impacts to water quality; however, the number of comments which mentioned water quality specifically was a smaller portion of the overall

number of comments on the PIR factors. Commenters expressed concern about impacts to water quality on groundwater; about impacts to drinking water; about water quality impacts to fish and wildlife habitat; impacts to wetlands, water and sediment quality; impacts of fugitive dust on water quality, on fish and wildlife habitat, and on wetlands.

Analysis in the FEIS determined that the project would result in direct and indirect adverse impacts to water quality and chemistry as a result of geochemical alteration of mined rock and its interaction with air and water, the discharge of treated effluent, project-related fugitive dust, seepage from mine site facilities, and potential sedimentation and turbidity from construction and the operation of barges in shallow water. The discharge of treated effluent would alter water chemistry; however, because treated water would be required to meet the most stringent water quality criteria, alterations in water chemistry are not anticipated to result in water quality exceedances.

The proposed project would have an adverse effect on groundwater hydrology in the vicinity of the proposed project, specifically at the mine site. Impacts to groundwater hydrology in the transportation corridor and at the port site would be adverse, but negligible. There would be no impact to groundwater hydrology in the marine portions of the natural gas pipeline. The proposed project would have adverse impacts on sediment quality and increased fugitive dust impacts at the local level. Regionally there would be no effect to sediment quality.

The proposed project would have an adverse local effect on wetlands and other waters that provide minimum baseflows. The impact to wetlands and other waters that provide minimum baseflows at a regional level would be adverse but negligible.

Evaluation of the request for certification under Section 401 of the Clean Water Act has not been completed by the State of Alaska as of the time of this decision. Due to the decision outlined in this ROD, a water quality certification is not required for activities under DA authority which are ultimately not permitted. The proposed project would have an adverse effect to water quality at the local level and a negligible adverse impact to water quality at the regional level.

B3.1.1.8 Conservation and Water supply and conservation - 33 CFR 320.4(a)(1) and 33 CFR 320.4(m)

Conservation is defined as preservation and protection of natural or important resources. The project, if constructed, would result in the direct loss of existing pristine natural resources including wetlands, wildlife and fisheries habitats, streams and other waters, recreational and cultural areas, and energy resources. The project would consume 18.25 billion standard cubic feet of natural gas annually. Of the comments on the EIS that USACE received, the public and agencies did not comment often on conservation, conservation of water supplies and/or conservation of energy and energy development. However, there was concern expressed by the public that the project would be a detriment for energy conservation and development because of the volume of natural gas that would be required, and that it may affect supply of natural gas to lower Cook Inlet. The State of Alaska has published a study in 2018 titled, “Cook Inlet Natural Gas Availability” which indicates that enough natural gas is available in the area for current and potential future uses and indicated there are known reserves that could be developed. The project would not impact any known private or municipal water supplies. The proposed project would not directly, indirectly or cumulatively affect the ability to conserve resources outside of the area of impacts of the proposed project. The proposed project would have a negligible adverse effect on conservation at the local, regional, state and national levels.

B3.1.1.9 Unique characteristics of Bristol Bay/seals – USACE 2017, 6.a.

In the December 26, 2017, Memorandum for Record identifying the scope of analysis for the proposed project, USACE determined that an EIS level of analysis was required, in part, due to the unique characteristics of the Bristol Bay region include essential salmon habitat for five species of pacific salmon and their supporting wetlands, aquatic resources, and the unique freshwater seal population of Lake Iliamna (USACE 2017). The Bristol Bay Region, including Lake Iliamna and the watersheds that support Bristol Bay, support the largest wild sockeye salmon commercial fishery in the world. The Bristol Bay region is generally sparsely populated, with few anthropogenic impacts outside of villages and established townsites like Iliamna and Dillingham, making the region's ecological functions natural and pristine.

The Bristol Bay Watershed has been designated an Aquatic Resource of National Importance (ARNI) by both the EPA and the USFWS because of its high biological productivity and unique nature supporting Bristol Bay and the residents of the region. The top five PIR factors that received the most comments were 1) precedent for future projects (cumulative effects), 2) fish and wildlife values, 3) unique characteristics of Bristol Bay, 4) safety, and 5) economics, indicating the characteristics of the region are of interest to the public. These characteristics include the fact that Iliamna Lake has the only population of seals living in fresh water in the United States, and only one of three known populations predominantly found in freshwater worldwide. Iliamna Lake also serves as spawning, rearing or resident habitat for all five wild Pacific Salmon species, and various resident species like trout, Dolly Varden and other aquatic organisms that support the aquatic food web. The seals are hunted as part of native subsistence practices and concerns were expressed about the original application's proposal to use a year-round, ice breaking ferry and the effect it may have on seals, salmon and the attributes of Iliamna Lake that make it an ARNI. The current proposal by the applicant alleviates concerns about impacts from a ferry to fry/smolt, freshwater seals and all direct impacts to Iliamna Lake. However, the proposed project has been determined to cause significant degradation to the ARNI (the Bristol Bay Watershed) as documented in the 404(b)(1) Guidelines analysis. The direct, indirect and cumulative effects of the project would change the unique, generally unadulterated qualities of the Bristol Bay watershed.

B3.1.1.10 Activities affecting coastal zones – 33 CFR 320.4(h)

Applications for DA permits for activities affecting the coastal zone will be evaluated with respect to compliance with the state's coastal zone program. There is no coastal zone management program in the State of Alaska. See Section B4.2 below for further information.

B3.1.1.11 Activities in marine sanctuaries – 33 CFR 320.4(i)

Applications for DA permits for activities in a marine sanctuary will be evaluated for impact on a marine sanctuary. The proposed project is not located in a marine sanctuary.

B3.1.1.12 General environmental concerns - 33 CFR 320.4(a)(1)

The public has expressed concerns about potential impacts to general environmental concerns, including climate change; however, the number of comments which mentioned climate change and general environmental concerns specifically were a smaller portion of the overall number of comments on the PIR factors. Climate change comments expressed concern of the potential for change in environmental conditions that may require changes in design and adaptive management of water etc. during operations. The FEIS does analyze climate change with regards to how climate change may affect infrastructure, effects of climate change to the area and how the construction and operations would generate green house gasses. Those comments are

outside of USACE's authorities and purview and will not be considered in the review of the proposed action under USACE's authority. Other general environmental concerns included impacts to wildlife, impacts from spills, and impacts to substances; all of which are address in greater detail under other PIR factors. Considering the direct, indirect, and cumulative impacts of the proposed project on the environment, the project would result in adverse effects.

B3.1.1.13 Environmental benefits

The benefits of the proposed project to the quality of the environment are evaluated under the specific PIR factors in Section B3 of this ROD.

B3.1.1.14 Needs and welfare of the people - 33 CFR 320.4(a)(1)

Currently, the villages in the region are not connected to a road system and are not easily accessible for commercial goods to be provided to the communities. The cost of goods and services in the local area near the proposed development is higher than communities connected to a road system. Historically, the region has limited local employment opportunities and limited services, including grocery stores; therefore, the population in the region rely heavily on subsistence activities for food and to pass on traditional cultures and values. Since there are limited opportunities for local employment, many of the younger population either move to population centers with employment opportunities or are away from the villages for portions of the year for gainful employment. A benefit of the project, if constructed, would be the opportunity for employment in the local area, and the potential reduction in costs of goods and services because of infrastructure that would exist if the project is constructed. Some of the villages in the Iliamna Lake area have seen trends of population decline, mainly because of lack of gainful employment in the villages. During the life of the project, the cost of fuel may be reduced, as the residents near the transportation/pipeline corridor would be provided an opportunity to utilize natural gas instead of the more expensive fuel oil to heat their residences. However, post closure there is no guarantee that those individuals that convert to using natural gas would continue to have access to a natural gas source and therefore would be need for the reconversion back to use of previous fuel sources which would be a financial burden. Additionally, it would be anticipated that the local cost of all commercial commodities would increase after the closure of the mine.

There are few roads in the vicinity of the proposed development currently and none of the roads connect any of the villages to each other. The construction of the transportation corridor, the port and the mine facilities would result in year-round all day and night traffic near the villages of Newhalen, Iliamna and Pedro Bay. The infrastructure may allow access to areas previously not accessible for subsistence and other activities, however it would also displace fish and wildlife upon which locals subsist or which attract recreators and remove areas that are accessible and usable for activities for residents of the region. The proposed project would have off-setting adverse and beneficial impacts to the local area, the region, and to the state. The proposed project would have a beneficial effect on regional and local surface transportation by making it more economical and improving infrastructure. The proposed project would have a negligible adverse effect on regional and state air transportation and vessel transportation by increasing travel along existing routes without increasing infrastructure.

B3.1.1.15 Recreation and Recreational values - 33 CFR 320.4(a)(1), 33 CFR 320.4(e)

Under the PIR, evaluation of the general public interest includes giving due consideration to the effect the proposed activity may have on recreation and recognized recreational values. This could include examining effects on areas like National Parks and Monuments, or on estuarine and marine sanctuaries. Actions on permit applications should avoid significant adverse effects

on values or purposes reflected by state, local, or regional land use classifications or by similar federal controls or policies.

The proposed project would not directly impact any National Parks, National Monuments, nor any estuarine or marine sanctuaries. Visitors to the Alaska Maritime National Wildlife Refuge would have limited visibility of the port site.

Recreational opportunities and experiences that would be impacted by the proposed project would include hunting, fishing, wildlife viewing, boating, camping, backpacking, beach combing, clamming, and picnicking activities, and snowmachine use. The State of Alaska, through the BBAP, designated land uses in the footprint of the mine and transportation corridor. The BBAP specifies that these lands are to be retained in public ownership and managed for multiple uses—including recreation, timber, minerals, and fish and wildlife—as well as natural scenic, scientific, and historic values. The State of Alaska has made no specific determinations whether the proposed project is consistent with the BBAP.

The proposed project would result in decreased recreation within the footprint and in the vicinity of the proposed project. Habitat which supports fish, wildlife and birds that attract recreators would be lost within the project footprint and would be degraded in the vicinity of the project and downstream of the mine site, within the Koktuli River watershed. Also, due to shifts from an undeveloped area to an industrial area, views from certain elevations would be negatively impacted, and there would be resulting increases in noise and light levels. The proposed project would indirectly provide minor benefits to local recreators through improved access to remaining recreation areas via the transportation corridor.

The public commented with concerns regarding potential impacts to bear viewing, which have been minimized by the selected LEDPA, as the route chosen for the LEDPA avoids the McNeil River State Game Refuge and Sanctuary and Katmai National Park and Preserve. Commenters also expressed concern about impacts to visitors of nearby Lake Clark National Park, about increased access to the project area resulting in higher use and pressure on the remaining recreational resources, and about the potential impacts of the project on recreational fishing. The public has expressed concerns about potential impacts to recreation; however, the number of comments which mentioned recreation specifically was a smaller portion of the overall number of comments on the PIR factors. The proposed project would have an overall adverse effect on recreation at a local level, due to losses of areas available for recreation, and impacts to fish and wildlife and habitat which attract recreators. There would be a negligible positive effect due to the ease of access if new transportation corridors are available to resident and/or non-resident use or equipment is more readily available. The adverse impacts would be less severe at the regional level and adverse but negligible at the state level.

B3.1.1.16 Aesthetics - 33 CFR 320.4(a)(1)

The PIR does not specify how or what to consider when considering aesthetics; however, under the CWA, aesthetics associated with the aquatic ecosystem consist of the perception of beauty by one or a combination of the senses of sight, hearing, touch, and smell. Aesthetics of aquatic ecosystems apply to the quality of life enjoyed by the general public and property owners. The regulation goes on to state that possible loss of values include: that the discharge of dredged or fill material can mar the beauty of natural aquatic ecosystems by degrading water quality, creating distracting disposal sites, inducing inappropriate development, encouraging unplanned and incompatible human access, and by destroying vital elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of an area. The discharge of dredged or fill material can adversely affect the particular features, traits, or characteristics of an aquatic area which make it valuable to property owners. Activities which degrade water quality, disrupt natural

substrate and vegetational characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels may reduce the value of an aquatic area to private property owners.

The applicant's preferred alternative, if permitted, would be constructed on predominately undeveloped lands owned by the State of Alaska; Cook Inlet Region, Inc; Alaska Peninsula Corporation; Iliamna Natives Limited; Pedro Bay Corporation; Salamatof Native Association, Inc; Seldovia Native Association, Inc; Tyonek Native Corporation; on two Native Allotments which are managed by the Bureau of Indian Affairs (BIA); and on private property. The State of Alaska, through the BBAP, designated land uses in the footprint of the mine and transportation corridor. The BBAP specifies that these lands are to be retained in public ownership and managed for multiple uses—including recreation, timber, minerals, and fish and wildlife—as well as natural scenic, scientific, and historic values. The State of Alaska has made no specific determinations whether the proposed project is consistent with the BBAP. Currently this undeveloped land is mainly utilized for recreation, subsistence, and cultural purposes. Within the project footprint, a predominantly undeveloped area would be converted to an industrial area, resulting in increased noise and light levels, and negatively impacting the visual landscape, especially from certain elevations and for flight paths over the project site. Night sky impacts could reach up to 20 miles from the mine site. Due to aesthetic changes to the landscape, the use of certain cultural areas may be limited or altered.

The public has expressed concerns about potential impacts to aesthetics; however, the number of comments which mentioned aesthetics was a very small portion of the overall number of comments on the PIR factors. Related to aesthetics, commenters expressed concern that the project would have permanent and significant impacts on the appearance of the landscape as viewed from Key Observation Points, and that this would impact use and enjoyment of the area. Comments also requested that visual impacts of the mine, roads, and port include recreation; and secondary industries like flightseeing and wildlife viewing. The NPS expressed particular concern about aesthetics, increase in flight traffic over Lake Clark National Park, night sky pollution, and noise disruption.

The proposed project impacts to aesthetics would be more adverse at the local and the regional scale.

B3.1.1.17 Noise – USACE 2017

In USACE 2017, noise was identified as a PIR consideration, particularly in areas where estimated noise levels generated by the action could be audible (local), along with consideration given to regional impacts and the potential effects to endangered species.

Noise is a factor of aesthetics, so related review can be found under the aesthetics factor.

The public has expressed concerns about potential noise impacts; however, the number of comments which mentioned noise was a tiny proportion of the overall number of comments on the PIR factors. Related to noise, commenters expressed concern that the project would disturb birds, cause behavioral changes of TES, affect the McNeil River State Game Refuge, and impact the Iliamna Lake seals. The NPS expressed particular concern about increase in flight traffic over Lake Clark National Park and noise disruption.

The noise associated with the proposed project would disturb birds in areas of project activity. The noise associated with in-water activity of the proposed project elements would likely cause behavioral changes (i.e. avoidance of areas) of TES; however, the applicant has reduced potential noise impacts by including the use of caissons instead of pile driving (which is much louder and would have a greater impact on marine species, particularly TES).

The potential for noise impacts to McNeil River State Game Refuge and Sanctuary has been minimized by the applicant's preferred alternative, and as the proposed project no longer crosses Iliamna Lake, there would be no noise impacts to the Iliamna Lake seals.

The proposed project would have adverse effects on the local soundscape due to construction and operations at the project site. The project would have adverse effects to the regional soundscape due to increased vessels and activity going to and from the project site.

B3.1.1.18 Historic, cultural, scenic, and recreational values - 33 CFR 320.4(a)(1) and 33 CFR 320.4(e)

Under the PIR, evaluation of the general public interest includes giving due consideration to the effect the proposed activity may have on recognized historic, cultural, scenic, conservation, recreational, or similar values. This could include examining effects on areas like historic properties, National Parks and Monuments, or on estuarine and marine sanctuaries, or on archeological resources. Actions on permit applications should avoid significant adverse effects on values or purposes reflected by state, local, or regional land use classifications or by similar federal controls or policies.

For example, under Section 106 of the NHPA, USACE is required to consider effects of the undertaking (the activities requiring a federal permit) on historic properties. There are two known historic properties which would be directly and indirectly impacted by the proposed project. Because the proposed project is complex and effects on historic properties cannot be fully determined prior to approval of the undertaking, in accordance with the NHPA and the regulations at 36 CFR 800, a Programmatic Agreement has been developed in consultation with ACHP, SHPO, and other consulting parties. Consultation included, but was not limited to, 9 meetings with ACHP and consulting parties; 15 meetings with 19 Indian tribes or tribal groups; and 8 meetings with SHPO and/or ACHP. ACHP and consulting parties had multiple opportunities to comments on drafts of the Programmatic Agreement. In addition, comments regarding the Section 106 process and the Programmatic Agreement were sought from the public via public notice, and from 38 Federally Recognized Tribes, and their corresponding ANCSA regional and village corporations via letter and email. Consultation under Section 106 was not completed, due to the decision outlined in this ROD, as finishing consultation is not required for activities which are ultimately not permitted. Although identification and evaluation of historic properties that may be impacted by the proposed project is not yet completed, nor a determination of effects on historic properties, the project is anticipated to cause adverse effects to historic properties.

The public and Federally Recognized Tribes expressed concerns about potential impacts to historic properties and on cultural, scenic, and recreational values. The number of comments which mentioned historic, cultural, scenic, and recreational values specifically was a smaller portion of the overall number of comments on the PIR factors. Federally Recognized Tribes made up 11% of the commenters on historic properties and Section 106, indicating that this factor was of greater importance to this group of commenters.

Commenters raised concerns about cultural, scenic, recreational, and conservation values, such as: impacts to lifeway patterns, cultural and spiritual interactions with the environment, disruptions in the relationship between the people and the natural and cultural resources, and impacts to the current and continuing health and vitality of Alaska Native cultures. Commenters expressed concern that the existence of the mine, the infrastructure, and the constant noise and traffic would contaminate the landscape from a spiritual standpoint and permanently alter the pristine aesthetic value of the area. Other commenters stated that the Bristol Bay area has world-class fishing, hunting, and other outdoor recreation opportunities, that would be lost as a result of the proposed

project. Federally Recognized Tribes have expressed that all of the Bristol Bay landscape, including the landscape in the vicinity of the mine site, is culturally important.

The proposed project would block use of certain portions of the landscape, and limit or alter the use of other cultural areas due to aesthetic changes to the landscape or due to wildlife avoidance of the area in the vicinity of the project. Large portions of the project area would be converted from wildland to industrial use, with resultant changes in visual impacts, sounds, and smells, as well as access to areas available for recreation.

The proposed project would adversely affect cultural resources, cultural areas, access to cultural areas, such as Frying Pan Lake, cultural resource values from floodplains, scenic values, and recreational values at the local and regional levels. There would be a negligible benefit to recreational values due to increased ease of access to formerly roadless areas at the local and regional levels. There would be a negligible adverse impact to conservation areas at the local and regional levels.

B3.1.1.19 Land use - 33 CFR 320.4(a)(1), 33 CFR 320.4(j)(2)

Under the PIR, evaluation of the general public interest includes giving due consideration to the effect the proposed activity may have on land use, including cultural, scenic, conservation, recreational, or similar values. The primary responsibility for determining zoning and land use matters rests with state, local and tribal governments. The district engineer will normally accept decisions by such governments; however, no decisions have been made, to date, by state or local governments regarding zoning or land use matters pertinent to the proposed project. In USACE 2017, subsistence was identified as a PIR consideration in evaluating land use.

The applicant's preferred alternative, if permitted, would occur on lands owned by the State of Alaska; Cook Inlet Region, Inc; Alaska Peninsula Corporation; Iliamna Natives Limited; Pedro Bay Corporation; Salamatof Native Association, Inc; Seldovia Native Association, Inc; Tyonek Native Corporation; two Native Allotments which are managed by BIA; and on private property. The State of Alaska, through the BBAP, designated land uses in the footprint of the mine and transportation corridor. The BBAP specifies that these lands are to be retained in public ownership and managed for multiple uses—including recreation, timber, minerals, and fish and wildlife—as well as natural scenic, scientific, and historic values. The State of Alaska has made no specific determinations whether the proposed project is consistent with the BBAP. There are no zoning designations within the footprint of the proposed project.

The change in land use from a relatively natural landscape to an industrial use would result in exclusions or restrictions in access to subsistence areas for the individuals engaging in subsistence activities and would cause decreases in the availability of subsistence resources upon which those individuals subsist. This would result in increased competition for resources in areas which remain available for subsistence. Employment at the mine may bring in resources which would allow for individuals to acquire equipment and fuel to offset the need to travel further distances to access remaining subsistence areas, however the increased travel distances to subsistence areas may deter individuals from engaging in subsistence activities and traditional cultural practices.

Changes to an industrial use for mineral extraction would benefit the State of Alaska through fees and taxes. However, changes from a generally unimpacted landscape would have adverse impacts to the remainder of the current and potential uses to which the area is suited. The public has expressed concerns about potential impacts to land use; however, the number of comments which mentioned land use specifically was a smaller portion of the overall number of comments on the PIR factors. Commenters expressed concerns over impacts to subsistence, including contamination from fugitive dust or tailings dam failures; about potential for increases in

recreation; about impacts to cultural resources; as well as stating that the proposed mine is inconsistent with the land uses prescribed in the BBAP. Some commenters expressed that surface or subsurface rights are not available to the applicant; one commenter asserted that the proposed project would damage existing telecommunications infrastructure; and others asserted that an ANILCA 810 analysis is required for the project.

The proposed project would have an adverse effect on subsistence at the local and regional level. Federally Recognized Tribes have expressed that all of the Bristol Bay landscape, including the landscape in the vicinity of the mine site, is culturally important. The proposed project would adversely affect cultural resources and access to cultural areas, such as Frying Pan Lake. The proposed project would block use of certain portions of the landscape, and limit or alter the use of other cultural areas due to aesthetic changes to the landscape or due to wildlife avoidance of the area in the vicinity of the project. The effects which would result due to changes in land use would be more severe and adverse at the local and the regional scale.

B3.1.1.20 Food and fiber production - 33 CFR 320.4(a)(1)

There are no cultivated resources in, or within the vicinity of, the proposed project area, and so therefore there would be no effect to cultivated resource values. Subsistence and fisheries are tangentially related to food and fiber production; see the land use factor (B3.1.1.19) for a discussion of the impact of the project on subsistence, and the fish and wildlife values factor (B3.1.1.6) and economics factor (B3.1.1.25) for discussions of the project impacts on fisheries.

B3.1.1.21 Consideration of property ownership - 33 CFR 320.4(a)(1) and 33 CFR 320.4(g)

According to 33 CFR 320.4(g), authorization of work or structures by DA does not convey a property right, nor authorize any injury to property or invasion of other rights.

Under 33 CFR 320.4(g)(1), an inherent aspect of property ownership is a right to reasonable private use. However, this right is subject to the rights and interests of the public in the navigable and other waters of the United States, including the federal navigation servitude and federal regulation for environmental protection.

The applicant does not own lands which would be utilized for the proposed project.

Under 33 CFR 320.4(g)(2), a landowner has the general right to protect property from erosion, so applications to erect protective structures will usually receive favorable consideration. However, if the protective structure may cause damage to the property of others, adversely affect public health and safety, adversely impact floodplain or wetland values, or otherwise appears contrary to the public interest, the district engineer will so advise the applicant and inform him of possible alternative methods of protecting his property. Such advice will be given in terms of general guidance only so as not to compete with private engineering firms nor require undue use of government resources.

The purpose of the proposed project does not include riparian protection. Evaluation of impacts of the design elements to protect the proposed project from potential erosion in riparian areas is in Section B.2 above.

Under 33 CFR 320.4(g)(3), a riparian landowner's general right of access to navigable waters of the United States is subject to the similar rights of access held by nearby riparian landowners and to the general public's right of navigation on the water surface. In the case of proposals which create undue interference with access to, or use of, navigable waters, the authorization will generally be denied.

The applicant does not own lands which would be utilized for the proposed project. The proposed project would not inhibit the access of riparian landowners which are adjacent to the proposed project to navigable waters, nor would it inhibit the public's right to navigation, except within the footprint of the proposed project.

Under 33 CFR 320.4(g)(4), where it is found that the work for which a permit is desired is in navigable waters of the United States (see 33 CFR part 329) and may interfere with an authorized federal project, the applicant should be apprised in writing of the fact and of the possibility that a federal project which may be constructed in the vicinity of the proposed work might necessitate its removal or reconstruction. The applicant should also be informed that the United States will in no case be liable for any damage or injury to the structures or work authorized by Sections 9 or 10 of the Rivers and Harbors Act of 1899 or by Section 404 of the Clean Water Act which may be caused by, or result from, future operations undertaken by the Government for the conservation or improvement of navigation or for other purposes, and no claims or right to compensation will accrue from any such damage.

Analysis of potential impacts to navigation are evaluated in the navigation PIR factor (B3.1.1.23). In addition, special conditions would be added to the permit, if issued, to prevent impacts to federal projects. Evaluation of impacts under federal regulations for environmental protection are documented in Attachment B4, below.

Under 33 CFR 320.4(g)(5), proposed activities in the area of a federal project which exists or is under construction will be evaluated to ensure that they are compatible with the purposes of the project.

The proposed project is not located in, or in the vicinity of, a federal project. If a permit is issued, special conditions would be included in the permit to ensure that the proposed project would not interfere with a federal project. There would be no effect to a federal project.

Under 33 CFR 320.4(g)(6), a DA permit does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The district engineer will not enter into disputes but will remind the applicant of the above. The dispute over property ownership will not be a factor in the USACE public interest decision.

The applicant’s preferred alternative, if permitted, would be constructed on predominately undeveloped lands owned by the State of Alaska; Cook Inlet Region, Inc; Alaska Peninsula Corporation; Iliamna Natives Limited; Pedro Bay Corporation; Salamatof Native Association, Inc; Seldovia Native Association, Inc; Tyonek Native Corporation; on two Native Allotments which are managed by BIA; and on private property. The transportation corridor and natural gas pipeline would bisect one Revised Statute (R.S.) 2477 Right of Way (ROW), two ANCSA Section 17(b) easements, and two public access easements. There would be no aspects of the project developed on federal- or municipal-owned lands. The State of Alaska made much of their land selections in the BBAP planning area because of its mineral potential (ADNR 2013a). The BBAP specifies that these lands are to be retained in public ownership and managed for multiple uses—including recreation, timber, minerals, and fish and wildlife—as well as natural scenic, scientific, and historic values. This does not preclude construction of the mine or related facilities; however, the State of Alaska has made no specific determinations whether the proposed project is consistent with the BBAP. Uses on these surface and subsurface lands privately owned by Alaska Native corporations are subject to the approval of the landowners. The applicant must obtain ownership or access agreements from landowners or their representatives in order to utilize areas within the proposed project footprint. Any activity would be conducted in accordance with lease

and surface use agreements that PLP would establish with the landowners. No land in the project footprint would be conveyed or sold by the State, although an Uplands Mining Lease may be acquired, and associated State authorizations may be sought for mining activities and facilities on State lands. The applicant would be required to obtain temporary use permits, easements, and ROWs for the transportation corridor and natural gas pipeline. The Applicant's signature on an application is an affirmation that the Applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The permit, if issued, would not convey a property right, nor authorize any injury to property or invasion of other rights. Compliance with other Federal, State, and Local environmental requirements is documented in the ROD.

The public has expressed concerns about potential impacts to consideration of property ownership; however, the number of comments which mentioned property ownership was a very small portion of the overall number of comments on the PIR factors. Commenters expressed concerns that the project would be incompatible with the BBAP planned use for the area; that the transportation corridor and mine site components would occur in the vicinity of, but not on, lands managed by the NPS, and would therefore not be subject to the NPS's land management jurisdiction; that the project would impact two Native Allotments; and that the transportation corridor would need to use the subsurface estate for the natural gas pipeline requiring the approval of Bristol Bay Native Corporation (BBNC), and BBNC has not extended any permission to occupy lands or to make use of subsurface resources.

The project effect on land ownership would be a change in land status, along with an encumbrance on use along the mine roads, transportation corridor, port access roads, and pipeline corridor. These changes in land status constitute a direct impact, neither beneficial nor adverse, as there are no competing uses of encumbered lands at this time.

B3.1.1.22 Effects of the limits of the territorial sea – 33 CFR 320.4(f)

The proposed project would include the construction of structures along the coastline however, with the exception of the natural gas pipeline, these structures would be constructed in a bay and shoreward of a closing line. The natural gas pipeline would be buried in the sea floor. The proposed project would have no impact on the baseline from which the territorial sea is measured.

B3.1.1.23 Navigation - 33 CFR 320.4(a)(1) and 33 CFR 320.4(o)

Under the PIR, evaluation of the general public interest includes evaluating what effects the proposed activity may have on navigation. This could include examining impacts shoreward of harbor lines and avoiding substantial impacts to anchorages. The protection of navigation in NWUS continues to be a primary concern of the federal government.

The proposed project would not occur in an area where harbor lines or anchorages have been designated. The construction of a dock and lightering facilities in Iliamna Bay and Iniskin Bay would cause an increase in vessel traffic in the area. The year-round vessel traffic at the proposed dock would be additive to the seasonal traffic through Iliamna Bay, which uses the existing landing at Williamsport, and which would use the dock at Diamond Port Quarry. Iliaska Environmental, LLC received a DA permit to construct a dock at the Diamond Port Quarry in August 2017, but the dock has yet not been constructed. The proposed dredging and maintenance dredging would cause temporary impacts to navigation through the anchoring of dredge vessels, but these impacts would be temporary and there would be sufficient room for the barges and boats that use Iliamna Bay to maneuver around these vessels.

The construction of the proposed natural gas pipeline would also represent a temporary impact to navigation; however, the pipeline would be constructed through the Lower Cook Inlet and there

would be sufficient room for vessels of all sizes to pass the construction vessels. The impact to navigation from the pipeline construction would cease once pipeline construction is complete.

The public has expressed concerns about potential impacts to navigation; however, the number of comments which mentioned navigation specifically was a smaller portion of the overall number of comments on the PIR factors. One commenter indicated that the depth at which the natural gas pipeline is proposed to be buried is insufficient and vessel anchors may damage the pipeline. Commenters also stated that a coastal engineering study is needed, including on tsunami and wave conditions at the port. The majority of the comments expressed concerns regarding navigation on Iliamna Lake or at Amakdedori Port, which are not part of the LEDPA and thus would not proceed if the project were authorized.

If a permit is issued, conditions would be included which would require the applicant to avoid interfering with the public's right to free navigation on all NWUS, including removing or relocating or altering structures if they cause unreasonable obstruction to free navigation of navigable waters. In addition, if a permit is issued, the applicant must install and maintain safety markers prescribed by the USCG. The proposed project would have an adverse effect on vessel traffic locally in Iliamna Bay, and it would have negligible adverse effects to at the regional and state levels. There would be no effect to national and global vessel traffic since vessels would be expected to use established vessel courses. The proposed project would cause a negligible adverse effect on navigation.

B3.1.1.24 Energy needs, conservation, and development - 33 CFR 320.4(a)(1) and 33 CFR 320.4(n)

Under the PIR, energy conservation and development are major national objectives and permit actions involving energy projects are to be given high processing priority. The proposed project is not an energy development project. In addition, the project would consume significant amounts of energy in the form of natural gas, diesel and other fuels to provide the energy needs of the project.

The proposed project would include the construction of two power plants to generate power for the mine site, as well as for the port. These power plants would only supply energy for the proposed project. The power plants would use natural gas as an energy source. The natural gas would be supplied through a pipeline connected to the Cook Inlet regional distribution system.

The applicant has committed to designing an oversized natural gas pipeline to allow for regional access to gas. PLP would engage with state and/or local governments about options to continue operation of the pipeline when it is no longer required by the project. The provision of natural gas from the applicant's natural gas pipeline to communities in the vicinity of the pipeline may be temporary and would require outlay of resources by those communities in order to utilize the natural gas. If the natural gas pipeline does not continue operation after it is no longer required by the project, the communities who relied on the natural gas would be required to outlay additional resources to utilize diesel or some other fuel.

The public has expressed concerns about potential impacts to energy needs; however, the number of comments which mentioned energy needs, conservation, or development specifically was a smaller portion of the overall number of comments on the PIR factors. The commenters expressed concerns about the proposed project competing with current consumers for the Cook Inlet region's natural gas supply and causing raises in natural gas prices, about the inadequacy of the current natural gas supply in the Cook Inlet region, and commented on the benefit of access to cheaper energy source to the communities near the pipeline. A study by the ADNR, titled Cook Inlet Natural Gas Availability, found that there are significant natural gas volumes in Cook Inlet potentially available through additional investment and development. The proposed project would

have a negligible beneficial effect on energy needs at the local and regional level, no effect on energy development and an adverse effect on energy conservation.

B3.1.1.25 Economics - 33 CFR 320.4(a)(1),) and 33 CFR 320.4(q)

Under the PIR criteria, it is generally assumed that prior to applying for a permit, the appropriate economic evaluations have been completed, the proposal is economically viable, and is needed in the marketplace. However, the district engineer may make an independent review of the need for the project from the perspective of the overall public interest. In the case of this project, the district engineer requested and reviewed throughput information and associated economic data provided by the applicant (RFI 59 and RFI 59a, available at pebbleprojecteis.com) in response to public comments that the economic data provided by the applicant was insufficient to fully evaluate the benefits of the project when compared to potential environmental risks. The evaluation of the general public interest includes evaluating the economic importance of the project to the local community and the project's potential contribution to needed improvements in the local economic base, including such factors as employment, tax revenues, community cohesion, community services, and property values.

The project would benefit the regional economic base with the increase in job opportunities, year-round or seasonal employment, and steady income. The project would provide year-round operations employment, which would help reduce the impacts of the seasonal employment fluctuations that are prevalent in the region. New employment and income would increase the ability of households to meet the high costs of subsistence equipment and fuel; however, after mine closure, households would have to adjust to reduced cash income to support the maintenance and operating costs of a subsistence lifestyle. At mine closure both time commitments for and cash income from project employment would decline, depending on employment opportunities associated with closure and monitoring activities, and some residents may move away as job opportunities cease. However, the benefits and detriments to the local economy may be limited by the available local workforce and its training, and project employment would draw from local, state and national talent pools, as needed.

Project construction and operations would generate tax revenues benefitting local governments, regional entities, the state of Alaska, and the nation, as determined by those entities. However, after mine closure most tax revenues would cease.

The project could negatively impact community cohesion for a region that is currently reliant on subsistence and community sharing lifestyles, as some individuals in the community gain employment which could decrease those individuals' reliance on subsistence with their increased income and reduced availability to participate in subsistence activities. Sharing is an important aspect of community cohesion, and if high-harvesting members of the community find project-related employment and have less time for subsistence activities, the rest of the community and households in other communities could end up receiving less wild food through sharing and trading relationships. Increased employment of adults in the communities could impede the amount of time spent teaching young people to hunt, fish, gather, process, and preserve subsistence resources which would impact the amount and quality of traditional knowledge passed on to younger generations, potentially resulting in a long-term or permanent adverse effect to communities.

The increased tax revenues in the local communities from the project could be used to increase or improve community services, such as healthcare and safety services. However, it is possible that the project could produce additional strain on the health and safety services of the potentially affected communities if violent crimes increase due to increased psychosocial and family stress due to the project. The temporary construction and long-term operations camps used to house

workers would be self-contained, operated and maintained by PLP throughout the project, and located in remote areas without access to services in local communities. Therefore, local community services would not be adversely impacted by additional workforce population needs; conversely, any local workers would not have access to their usual services while on their shift, and local businesses should not expect an increase in business from an influx of workers in the area. However, some project employees, when outside of the mine site, might require public safety services from nearby communities, such as if there were a mine vehicle accident along the transportation corridor near one of the communities, local public first responders may be the first on scene. The communities along the corridor of the natural gas pipeline may develop infrastructure to take advantage of the supply of natural gas or experience reduced costs of goods and services through access to the project transportation system; however, this benefit is possibly temporary, as there is no guarantee natural gas access would continue at project closure. If it doesn't continue, communities would have to outlay cash to convert previously used natural gas systems (which they have to pay to install) back to whatever system was used prior to connection to the natural gas line.

Development typically increases a property's value, so the proposed project could have a beneficial effect on the property value of the property in the vicinity of the project. However, particularly at the mine site, this would be offset by an adverse effect on the property value of the adjacent properties. The proposed transportation corridor would have a negligible beneficial effect on property values locally due to the ease of access if new transportation corridors are available to residents, as property on the road system is usually valued higher than remote properties in Alaska.

With the influx of capital into the region, with increased employment opportunities, tax revenues, and easier access to supplies (particularly natural gas), there is a potential for a lower cost of living during construction and operations of the project. However, at mine closure some decreases of cost of living may increase to pre-project levels.

Cumulative impacts would be similar to the proposed project impacts, except that the impacts would last for a longer time frame, or in the case of detriments after mine closure, they would be delayed.

The top five PIR factors that received the most comments were 1) precedent for future projects (cumulative effects), 2) fish and wildlife values, 3) unique characteristics of Bristol Bay, 4) safety, and 5) economics. The top PIR factor (precedent for future projects) garnered far and away the most comments, at almost twenty-five times more than the next highest PIR factor, and almost five and a half times more than all other factors combined. Economics is in the top five PIR factors because the public expressed varied concerns about potential impacts to economics. Most of the public comments on this factor related to the potential detrimental impacts to the commercial and recreational fishing economies. The public also expressed concerns about the economic feasibility of an expansion, and the detrimental impacts to subsistence-based lifestyles with the introduction of new economic opportunities and the introduction of outside workers to the area.

Based on our analysis, the proposed project, constructed and operated under ideal conditions, would not have a direct detrimental impact to the commercial fishing economy; although, while it is not anticipated to occur, there is a potential for negative impacts due the perceived decrease in the quality of the fish from Bristol Bay. The project modeling has shown that the proposed project would not impact fish values down to the Bristol Bay fishery but may have a local portfolio effect. However, USACE acknowledges there are limitations to the project modeling based on the scenarios analyzed and associated assumptions that were made, and there are risks that were not part of the analysis due to the very low probability of occurrence. For example, the analysis did not consider catastrophic failure, which could have economic impacts on the commercial and

recreational fisheries if it occurred. Commenters expressed concern about a reduction in quality of recreational fishing, both in catch rates and in aesthetic quality of the experience, particularly on streams directly impacted by the project. With regard to recreational fishing, the extent of project impacts would be displacement of recreational fishing effort by mining activities along a short length of the upper Koktuli River, and by road transportation crossings of streams with measurable recreational fishing effort. It is also not anticipated that the proposed project would have an impact on the fish taxes revenue.

There were comments related to the economic feasibility of an expansion, and while the FEIS analyzed an expansion scenario as part of a suite of reasonably foreseeable future actions under NEPA, the USACE evaluates the project as proposed. Some comments expressed concern about how the increase in jobs could negatively affect regional culture by decreasing reliance on subsistence and introducing outside workers and their influences to the area. The comments also suggested that the project may cause a shift away from a partially subsistence-based economy as well as reductions in the recreation-based economy.

The proposed project would have off-setting adverse and beneficial impacts to the local area, the region, the state, and the nation. The adverse effects would outweigh the benefits at the local and regional levels, and the benefits would outweigh the detriments at the state and national levels.

B3.1.1.26 Mineral needs and precedent for future actions- 33 CFR 320.4(a)(1) and USACE 2017, 6.c.

Mineral needs are a factor to be considered in the PIR if relevant to the proposal potentially being permitted. This includes examining the effects of the project on the potential for the mining infrastructure, transportation corridor and port facility to establish a precedent for future actions of similar nature and significant effects to expand throughout the region.

The proposed project would result in the provision of copper, gold, molybdenum, and other minerals to the global market. The proposed project would ultimately result in production of 3.7 million tons of copper, 1,125 tons of gold, and 398 pounds of molybdenum over the 20 years of operations. There is a demonstrated national demand for copper, gold, and molybdenum.

In 2019, the U.S. consumed a reported 1.85 million tons refined copper ores (USGS, 2020, Attachment B10 of this ROD). Worldwide copper usage has tripled over the last 50 years and growth in the worldwide demand for copper is projected to continue (International Copper Study Group, 2019, Attachment B10 of this ROD). In 2019, the U.S. consumed a reported 150 tons of gold (USGS, 2020, Attachment B10 of this ROD). Worldwide consumption of gold grew by almost 8 percent per year between 1980 and 1999, and by an average of 2.8 percent per year between 1992 and 2002 (Butterman and Amey III, 2005, Attachment B10 of this ROD). In 2019, the U.S. produced 44,000 tons of molybdenum and consumed a reported 17,000 tons of molybdenum (USGS, 2020, Attachment B10 of this ROD).

Executive Order 13817 identifies rhenium as a mineral critical to the security and prosperity of the U.S. The applicant has indicated that the amount of rhenium in the deposit could generate as much as 15 tons per year. (Pebble Memo, re: rhenium, July 6, 2020). USGS (2017, Attachment B10 of this ROD) states that most non-recycled rhenium comes from porphyry copper-gold-molybdenum deposits. At least two mines in the U.S. currently produce rhenium from their porphyry copper ores and a number of porphyry copper deposits occur in the US. The proposed Pebble Mine may produce other commodities, such as rhenium, palladium, and silver, however these minerals (gold, silver and palladium in the copper-gold concentrate and rhenium in the molybdenum concentrate) would be transported to East Asia.

The public has expressed concerns about potential impacts to mineral needs; however, the number of comments which mentioned mineral needs specifically was a smaller portion of the overall number of comments on the PIR factors. Commenters expressed that the mine is needed for a domestic supply to improve U.S. security; noted that the mine could produce rhenium, which is a critical mineral; that the mine is needed for its supply of gold and copper; that the copper from the mine would help with the production of renewable energy; and that the mineral needs could be met through recycling. Commenters also stated that the project is not needed in either Alaska or the U.S.

Comments regarding the cumulative effects or the proposed project creating precedent for other project in the region, of the project garnered the largest portion of comments on public interest factors. Commenters primarily commented that the full mine expansion should be evaluated in the EIS and expressed concerns about the impacts associated with an expanded mine scenario; some expressed concerns about the use of cyanide in the expanded mine scenario; some commenters indicated that the cumulative effects analysis did not consider cumulative effects to the ecosystem; a few expressed concerns that the proposed project infrastructure would make other mines or development possible; a few commenters expressed concern about longer term storage of the tailings; and a some commented on inadequacies or perceived errors in the cumulative effects analysis.

In USACE 2017, USACE determined that an EIS level of analysis was required, in part, due to the potential for the mining infrastructure, transportation corridor and port facility to establish a precedent for future actions of similar nature and significant effects to expand throughout the region (USACE 2017). As part of the analysis of cumulative effects of the proposed project, reasonably foreseeable future actions were identified, including the potential expansion of the Pebble Project as a 78-year operational mine. In addition to the Pebble Project expansion as a 78-year operational mine, there are other mining claims in the region of the Pebble Mine; these include Pebble South, Big Chunk South, Big Chunk North, Fog Lake, Groundhog, Shotgun, and Johnson Tract. Pebble South, Big Chunk South, Big Chunk North, Fog Lake, Groundhog are close enough to the proposed project to benefit from some of the proposed transportation corridor and other infrastructure, if permitted and constructed. The Shotgun and Johnson Tracts are closer to tidewater than the proposed project and would not likely use the project transportation system. For each of these claims, exploration was determined to be reasonably foreseeable, however development was not considered reasonably foreseeable for any of the claims (with the exception of the Pebble Project expansion) within the operations timeframe of the proposed project. The proposed project would have a beneficial effect on mineral needs.

B3.1.1.27 Safety - 33 CFR 320.4(a)(1) and 33 CFR 320.4(k)

The PIR requires the USACE to consider whether to require non-Federal applicants to demonstrate that structures comply with state dam safety criteria or have been designed by qualified persons, and if appropriate, that designs have been independently reviewed. Safety, including concerns regarding tailings dam failures and spills, spills from a gas or slurry pipeline, from petroleum products and/or from an inadvertent release of other hazardous materials, was the public interest factor with fourth highest number of substantive comments received from the public and agencies. Although the probability of a full tailings dam breach is low, the consequences would be high. Modern design and agency review of dam designs has improved substantially since the earliest days of mining, however human error and management mistakes still occur. In 2014, a large tailing dam that was constructed in British Columbia, Canada, as part of the Mt. Polly Mine with a similar design as that being proposed by the applicant, breached and dumped millions of cubic meters of mining waste into nearby waters with impacts from the waste continue to have deleterious effects on the environment. It was determined that the cause was

incorrect assessment of the substrate that the dam was constructed upon. Additionally, when investigations discovered the issue 4 years in advance of the breach, incorrect adaptive management did not correct and prevent the event. Although USACE conducted a high level failure modes and affects analysis of the three largest proposed dams with the assistance of experts in dam design and review from the State of Alaska, AECOM (the independent third party assisting in the development of the EIS) and the applicant's design experts, the State of Alaska retains the authority to approve the final tailings dam design under its Mine Safety Program. Applicant proposed mitigation to offset concerns about tailings dam failures include, in brief, by proposing a "modified centerline" construction of the dams rather than building an "up-stream" construction for all of the three major impoundments (the Water Treatment Storage, the Bulk Tailings, and the Pyritic tailings storage), and by proposing a "pass through" dam for the bulk TSF which would reduce the potential for liquefaction of the materials as well as the applicant has committed to independent dam design and review prior to construction.

Concerns were also expressed about the potential for adverse effects associated with spills of various oil, petroleum, natural gas and other hazardous substances. Small, localized spills are probable and would require remediation per applicable statutes and regulations. The State of Alaska has authority over operations, including handling, storage and monitoring of materials used in the operation, including use of cyanide in the reasonably foreseeable action of the expanded/continuing mining scenario.

General safety would not be affected by the project, constructed and operated under ideal conditions.

B3.1.1.28 History of controversy and litigation – USACE 2017, 6.b.

In USACE 2017, USACE determined that an EIS level of analysis was required, in part, due to the history of controversy and litigation associated with the potential effects on the quality of the human environment (USACE 2017). The "Pebble" porphyry ore deposit was discovered in 1988 by a mining company named Cominco Alaska Exploration (Cominco). Discovery and exploration of the deposit continued by Teck Cominco, the successor of Cominco, until 2001. Northern Dynasty, a Canadian based company and parent company of PLP, optioned the State of Alaska's mining rights from Teck Cominco and continued exploration of the "Pebble" deposit, discovering "Pebble East" in 2005. Northern Dynasty shares were purchased by three of the world's largest mining companies, all of which have since sold their respective shares due to the controversy and political environment around the deposit and its location in the head waters of Bristol Bay, which is the largest wild sockeye salmon fishery in the world. Anglo American and Rio Tinto, international mining companies purchased 50% and 19% respectively of PLP. Both investors eventually divested their interest in PLP in 2013 and 2014 respectively.

In 2014, the EPA published the "Bristol Bay Watershed Assessment". The report was based on speculative mine sizes and configurations and was made available for public comment twice, ultimately concluding that any mine of the sizes evaluated in the assessment would negatively affect Bristol Bay. The EPA received more than a million comments during the two public comment periods, indicating the public's interest in the report and the resources of Bristol Bay. The report was used by the EPA as a basis of a Proposed Determination under Section 404(c) of the CWA, which restricts the discharge of fill or dredged materials into the WOUS (including wetlands). The Proposed Determination stated that a proposed project of the sizes evaluated in the Watershed Assessment would have unacceptable adverse impacts to aquatic resources. In 2017, after litigation with the applicant, the EPA proposed to withdraw the Proposed Determination without completing the process to finalize it, until after PLP applied for a DA permit and the subsequent NEPA analysis was completed. Public reaction to the withdrawal of the Proposed Determination was significant and mostly negative.

Also in 2014, the State of Alaska voted on State Ballot Measure No. 4 – "12BBAY An Act Providing for Protection of Bristol Bay Wild Salmon and Waters Within or Flowing Into the Existing 1972 Bristol Bay Fisheries Reserve" which requires the State's legislature to approve future large-scale metallic sulfide mines in the Bristol Bay Fisheries Reserve by passing a law approving each individual mine. It is applicable to all large-scale metallic sulfide mines over 640 acres in the Bristol Bay watershed that have not received all necessary authorizations, licenses, permits or approved plans of operations prior to the law's enactment (including the proposed Pebble project). The Ballot measure passed with over 65% of the State's votes in favor of the measure, indicating the local, regional and State's voters concern with the proposed development.

In contrast to the 2014 Ballot measure, in 2018, an Alaska Ballot measure called, "Stand For Salmon" was voted on and defeated by nearly 2 to 1 margin against the initiative. The ballot measure would have made all waters in Alaska as presumed to be supporting salmon unless proven otherwise and would have required replacement of any loss of those waters. Those opposing the restrictions asserted that the measure would have hindered most development in the State of Alaska. The results of the vote indicate the voters of the State of Alaska are not opposed to ALL development in waters that support salmon, but rather that the voters are against a large scale mine in the headwaters of Bristol Bay.

B3.2 PUBLIC INTEREST REVIEW GENERAL CRITERIA

B3.2.1 The relative extent of the public and private need for the proposed structure or work—33 CFR 320.4(a)(2)(i)

The purpose of the project is to extract copper, gold and molybdenum.

In 2019, the U.S. mined an estimated 1.3 million tons of copper, consumed a reported 1.85 million tons and exported 0.3 million tons of copper ores and concentrates and 0.14 million tons of refined copper (USGS, 2020, Attachment B10 of this ROD). The country's net export reliance on copper, as a percentage of apparent consumption, is 35%.

In 2019, the U.S. mined an estimated 44,000 tons of molybdenum, consumed a reported 17,000 tons, and exported 57,000 tons of molybdenum. The U.S. is a net exporter of molybdenum (USGS, 2020, Attachment B10 of this ROD).

In 2019, the U.S. mined an estimated 200 tons of gold, consumed a reported 150 tons, and exported 350 tons of gold. The U.S. is a net exporter of gold (USGS, 2020, Attachment B10 of this ROD).

Copper is used in building construction, including copper wiring and plumbing, power generation and transmission, electronics, as well as in the production of industrial machinery and cars and trucks (Doebrich, 2009, Attachment B10 of this ROD). Molybdenum is used as an alloy with steels, to enhance hardness, strength, and resistance to corrosion, including in steel used in the construction of skyscrapers, construction equipment, car parts, gas transmission pipes, as well as catalysts, lubricants, and pigments (Kropschot, 2010, Attachment B10 of this ROD). Gold is used in manufacturing, including electronics circuitry, in jewelry and decorative arts, as well as for investment uses (Butterman and Amey III, 2005, Attachment B10 of this ROD).

There are domestic supplies of copper, gold, and molybdenum at existing mines in the U.S. Specifically, copper is produced from Arizona, Utah, New Mexico, Nevada, Montana, Michigan, and Missouri (USGS, 2020, Attachment B10 of this ROD). Developed and undeveloped copper deposits exist throughout the western U.S. and Alaska in both poryphyry deposits and in sediment hosted deposits (Figure 1).

Molybdenum is produced from mines in Colorado, Idaho, Nevada, and New Mexico. Molybdenum is produced as a by-broduct of copper production at the mines in Arizona, Nevada, New Mexico, Montana, and Utah (Kropschot, 2010, Attachment B10 of this ROD). Gold is produced in 12 States, from more than 40 lode mines and placer mines located in Alaska and in the western United States (Butterman and Amey III, 2005, Attachment B10 of this ROD).

Copper, gold, and molybdenum are not designated by the U.S. as critical minerals requiring an increase in domestic production, palladium, and silver are also present within the proposed mine footprint. Rhenium has been identified as a critical mineral in the U.S.

The private need for the project is to produce revenue for shareholders.

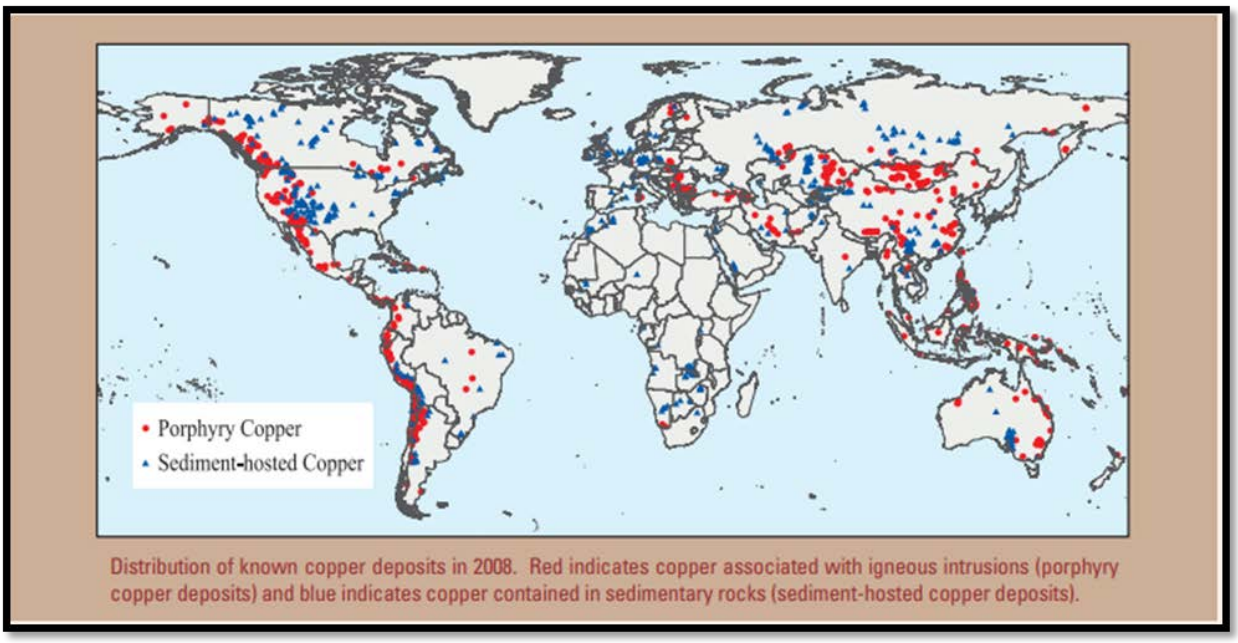

Figure B-1: Distribution of known copper deposits in 2008 (Doebrich, 2009)

B3.2.2 Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work—33 CFR 320.4(a)(2)(ii)

There are unresolved conflicts as to resources use including unresolved conflicts identified through the State of Alaska. Several areas are designated for both habitat and mineral extraction. As an example, the Bristol Bay Fisheries Reserve has both habitat conservation and mineral extraction identified as uses. The proposed mine site supports subsistence and cultural uses by Alaska Native populations from many communities. The applicant holds active mining leases from the State of Alaska. USACE received of 336,546 comments in opposition to utilizing the land for mining and 2,772 comments in support.

The objective of the proposed project is to extract copper, gold and molybdenum for processing and sale outside of the U.S. Alternative locations exist to produce these minerals within the U.S. at this time.

B3.2.3 The extent and permanence of the beneficial and/or detrimental (adverse) effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited—33 CFR 320.4(a)(2)(iii)

The applicant has not produced a technical or economic feasibility study for the 20-year mine plan; therefore, the benefits of the proposed mine are speculative. Although some economic benefits may accrue to local populations, these speculative benefits would be primarily received by the private applicant (PLP, parent company Northern Dynasty) and shareholders and are limited in duration to the operative time of the mine.

Detrimental impacts include permanent loss of all fish and wildlife habitat within the 13.1 square mile mine footprint to include the permanent loss of 2,051 acres of pristine wetlands, 99.7 river miles of stream, and 62 acres of open waters. These detrimental impacts are well established and not speculative.

In addition, the proposed project would cause water quality degradation, reduced subsistence opportunities, and disruption of culturally significant gathering areas. While some of these detrimental impacts are temporary and could be reclaimed at mine closure, others are permanent.

The FEIS draws the conclusion that under optimal operation, with the operator complying with all applicable permits and no human error, that a detrimental impact to the commercial fishery is not anticipated. The viability of the commercial fishery is proven and recorded since 1867. In 2017, the commercial salmon fishing in these waters contributed a raw fish tax revenue for the state of Alaska of $19.4 Million (statewide), $1.6 Million for Lake and Peninsula Borough, $2.1 Million for Bristol Bay Borough was, and $1.2 Million for the community of Egegik. Additionally, in 2017, the Bristol Bay fishery contributed an annual labor income of just over $650 million (+12,500 jobs), made a total economic contribution of $1.2 billion to the nation, and provided more than 5,000 people with resources through subsistence.

In the event of human error and/or a catastrophic event, the commercial and/or subsistence resources would be irrevocably harmed, and there is no historical scientific information from other catastrophic events to support restoration of the fishery to its pre-impacted state. Nor is there any way to determine that the cost of remedy in the case of a damaged or ruined fishery could be compensated based on speculative revenues to from the mining operation. In contrast, the minerals contained within the mine site will remain in perpetuity, and opportunity exists to mine those minerals at a future date should mining technology improve to eliminate the predicted detriments, or should anthropogenic or other changes in the fishery cause the value or presence of the fishery to decline such that mining is no longer a threat to the resource. A future project, incorporating improved technologies that can protect irreplaceable fishery resources may be supportable given that the resources will still be available for extraction at a future date.

I have concluded that the benefits of the proposed elimination and alteration of wetlands, streams and other waters within the USACE jurisdiction do not outweigh the detriments that would be caused by such eliminations and alterations, based upon the information contained with the FEIS, the extensive public comments received, and the analysis of the PIR factors specifically wetlands, fish and wildlife values, soils, and water quality. As those eliminations and alterations would be necessary to realize any benefits from the proposed project, I have found that the proposed project is contrary to the public interest.

ATTACHMENT B4 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS (33 CFR 320.3 RELATED LAWS)

B4.1 CLEAN WATER ACT (33 USC 1341) SECTION 401 CERTIFICATE OF REASONABLE ASSURANCE (33 CFR 320.4(D))

Evaluation of the request for certification under Section 401 of the Clean Water Act has not been completed by the State of Alaska as of the time of this decision. Due to the decision outlined in this ROD, a water quality certification is not required for activities under DA authority which are ultimately not permitted.

B4.2 COASTAL ZONE MANAGEMENT CONSISTENCY DETERMINATION (33 CFR 320.4(H))

By operation of Alaska State law, the federally approved Alaska Coastal Management Program expired on July 1, 2011, resulting in a withdrawal from participation in the Coastal Zone Management Act's (CZMA) National Coastal Management Program. The CZMA federal consistency provision, Section 307, no longer applies in Alaska. Federal Register Notice published July 7, 2011, Volume 76, No. 130, page 39857.

B4.3 ENDANGERED SPECIES ACT OF 1973 (16 USC 1531)

USACE initiated formal consultation with the USFWS on May 21, 2020. USACE determined that the proposed project may affect the federally threatened Alaska Distinct Population Segment (DPS) of northern sea otter (*Enhydra lutris kenyoni*) and its designated critical habitat, and the federally threatened Alaska breeding population of Steller's eider (*Polysticta stelleri*). Consultation with USFWS under ESA was not completed, due to the decision outlined in this ROD, as finishing consultation is not required for activities which are ultimately not permitted.

USACE initiated consultation with NMFS on September 3, 2020. USACE determined that the proposed project may affect the species listed in Table B-2 and their critical habitat. Consultation with NMFS under ESA was not completed, due to the decision outlined in this ROD, as finishing consultation is not required for activities which are ultimately not permitted.

Table B-2: Species managed by NMFS for which consultation was initiated under ESA

Common Name	Latin Name	ESA Status	Population	Critical Habitat Impacted
Humpback Whale	*Megaptera novaeangliae*	Threatened	Mexico DPS	Proposed Yes
Humpback Whale	*Megaptera novaeangliae*	Endangered	Western North Pacific DPS	Proposed Yes
Fin Whale	*Balaenoptera physalus*	Endangered	North Pacific	N/A
Sei Whale	*Balaenoptera borealis*	Endangered	North Pacific	N/A
Blue Whale	*Balaenoptera musculus*	Endangered	North Pacific	N/A
North Pacific Right Whale	*Eubalaena japonica*	Endangered	North Pacific	No

Table B-2: Species managed by NMFS for which consultation was initiated under ESA

Common Name	Latin Name	ESA Status	Population	Critical Habitat Impacted
Gray Whale	*Eschrichtius robustus*	Endangered	Western North Pacific DPS	N/A
Sperm Whale	*Physeter catodon*	Endangered	North Pacific	N/A
Beluga Whale	*Delphinapterus leucas*	Endangered	Cook Inlet Stock	Yes
Steller Sea Lion	*Eumetopias jubatus*	Endangered	Western DPS	Yes

B4.4 FISH AND WILDLIFE COORDINATION ACT (16 USC 661)

USACE consulted with the USFWS, the NMFS, and with the State of Alaska regarding potential impacts to fish and wildlife resources. USACE considered comments from these agencies in making this permit decision. The documentation of the coordination is incorporated by reference.

B4.5 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (16 U.S.C. §§ 1801 ET SEQ)

Expanded consultation with the NMFS was initiated on June 19, 2020 and NMFS replied with conservation recommendations on August 18, 2020. In a letter dated September 9, 2020, USACE responded to NMFS, including identification of any conservation recommendations which would not be incorporated into the permit, if issued.

The following conservation recommendations will be incorporated into the permit, if issued:

NMFS Recommendation #10. Conduct fish surveys to assess seasonal salmon distribution in rivers and streams transected by the transportation corridor to ensure all salmon streams receive the appropriate fish passage.

USACE Response #10: A condition to require that would require all stream crossings to be designed to accommodate flow and allow free aquatic life movement would be included as part of the DA authorization, if issued.

NMFS Recommendation #11. Design, construct, and install anadromous water crossings, such as bridges and culverts, according to the methods and recommendations found in the report “Culvert Design Guidelines for Ecological Function, Alaska Fish Passage Program” (USFWS 2020).

USACE Response #11: The applicant has agreed to avoid constricting the natural channel and to allow connectivity of the floodplain in the transportation corridor, stream crossings will meet the USFWS guidelines: “Culvert Design Guidelines for Ecological Function, US Fish and Wildlife Service Alaska Fish Passage Program, Revision 5, February 5, 2020”. The specific requirement of the design for the culverts would be either part of the project description or would be a condition of the DA permit, if issued.

NMFS Recommendation #12. Evaluate road alignments to minimize the total road footprint within floodplains along the entire 82 miles. Transect streams at right angles and where the floodplain is narrowest.

USACE Response #12: The road would use crossing rivers at a right angle where feasible to minimize impacts in the riparian areas. The specific requirement of the design for the crossings would be either part of the project description or would be a condition of the DA permit, if issued.

NMFS Recommendation #13. Avoid gravel and sand extraction from rivers and streams known to support salmon.

USACE Response #13: The applicant has identified gravel extraction sites; none of the sites are situated in rivers or streams known to support salmon. Additionally, the applicant would need to comply with terms and conditions of the State of Alaska's permitting requirements. USACE would include this as a condition of the permit, if issued.

NMFS Recommendation #14. Do a thorough evaluation of borrow pit locations along the road to minimize wetland impacts.

USACE Response #14: The applicant has field verified wetlands and waters along the proposed transportation corridor. The applicant has used that information to modify locations of the borrow pits to avoid and minimize impacts to all waters, including wetlands along the transportation corridor.

NMFS Recommendation #23. Incorporate best management practices to avoid impacts to submerged aquatic vegetation and invertebrates.

USACE Response #23: The applicant is required to avoid and minimize impacts to aquatic resources under DA jurisdiction, including the utilization of BMPs for all construction activities. Therefore, this conservation recommendation would be part of the project description or a condition of the DA authorization, if issued.

NMFS Recommendation #24. Include plans for nearshore fish passage in construction of the Diamond Point port. Any proposed mitigation should be adequate to allow unfettered nearshore movement between Iliamna Bay and Cook Inlet for all life stages of salmon.

USACE Response #24: The applicant's current design is to construct the port facilities using caissons as the foundation. The design avoids impeding or modifying current patterns and water flow by allowing for the free flow of water along the shore through the caissons. It also allows longshore passage for fish and land animals in the intertidal zone under the causeway structure. Therefore, this condition has already been incorporated in the applicant's current proposal at the Port site.

Based on a review of the above information, USACE has determined that it has fulfilled its responsibilities under EFH provisions of the Magnuson-Stevens Act. The documentation of the consultation is incorporated by reference.

B4.6 MIGRATORY BIRD TREATY ACT (MBTA, 16 U.S.C. §§ 703–712)

The applicant is responsible for obtaining permits from USFWS through their Migratory Bird Management program. USACE has determined that it has fulfilled its responsibilities under MBTA.

B4.7 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (42 USC 4321 – 4347)

USACE determined in December 2017 (USACE 2017) that there was a need for an EIS level of analysis on the proposed project. A Notice of Intent to prepare an EIS for the proposed project was issued in the Federal Register on March 29, 2018. The scoping period occurred from April 1, 2018 to June 29, 2018. The Notice of Availability regarding the Pebble Project DEIS was issued in the Federal Register on March 1, 2019, and a 123-day comment period ended on July 1, 2019. The NOA for the FEIS was issued on July 24, 2020.

B4.8 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (16 USC 470 ET SEQ.) AND HISTORICAL AND ARCHEOLOGICAL PRESERVATION ACT (16 U.S.C. 469 ET SEQ.)

Consultation under Section 106 of the NHPA was initiated with ACHP, Alaska SHPO, as well as Indian tribes and/or other parties in August 2018. Consultation under Section 106 was not completed, due to the decision outlined in this ROD, as finishing consultation is not required for activities which are ultimately not permitted.

B4.9 CLEAN WATER ACT (33 USC 1251 ET SEQ. 404(B)(1) GUIDELINES 40 CFR 230 SUBPART B)

See Attachment B2 above for analysis under the 404(b)(1) Guidelines.

B4.10 CLEAN WATER ACT (33 USC 1251 ET SEQ.) SECTION 404 (33 USC 1344)

Based on a review of the information in this ROD, USACE has determined that it has fulfilled its responsibilities under Section 404 of the CWA.

B4.11 RIVERS AND HARBORS APPROPRIATION ACT OF 1899 (33 USC 401, 403, 407) SECTION 10

Based on a review of the information in this ROD, USACE has determined that it has fulfilled its responsibilities under Section 10 of the Rivers and Harbors Appropriation Act of 1899.

B4.12 WILD AND SCENIC RIVERS ACT, SECTION 7(A), (16 U.S.C. 1278 ET SEQ.)

The project is not located in a component of the National Wild and Scenic River System, nor in a river officially designated by Congress as a “study river” for possible inclusion in the system. USACE has determined that it has fulfilled its responsibilities under the Wild and Scenic Rivers Act.

B4.13 MARINE MAMMAL PROTECTION ACT OF 1972 (16 USC 1361 ET SEQ., 1401-1407, 1538, 4107)

The impacts to marine mammals are evaluated in the FEIS. The applicant is responsible for obtaining any required authorizations under the MMPA, including any authorizations necessary to comply with the incidental take statement for impacts to marine mammals under the ESA. USACE has determined that it has fulfilled its responsibilities under the Marine Mammal Protection Act.

B4.14 MARINE PROTECTION RESEARCH AND SANCTUARIES ACT OF 1972 SECTION 302 (16 U.S.C. 1361 ET SEQ.)

The proposed project would have no impact on designated marine sanctuaries. USACE has determined that it has fulfilled its responsibilities under the Marine Protection Research and Sanctuaries Act.

B4.15 EXECUTIVE ORDER 13175 CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS

This EO was designed to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications and to strengthen the U.S. government-to-government relationships with Indian tribes. Consultation with tribes regarding the proposed project is described in Chapter 6 of the FEIS.

B4.16 ARCHEOLOGICAL RESOURCES PROTECTION ACT (ARPA)

There are no federal lands managed by USACE in the proposed project footprint. The proposed project would cross two Native Allotments which are managed by BIA. Prior to beginning any work on the Native Allotments which are owned in fee by the Alaska Native owners but managed by the BIA, for the investigation or identification of cultural resources, PLP would be required to obtain an ARPA authorization from BIA. USACE has determined that it has fulfilled its responsibilities under ARPA.

B4.17 AMERICAN INDIAN RELIGIOUS FREEDOM ACT (42 U.S.C. § 1996.)

The proposed project would limit access to cultural practices within the footprint of the project, such as fishing, hunting, and gathering, as well as the passing on of such traditions. Analysis of these impacts are considered in the FEIS Sections 4.7 Cultural Resources, and 4.9 Subsistence, as well as in FEIS Section 4.3 Needs and Welfare of the People—Socioeconomics. Adverse effects to cultural sites which meet the definition of a historic property would be considered as required under the NHPA. If a permit is issued, impacts would be minimized by the implementation of avoidance and minimization measures proposed by the applicant: 4, 5, 10, 11, 13, 26-27, 41, 42, 53, 124, 153, 155 (FEIS Table 5-2 in Attachment B10 of this ROD) and Minimization of Social Impacts and Protection of Cultural Resources (DA Application June 2020, Tab 23).

B4.18 ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT OF 1980 (ANILCA, 16 USC 410HH-3233, 43 USC 1602-1784)

The BIA has a fiduciary responsibility to American Indian tribes and owners of trust or restricted land in the U.S. Restricted land is fee-simple land owned by Alaska Natives with oversight protections provided by the BIA. The two Native Allotments crossed by the proposed project are restricted lands and therefore do not meet the definition of “public lands” or “federal lands” under ANILCA. No federal lands other than the federally managed outer continental shelf would be impacted by the proposed project. Therefore, no Section 810 analysis is required for the proposed project.

B4.19 CLEAN AIR ACT (42 USC 7401 – 7671 SECTION 176(C))

Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. The proposed project is not located in a non-conformity area for any criteria pollutants. For this reason, a conformity determination is not required for this permit action.

B4.20 EXECUTIVE ORDER 12898 (ENVIRONMENTAL JUSTICE)

The negative effects of the proposed project would have a disproportionate effect on minority or low-income communities, as analyzed in Section 4.4 (Environmental Justice) of the FEIS. The six Iliamna Lake communities in the vicinity of the proposed project all meet the CEQ definition of

minority and/or low-income communities. Compared to other communities in the region, these communities would be negatively impacted to the greatest extent by environmental impacts and negative health impacts, which would result from the proposed project. These negative impacts would be partially offset by the potential positive impacts from employment opportunities and economic benefits from lower transportation and energy costs. None of the action alternatives which were considered would have fewer negative effects on minority or low-income communities than any other action alternative, there would only be shifts in which communities would be affected. The applicant has proposed the following mitigation measures to avoid or minimize social impacts: from FEIS Table 5-2 (see Attachment B10 of this ROD): lines 5, 10-13, 52, 53, 55, 124, 153, 155 and Tab 23 of the DA Application dated June 2020.

B4.21 EXECUTIVE ORDER 11988 (FLOOD PLAIN MANAGEMENT)

Alternatives to locations within the floodplain, minimization and compensatory mitigation of the effects were considered in Sections B2 and B3 above.

B4.22 EXECUTIVE ORDER 13751 (INVASIVE SPECIES)

☐ There were no invasive species issues involved.

☐ The evaluation above included invasive species concerns in the analysis of impacts at the project site and associated compensatory mitigation projects.

☒ Through special conditions, the permittee, if a permit is issued, would be required to control the introduction and spread of exotic species.

B4.23 EXECUTIVE ORDERS 13212 AND 13302, ENERGY SUPPLY AND AVAILABILITY

☒ The project was not one that will increase the production, transmission, or conservation of energy, or strengthen pipeline safety. This project is not one that would increase the supply and availability of energy to our Nation.

☐ The review was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy-related (including pipeline safety) project while maintaining safety, public health, and environmental protections.

B4.24 OTHER FEDERAL, STATE AND/OR LOCAL AUTHORIZATIONS (IF ISSUED)

BSEE—Right of Way Permit - Evaluation of the Pebble Limited Partnership's request for a Right of Way authorization was not completed as of the time of this decision. USCG—Bridge Permit - Evaluation of the Pebble Limited Partnership's request for a Bridge Permit was not completed as of the time of this decision. ADEC—Certificate of Reasonable Assurance - Evaluation of the request for certification under Section 401 of the Clean Water Act has not been completed by the State of Alaska as of the time of this decision. Due to the decision outlined in this ROD, a water quality certification is not required for activities under DA authority which are ultimately not permitted.

B4.25 Significant National Issues (33 CFR 325.2(A)(6))

The regulations state that if a district engineer makes a decision on a permit application that is contrary to State or local decisions, the district engineer will include in the decision document the significant national issues and explain how they are overriding in importance.

There have been no decisions by State or local agencies regarding this project.

ATTACHMENT B5 APPLICANT'S COMPENSATORY MITIGATION PLAN

ATTACHMENT B6 USACE MEMORANDUM FOR RECORD, COMPLIANCE REVIEW OF FINAL REPORT, PEBBLE PROJECT COMPENSATORY MITIGATION PLAN IN ACCORDANCE WITH 33 CFR 332, POA-2017-00271, DATED NOVEMBER 9, 2020

ATTACHMENT B7 FACTUAL DETERMINATION MATRIX

ATTACHMENT B8 PUBLIC INTEREST REVIEW MATRIX

ATTACHMENT B9 USACE MEMO DETERMINING NEED FOR EIS LEVEL OF ANALYSIS, DATED DECEMBER 26, 2017

ATTACHMENT B10 SUPPORTING DOCUMENTS TO 404(B)(1) ANALYSIS AND PUBLIC INTEREST REVIEW

1. FEIS Table 5-2, Numbered
2. EPA Recommended Additional Mitigation Measures Table
3. EPA Bristol Bay sockeye salmon portfolio
4. ADF&G letter to EPA re portfolio
5. Alaska Marine National Wildlife Refuge (AMNWR) biosecurity plan