DEC Request for Adjudicatory Hearing Form pursuant to 18 AAC 15.200

A request for adjudicatory hearing must be submitted using this form and timely served upon the Commissioner by e-mail or U.S. mail (see 18 AAC 15.200(a), (c) and (e)), as well as on the division that issued the decision and the permittee.

Commissioner's Office
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Requestor Contact Information

Name* Kawerak, Inc.

Address* P.O. Box 948
Nome, Alaska 99762

Telephone* (907) 443-4336

Fax

Email Address* MBahnke@kawerak.org

Date* 11/12/2024

Please provide the name(s), mailing address(es), e-mail address(es), and telephone number(s) for the individual(s) or organization(s) bringing forward this request for adjudicatory hearing (see 18 AAC 15.200(c) and 18 AAC 15.920(13)).
***Required**

Identification of Represented Parties

For each requester named above that is a member organization, please provide the names and addresses of members who are adversely affected by the decision who are being represented by the organization in this matter (see 18 AAC 15.200(c)(3)).

Kawerak serves and represents all members of the Inupiaq, St. Lawrence Island Yupik and Yup'ik people who reside in sixteen (16) communities of western Alaska, in addition to the twenty (20) federally recognized tribes in the Bering Strait Region. All are adversely affected by the issuance of Alaska Department of Environmental Conservation Permit No. AK0062295, which will indisputably impact subsistence activities, water quality, and Kawerak's sacred cultural and traditional resources.

To the extent the Agency requires "the name and address of each person that is adversely affected by the decision and that the requester represents," Kawerak provides the following:

Melanie Bahnke
President, Kawerak Inc.
P.O. Box 948
Nome, Alaska 99762

Decision and Issues to be Reviewed

Please identify the permit or other decision you are seeking to have reviewed. Please include information such as the date of the decision, who made the decision, the title of the document within which the decision is contained or the permit number. The requester bears the burden of presenting evidence in the hearing request. **Please provide a copy of the decision document at issue.** If the Department provided an opportunity for public comment on the permit, approval, or decision, please provide a copy of submitted comments. If you did not comment during the applicable comment period, please so indicate.

Kawerak, Inc. (Kawerak) submits this request for adjudicatory hearing (Request) in response to the Alaska Department of Environmental Conservation (ADEC)'s issuance of discharge permit for the activities set forth in Alaska Pollutant Discharge Elimination System (APDES) Permit No. AK0062295 (APDES Permit) to IPOP, LLC (IPOP, or Applicant). The APDES Permit and accompanying Fact Sheet (Fact Sheet), issued on October 10, 2024 and **provided herewith as Exhibit 1**, detail IPOP's proposal to discharge wastewater from the IPOP silt curtain containment system doorway into the Bonanza Channel (Project) under 18 AAC 83.005 - 18 AAC 83.990. From the outset, Kawerak has strenuously opposed the Project. On July 30, 2024, Kawerak submitted its Public Comment and Request for Public Hearing on Draft Alaska Pollutant Discharge Elimination System to IPOP, LLC (**provided herewith as Exhibit 2**), and has persistently objected over the past six years to IPOP's repeated applications to the U.S. Army Corps of Engineers (USACE, or Corps), in addition to the resultant individual permit
#P0A-2018-00123 (Corps Permit).

With this Request, Kawerak adopts in full and incorporates by reference: its May 24, 2021 Comments to USACE regarding IPOP's Corps Permit application, and its Joint Correspondence of April 12, 2024 alongside the Village of Solomon, Solomon Native Corporation, Bering Straits Native Corporation, Sitnausuak Native Corporation, and Norton Sound Economic Development Corporation.

Issues to be Decided

Please provide the following information for each question of material fact or law (collectively referred to as "contested issues") you are asking to be reviewed as part of the adjudicatory hearing request. Attach additional pages as needed if you are seeking to raise more than three issues or if you need more space for your response.

BACKGROUND AND AFFECTED INTERESTS

The Bonanza Channel and its surrounding environs serve as a subsistence use area throughout the year. The Corps has acknowledged the same. Not only is the Project's location considered Essential Fish Habitat, 16 U.S.C. § 1802(10), but Kawerak's subsistence users also rely on the Channel to hunt mammals and birds, gather eggs and greens, gather salt for processing meats, and herd reindeer, often as a means of food security and to insulate community members from the grocery markups in the fly-in City of Nome. Moreover, as Kawerak has repeatedly explained, subsistence is part of the cultural identity of local Native communities. In previous comments, Kawerak and other affected parties have raised concerns that the presence, noise, and visual disturbance of IPOP's Project would negatively impact subsistence resources—specifically including saffron cod or tomcod, eiders, swans and other birds—and therefore these year-round local subsistence users. Comment at 1-2.

It is undisputed that the Project's suction dredging will disturb, eliminate, and degrade habitat for subsistence species within and around Bonanza Channel. As DEC acknowledges, the discharge from the outfall authorized by the Permit (Outfall 001) will likely exceed Alaska Water Quality Criteria for turbidity and settleable solids within the Permit's designated mixing zone, *see* Permit Fact Sheet at 15. Consequently, the Permit does not ensure the Project and Outfall 001 will comply with Alaska's water quality standards as required by section 402 of the Clean Water Act, by regulations of the U.S. Environmental Protection Agency (EPA), or by ADEC regulations. 33 U.S.C. § 1342(b)(1); 40 C.F.R. § 123.25(a); 18 AAC 83.435(a).

Kawerak seeks an adjudicatory hearing on the following grounds:

1. ADEC's Anti-Degredation Analysis was Inadequate; and
2. ADEC Failed to Adequately Consider Pollutants of Concern.

The basis for these concerns is set forth in greater detail below.

Contested Issue 1:

Contested Issue and Location of the Issue

ADEC's Anti-Degredation analysis was inadequate because it failed to consider the Project's effect on the surrounding Native communities, *see generally* Permit Fact Sheet (Fact Sheet) (excluding any mention of Native communities or subsistence usage), and therefore failed to adequately analyze whether the Project's adverse impact to water levels is compliant with ADEC's mandate to maintain levels to support propagation of fish, shellfish, and wildlife and recreation in and on the water. *See* ADEC Response to Comments at 5-6.

Explanation and reasons the contested issue is relevant to the decision

Pursuant to the ADEC's antidegradation policy, "if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected" unless, in relevant part, the applicant submits evidence supporting the fact that lower water quality is necessary for economic or social development in the area. 18 AAC 70.015(a)(2). ADEC concluded--based on IPOP's claims--that the lowered water quality from the Project accommodates "important economic development." Fact Sheet at 18. In its consideration of IPOP's claims, ADEC altogether failed to consider the countervailing Native social and economic activity already present in the area, and how IPOP's Project will disrupt that activity. Without a finding that the lower water quality supports "important economic or social development," there can be no authorization of a reduction in water quality. If, upon review, ADEC's finding regarding economic or social development is reversed or found to be unsupported, the State's antidegradation policy is violated by the Permit.

How are requesters directly and substantively affected?

It is Kawerak's economic and social activity that is affected by the proposed reduction in water quality, as such a reduction will adversely impact the culture and economy of Kawerak's community of subsistence users. Comment at 2. Specifically, Kawerak subsistence users hunt mammals and birds, gather eggs and greens, gather salt for processing meats, and herd reindeer, often as a means of food security and to insulate community members from the grocery markups in the fly-in City of Nome. The disruption to this economy apparently did not even register for ADEC's consideration when it reviewed IPOP's unsubstantiated claims of "benefits to the local and state economies." Fact Sheet at 18. Yet IPOP's claimed economic and social activity comes at the direct expense of the Native economy, and local Native subsistence and cultural practices will be directly and adversely affected--if not outright destroyed--by the Project.

Kawerak's antidegradation concerns were raised in its Comment on page 4 paragraph 3, and page 5 paragraphs 1-3.

Any suggested terms or conditions?

ADEC must revisit its analysis of "important economic or social" development to take into account pre-existing economic and social activities that it has not yet even considered, and which will be supplanted by the Project. ADEC must therefore conduct a more balanced analysis to satisfy the requirement at 18 AAC 70.015(a)(2).

Why should your request be granted?

ADEC's failure to fully analyze the alleged economic and social 'benefits' of the Project deemed important enough to overcome ADEC's water quality mandate damages not only the Channel itself, but the Kawerak subsistence users who already derive social and economic benefits from the current water levels. Notably, the Fact Sheet fails to mention any Native and/ or subsistence communities who contribute to the local economy through their activities on the Channel. It is unclear how ADEC could conclude that IPOP's Project would provide "important economic or social development" without any consideration of the economic and social activity that predates it, and that would be adversely impacted by it.

Contested Issue 1

a) A concise statement of the contested issue proposed for hearing (see 18 AAC 15.200(c)(4)(C))

b) The location(s) in the permit, or other decision where the specific terms or conditions appear, that you are contesting (e.g. page, paragraph or other identifying description)

c) An explanation of how the decision was in error with respect to the contested issue

d) The reason(s) you believe the contested issue you are raising is relevant to the Division's decision (why you believe resolving the contested issue in your favor will materially change the Division's decision)

e) How each requester (including represented parties if the requester is a member organization representing them in this matter) is directly and substantively affected by the contested decision to justify review; more specifically, please include a discussion of:

1) the nature of the interest of the requester or represented party who is impacted by the contested decision(s);

2) whether that interest is one that the department's applicable statutes and regulations intend to protect; and

3) the extent to which the Division's decision relating to this contested issue directly and substantively impairs the interest described in (2) above.

(f) Identify when and where you raised this issue in testimony or comments you provided to DEC. if your comments or testimony were submitted to DEC in writing, please provide a reference to the page and paragraph where they appear. (see 18 AAC 15.200(a) and 18 AAC 15.245)**

(g) Suggested alternative terms and conditions that in your judgement are required for the Division's decision to be in accord with the facts or law applicable to the issue you are raising.

(h) A discussion of any other reasons you believe your request for an adjudicatory hearing should be granted. Please include a concise summary of the facts and laws that you believe support your request.

(i) If you believe a provision of the final decision or permit you are challenging was not in the draft decision or permit that was subject to the public notice or comment process, please explain the basis of your claim (see 18 AAC 15.200(a)).

** this requirement does not apply to a person challenging an Air Quality Division Stationary Source Emission Control permit under AS 46.15.2200 either (1) on the basis of a private, substantive legally protective interest under state law that may be adversely affected by the permit action, or (2) as the owner or operator of the stationary air source

NOTE: If you did not raise your issue before the Division's issuance of the permit or contested decision, 18 AAC 15.245 requires you to show "good cause" for the failure to raise the issue for it to be considered. You should include this information in your response to (h) above.

Contested Issue 2

Contested Issue and location of the Issue

In its Comment, Kawerak noted that it opposes the "as-of-yet undetermined levels of disturbance to the substrate and resuspension of toxic heavy metals occasioned by IPOP's mining activities," and "notes with particular concern IPOP's lack of data regarding water chemistry and the potential for introduction of metals including arsenic, mercury, copper and lead into the Project area." Comment at p. 5, para. 3 through p. 6. In response to this and other comments, ADEC stated only that "[b]ecause of the nature of the permitted discharges, pollutants,which are not present or without a reasonable potential to be present at harmful levels exceeding WQS have been carefully identified and removed from concern." Fact Sheet at 15. But it is not clear how ADEC reaches this conclusion, much less whether ADEC conducted any site-specific analysis of what pollutants are present have the potential to be present in discharges from Outfall 001.

Explanation and reasons the contested issue is relevant to the decision

IPOP's Application included a sample, and that sample demonstrated the presence of arsenic, mercury, copper, and lead. Application at at 42 (admitting discharges within the silt curtain containment system will contain "arsenic, copper, lead, and trace amounts of mercury"). But ADEC does not cite to its own site-specific sample that would support its conclusion that pollutants have been "identified and removed from concern." Fact Sheet at 15.

To the extent such a sample has been performed, ADEC must explain the basis upon which it can claim that it has excluded concerns including, but not limited to, those expressly identified in IPOP's application. Specifically, 18 AAC 70.015 requires that--in addition to the finding of important economic or social development identified in Contested Issue 1 above--ADEC must also find that the resulting water quality "will be adequate to fully protect existing uses of the water." It is unclear how ADEC could make such a finding without site-specific samples, or some other rational, site specific explanation for the 'removal of pollutants from concern.'

How are requesters directly and substantively affected?

To the extent ADEC has not performed site-specific tests regarding the presence of the concerns identified both in IPOP's Application and Kawerak's Comment, the potential for introduction of metals including arsenic, mercury, copper and lead into the Project area is unaddressed in any substantive manner. Kawerak and its subsistence users--in addition to any entity or individual using or engaging with the Channel--is at risk of exposure to those pollutants. Moreover, 18 70.015(a)(2)(C)'s requirement that any increase in levels be accompanied by a finding that "the resulting water quality will be adequate to fully protect existing uses of the water" requires ADEC to find that the current subsistence, social, and economic uses are protected from the introduction of any of these pollutants.

Any suggested terms or conditions?

If it has not already done so, ADEC must conduct a site-specific analysis of what pollutants have a reasonable potential to be present in the discharge because. To the extent ADEC has conducted such an analysis, it must articulate a rational basis for excluding other parameters of concern, including but not limited to temperature, dissolved oxygen, mercury, and the other pollutants identified in IPOP's Application.

Why should your request be granted?

ADEC cannot as a matter of law simply take IPOP's unsupported water quality assurances at face value. If it has, the site must be tested to ensure full compliance with water quality standards. If in fact ADEC's conclusion is based on a site-specific study or some other site-specific evidence, that evidence should be disclosed to Kawerak and other interested parties to assure them that their economic and social activities might continue without any decrease in water quality.

Contested Issue 2

a) A concise statement of the contested issue proposed for hearing (see 18 AAC 15.200(c)(4)(C))

b) The location(s) in the permit, or other decision where the specific terms or conditions appear, that you are contesting (e.g. page, paragraph or other identifying description)

c) An explanation of how the decision was in error with respect to the contested issue

d) The reason(s) you believe the contested issue you are raising is relevant to the Division's decision (why you believe resolving the contested issue in your favor will materially change the Division's decision)

e) How each requester (including represented parties if the requester is a member organization representing them in this matter) is directly and substantively affected by the contested decision to justify review; more specifically, please include a discussion of:

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2) whether that interest is one that the department's applicable statutes and regulations intend to protect; and

3) the extent to which the Division's decision relating to this contested issue directly and substantively impairs the interest described in (2) above.

(f) Identify when and where you raised this issue in testimony or comments you provided to DEC. if your comments or testimony were submitted to DEC in writing, please provide a reference to the page and paragraph where they appear. (see 18 AAC 15.200(a) and 18 AAC 15.245)**

(g) Suggested alternative terms and conditions that in your judgement are required for the Division's decision to be in accord with the facts or law applicable to the issue you are raising.

(h) A discussion of any other reasons you believe your request for an adjudicatory hearing should be granted. Please include a concise summary of the facts and laws that you believe support your request.

(i) If you believe a provision of the final decision or permit you are challenging was not in the draft decision or permit that was subject to the public notice or comment process, please explain the basis of your claim (see 18 AAC 15.200(a)).

** this requirement does not apply to a person challenging an Air Quality Division Stationary Source Emission Control permit under AS 46.15.2200 either (1) on the basis of a private, substantive legally protective interest under state law that may be adversely affected by the permit action, or (2) as the owner or operator of the stationary air source

NOTE: If you did not raise your issue before the Division's issuance of the permit or contested decision, 18 AAC 15.245 requires you to show "good cause" for the failure to raise the issue for it to be considered. You should include this information in your response to (h) above.

Request for Evidentiary Hearing

With reference to the number of issues listed in your response to "Issues to be Decided" above, please list the number of the issues for which you are requesting an evidentiary hearing that may involve the testimony of factual witnesses, expert witnesses or the offering of additional documents or other evidence not already in the existing agency record.

Both Contested Issues 1 and 2 will require an evidentiary hearing with testimony from factual and expert witnesses, in addition to the presentation of materials not already in the agency record.

Description of Question of Fact to be Raised at an Evidentiary Hearing

With reference to the number of issues listed in your response to "Request for Evidentiary Hearing" above, please describe each of the factual issues you want considered in an evidentiary hearing. You may reference your answers in your response above if they describe all the questions of fact that you want considered at an evidentiary hearing

1. Kawerak presence and subsistence use of the Project Area
2. Economic and Social impacts to the current Project area uses from the Project
3. Cultural and Traditional Importance of the Project Area
4. Existence of Site-Specific Sampling of the Project area for pollutants by ADEC

Estimated Time for an Evidentiary Hearing

Please provide your estimate of the time you think will be needed to conduct the evidentiary hearing you are requesting.

1 day

IF YOU HAVE QUESTIONS

If you have questions regarding what information needs to be included in this form or questions about the process for requesting an adjudicatory hearing, you may find help by:

1) Reviewing the department's regulations, many of which are referenced in this form. The Administrative Procedures regulations at 18 AAC 15 are available on the Internet at https://dec.alaska.gov/commish/regulations/ . The definitions of key terms may be found at 18 AAC 15.920;
2) Reviewing the guidance documents posted by the department at https://dec.alaska.gov/commish/review-guidance/; or
3) Contacting the department's adjudicatory hearing liaison, Gary Mendivil, in the Commissioner's Office at (907) 465-5061 or at Gary.Mendivil@alaska.gov

Please be aware that failing to comply with the requirements for filing and serving a request for adjudicatory hearing could result in all or a portion of your request being denied.

APPLICABLE DEADLINES

Requests for an adjudicatory hearing must be made not later than 30 days after the issuance of the department's decision or permit, or not later than 30 days after the issuance of a decision on a request for informal review under 18 AAC 15.185, whichever is later (see 18 AAC 15.200(a)).

EXHIBIT 1

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

INDIVIDUAL PERMIT

Permit Number: AK0062295

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501

In compliance with the provisions of the Clean Water Act (CWA), 33 U.S.C. §1251 *et seq*., as amended by the Water Quality Act of 1987, P.L. 100-4, this permit is issued under provisions of Alaska Statutes (AS) 46.03, Alaska Administrative Code (AAC), as amended, and other applicable State laws and regulations.

IPOP, LLC

is authorized to discharge from the silt curtain containment system, as identified in the U.S. Army Corps of Engineers (USACE) permit, near Nome, Alaska at the following location:

Outfall	Receiving Waterbody
001	Bonanza Channel

According to the discharge point effluent limits, monitoring, other conditions, and requirements set forth herein:

This permit shall become effective **December 1, 2024**.

This permit and the authorization to discharge shall expire after **November 30, 2029**.

The Permittee shall reapply for a permit reissuance on or before **June 3, 2029**, 180 days before the expiration of this permit, to continue operations and discharge at the facility beyond the term of this permit.

The Permittee shall post or maintain a copy of this permit to discharge at the facility and make it available to the public, employees, and subcontractors at the facility.

Signature	Date
James Rypkema	Program Manager
Printed Name	Title

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SCHEDULE OF SUBMISSIONS

The Schedule of Submissions summarizes some of the required submissions and activities the permittee must complete or revise and submit to the Alaska Department of Environmental Conservation (department or DEC) during the term of this permit. The permittee is responsible for all submissions and activities even if they are not summarized below.

Table 1: Schedule of Submissions

Permit Part	Submittal or Completion	Frequency	Due Date	Submit to[a]
2.3	Annual Water Quality Monitoring Summary	Annually	March 1st of the next year	Compliance
3.2	Written notification that the Quality Assurance Project Plan (QAPP) has been updated	1/permit cycle	Within 60 days after the effective date of the permit	Compliance
Appendix A, 1.3	Application for Permit Reissuance	1/permit cycle	180 days before expiration of the permit	Permitting
Appendix A, 3.2	Discharge Monitoring Report (DMR)	Monthly	Postmarked or submitted electronically on or before the 20th day of the next month	Compliance[b]
Appendix A, 3.4	Oral notification of noncompliance	As Necessary	Within 24 hours of discovering noncompliance	Compliance
Appendix A, 3.4	Written documentation of noncompliance	As Necessary	Within 5 days of discovering noncompliance	Compliance

a. See Appendix A.1.1 for addresses.

b. Oral notifications must be reported to the department's noncompliance reporting hotline: 1-907-269-4114 (from Alaska) or 1-877-569-4114 (nationwide).

1. LIMITATIONS AND MONITORING REQUIREMENTS

1.1 Discharge Authorization

During the effective period of this permit, the permittee is authorized to discharge pollutants from Outfall 001 to the Bonanza Channel, within the limits and subject to conditions set forth herein. This permit only authorizes the discharge of those pollutants resulting from facility processes, waste streams, and operations clearly identified in the permit application process.

1.2 Adopted References

In addition to the stipulations in this permit, the permittee shall adhere to department-approved plans authorized under the permit and listed below. When the terms of this permit differ from the terms of department-approved project documents adopted by reference in this section, the most recent term with written department approval is controlling. If there is doubt as to which conflicting term is newer, this permit shall control. Department-approved plans adopted by reference in this section must be updated within 90 days of permit issuance incorporating any changes necessary to be consistent with the terms of this permit, and these plans may be revised provided that written department approval is received. Department-approved plans adopted by reference into this permit include identified sections of the following documents: *2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska, IPOP, LLC* (Plan of Operations), *Bonanza Channel Placer Project Supplemental Information* April 18, 2022 (Supplemental Information), and *Amendment to 2020 Narrative Operating Plan* (Amendment to the Plan of Operations).

1.2.1 General operations procedures are adopted in

1.2.1.1 Sections 5.1, 5.2, 5.3, 5.8 and 5.9 of the Plan of Operations,

1.2.1.2 The Supplemental Information, and

1.2.1.3 The Amendment to the Plan of Operations.

1.2.2 Best management practices plan (BMP Plan) procedures are adopted in

1.2.2.1 Section 5.10 of the Plan of Operations and

1.2.2.2 The Supplemental Information.

1.2.3 Silt curtain management plan (SCM Plan) procedures are adopted in

1.2.3.1 Sections 5.10.2, 5.10.3, and 5.12 of the Plan of Operations, and

1.2.3.2 The Amendment to the Plan of Operations.

1.2.4 Monitoring plan procedures are adopted in section 5.11 of the Plan of Operations.

1.3 Dredge Operation within Silt Curtain Containment

The dredge operation within the silt curtain containment system is authorized under a USACE, Clean Water Act (CWA), Section 404, Individual Permit POA-2018-00123 (POA-2018-00123) and associated CWA, Section 401, Certification issued by the department. The area and discharges within the silt curtain containment system are permitted under POA-2018-00123. As such, that area is designated as a "treatment works" as defined in AS 46.03.900(33). That designation applies to works installed for the

purpose of treating neutralizing, stabilizing, or disposing of industrial waste, or other wastes. As an authorized "treatment works," Alaska Water Quality Standards (see 18 AAC 70.010(c)) do not apply to the silt curtain containment system. However, applicable water quality criteria "must be met in adjacent surface water and groundwater at and beyond the boundary of the treatment works."

1.3.1 All discharges within the silt curtain containment system and substrate disturbance incidental to the movement or repair of the silt curtain containment system are covered under the jurisdiction of POA-2018-00123.

1.3.2 The permittee must comply with all seasonal operating restrictions as approved by the department and stipulated in POA-2018-00123.

1.3.3 The permittee shall ensure that all wastewater and tailings are deposited in a manner that will not damage or otherwise jeopardize the integrity of silt curtain containment system.

1.3.4 The silt curtain containment system may not obstruct more than one-half of the undisturbed channel at any time in order to maintain adequate passage for fish migration.

1.3.5 The silt curtain containment system must be inspected daily, a fish passage corridor around the project area maintained, and entrapment of fish within the containment system prevented.

1.3.6 When feasible and practicable, the silt curtain doorway should be positioned facing upstream to mitigate escapement of pollutants.

1.4 Effluent Limits and Monitoring - General Conditions

1.4.1 Limits represent maximum effluent values, unless otherwise indicated. The permittee must comply with effluent limits at all times, unless otherwise indicated, regardless of monitoring frequency or reporting required by other provisions of this permit.

1.4.2 The discharge from Outfall 001 may not result in floating oils on the surface of the waterbody or cause a film, sheen, or discoloration (from petroleum hydrocarbons, or oils and grease) on the surface or floor of the waterbody or adjoining shorelines.

1.4.3 The permittee may sample more frequently than required by the permit. If additional samples are taken, the provisions of Appendix A, Part 3.3 apply.

1.5 Effluent Limits and Monitoring - Outfall 001

1.5.1 Outfall 001 is identified as the opening or doorway portion of the silt curtain surrounding the dredge operation through which the dredge and other support craft may pass. The permittee must limit and monitor discharge from Outfall 001 as specified in Table 2.

Table 2: Effluent Limits and Monitoring Frequencies for Outfall 001

Parameter	Limit	Units	Minimum Sample Frequency	Sample Type
Turbidity, background sample	See Part 1.5.2	NTU[a]	1/Opening	Grab
Turbidity, compliance sample background sample, natural condition	See Part 1.5.3	NTU	1/Opening	Grab
Settleable Solids, downstream sample	See Part 1.5.4	ml/L[b]	as necessary	Grab

a. Nephelometric turbidity units
b. Milliliters per liter

1.5.2 Turbidity, background samples – Two background samples must be taken from the Bonanza Channel. A downstream sample must be taken at a point approximately 100 feet downstream of the silt curtain containment system doorway to measure water quality influenced by the release of wastewater from breaching the doorway. An upstream sample must be taken at a point 100 feet upstream of the silt curtain containment system. Both samples must be taken just prior to breaching the silt curtain containment system doorway.

1.5.3 Turbidity, compliance sample - The turbidity must not be more than 5 NTUs above the background sample. The compliance sample must be taken at the same approximate location of the background sample as soon as practicable and within 30 minutes after closing the silt curtain containment system doorway.

1.5.4 Settleable Solids – In the event that the compliance sample exceeds the turbidity limit, a sample for settleable solids must be taken as soon as practicable and within 30 minutes after closing the silt curtain containment system doorway. The sample should be taken at the same approximate location as the turbidity compliance sample. Settleable solids must not exceed 0.2 ml/L.

1.6 Visual Monitoring Requirements

1.6.1 Visual monitoring must follow the section 5.11.2 or the Plan of Operations.

1.6.2 The permittee must visually monitor for turbidity, film or sheen escaping the silt curtain during dredge operation and shall maintain and record a log of daily visual monitoring (visual monitoring log). All visual monitoring results shall be recorded daily in a logbook maintained on site as required in Part 2.1.2.

1.6.3 If turbidity, film or sheen are observed, the duration, size and location of the escapement plume must recorded in visual monitoring log (Part 1.6.2), reported in the DMR (Part 2.2) and summarized in the annual report (Part 2.3). In addition, the permittee must exercise corrective action to discontinue the escapement from the silt curtain containment system following appropriate measures identified in the BMP Plan and SCM Plan.

1.7 Mixing Zone

1.7.1 Under 18 AAC 70.240, mixing zones for settleable solids and turbidity are authorized in the Bonanza Channel for Outfall 001.

1.7.2 Alaska Water Quality Standards criteria for turbidity and settleable solids may be exceeded within the mixing zone. The mixing zone is boundary extends as a 100-foot radial arc revolving around the open edge of the silt curtain doorway (Outfall 001) and constitutes the entire water column within the mixing zone.

2. REPORTING REQUIREMENTS

2.1 Daily Records

The permittee must maintain a daily operator log of monitoring and operation details that is accessible onsite and subject to inspection upon request by the department. The daily operator log shall include

2.1.1 Dredge operation start, end time, total hours discharged, and total yards of material processed.

2.1.2 Results of visual monitoring, as required under Part 1.6.2;

2.1.3 Coordinates (i.e., latitude and longitude) of Outfall 001 (the doorway of the silt curtain).

2.1.4 The results of any additional monitoring, as described in Appendix A, Part 2.1;

2.2 Discharge Monitoring Report (DMR)

The permittee shall submit monthly, a DMR as specified in Appendix A – Standard Conditions, Part 3.2 and Part 2.4 for all monitoring required under Parts 1.4 and 1.5.

2.3 Annual Report Requirements

An annual report must be submitted to the DEC Compliance Program and received or postmarked no later than March 1st of the next calendar year. Reports may be mailed to the address in Appendix A, Part 1.1.2. Starting on December 21, 2025, reports must be submitted electronically per Part 2.4. The annual report must include the following:

2.3.1 Permittee Information:

2.3.1.1 Permittee name,

2.3.1.2 APDES permit number,

2.3.1.3 The period(s) of operation,

2.3.1.4 Total cubic yards processed, and

2.3.1.5 Total days of operation.

2.3.2 Water quality and visual monitoring summary of information collected from the approved monitoring plan.

2.3.3 Copies or summaries of daily records required under Part 2.1;

2.3.4 Any effluent limitation exceedances under Part 1.5 and actions taken to return to compliance; and

2.3.5 A signed certification statement as required by Appendix A, Part 1.12.

2.4 Electronic Reporting (E-Reporting) Rule

The permittee is responsible for electronically submitting DMRs and other reports in accordance with 40 CFR §127.

2.5 Standard Conditions Applicable to Recording and Reporting

The permittee must adhere to all recording and reporting requirements contained in Appendix A including Monitoring and Records (Part 1.11), Signature Requirement (Part 1.12), and Special Reporting Obligations (Part 2.0).

3. SPECIAL CONDITIONS

3.1 Best Management Practices

Operational controls to reduce turbidity generated during excavation must be implemented as follows:

3.1.1 As referenced in Part 1.2.2.

3.1.2 Site conditions, such as tides, waves, currents, wind, and substrate type, must be considered and operational methods must be adjusted, as necessary, to ensure discharges comply with permit limits and separation distance requirements.

3.2 Quality Assurance Project Plan

The permittee must develop a quality assurance project plan (QAPP) for all monitoring required by this permit. Within 60 days of the effective date of this permit, the permittee must update the QAPP and submit written notification to DEC that the updated QAPP has been implemented. An existing QAPP may be modified for submittal under this section provided that Parts 3.2.1 through 3.2.4 are satisfied.

3.2.1 The QAPP must follow *EPA Requirements for Quality Assurance Project Plans*. QAPPs must be approved in accordance with this Standard.

3.2.2 The permittee QAPP shall be reviewed at least annually to confirm its suitability and evaluate its effectiveness for the project.

3.2.3 The permittee must amend the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP.

3.2.4 Copies of the QAPP must be accessible on site and made available to DEC upon request.

Figure 1: Project Location

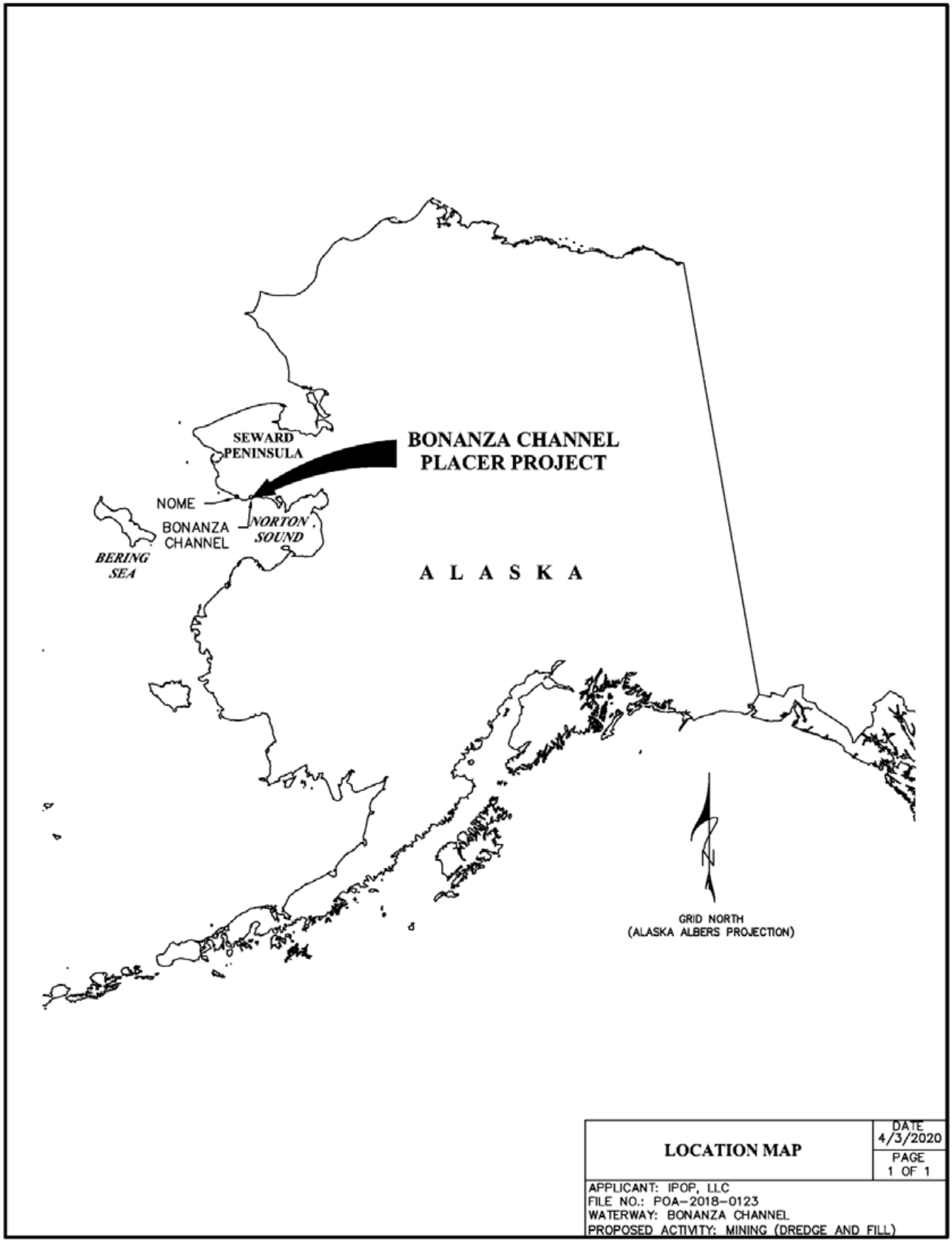


Figure 2: Project Area

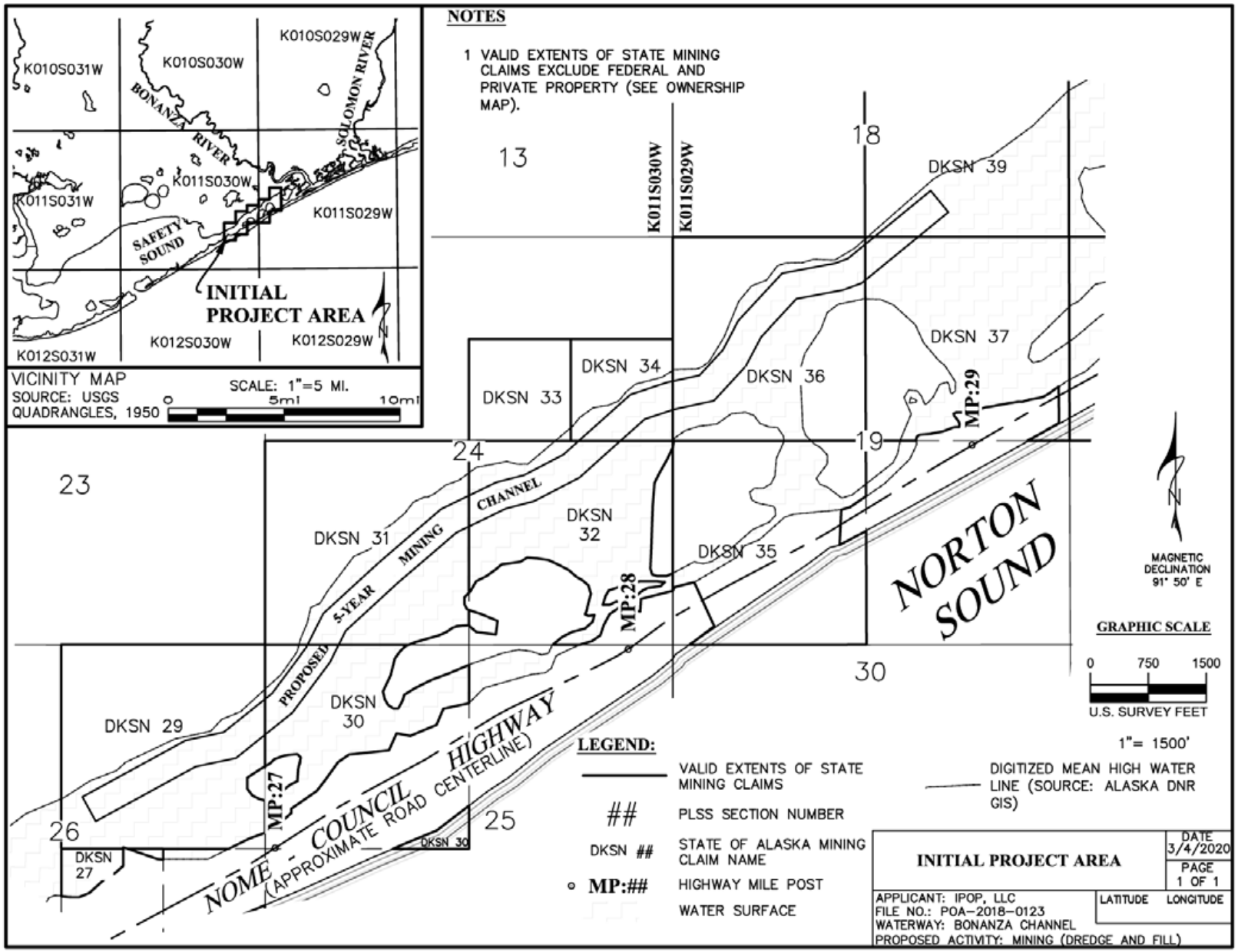
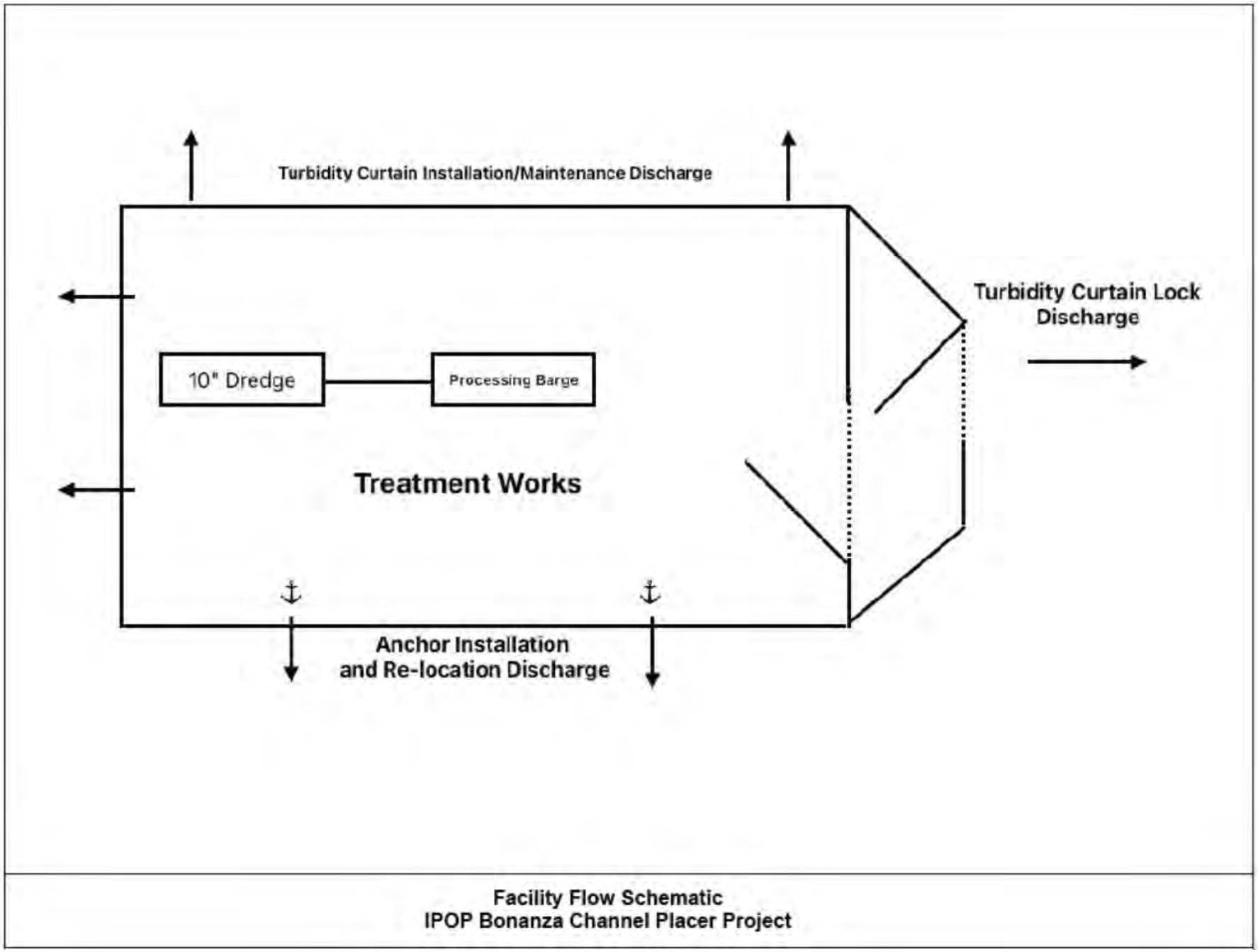


Figure 3: Line Drawing



Facility Flow Schematic
IPOP Bonanza Channel Placer Project

Appendix A

STANDARD CONDITIONS

APDES PERMIT

NONDOMESTIC DISCHARGES

TABLE OF CONTENTS

Appendix A of the Fact Sheet contains standard regulatory language that must be included in all APDES permits. These requirements are based on the regulations and cannot be challenged in the context of an individual APDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements. Appendix A, Standard Conditions is an integral and enforceable part of the permit. Failure to comply with a Standard Condition in this Appendix constitutes a violation of the permit and is subject to enforcement.

1.0 Standard Conditions Applicable to All Permits

1.1 Contact Information and Addresses

1.1.1 Permitting Program

Documents, reports, and plans required under the permit and Appendix A are to be sent to the following address:

State of Alaska
Department of Environmental Conservation
Division of Water
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, Alaska 99501
Telephone (907) 269-6285
Fax (907) 269-7508
Email: DEC.Water.WQPermit@alaska.gov

1.1.2 Compliance and Enforcement Program

Documents and reports required under the permit and Appendix A relating to compliance are to be sent to the following address:

State of Alaska
Department of Environmental Conservation
Division of Water
Compliance and Enforcement Program
555 Cordova Street
Anchorage, Alaska 99501
Telephone Nationwide (877) 569-4114
Anchorage Area / International (907) 269-4114
Fax (907) 269-4604
Email: dec-wqreporting@alaska.gov

1.2 Duty to Comply

A permittee shall comply with all conditions of the permittee's APDES permit. Any permit noncompliance constitutes a violation of 33 U.S.C 1251-1387 (Clean Water Act) and state law and is grounds for enforcement action including termination, revocation and reissuance, or modification of a permit, or denial of a permit renewal application. A permittee shall comply with effluent standards or prohibitions established under 33 U.S.C. 1317(a) for toxic pollutants within the time provided in the regulations that establish those effluent standards or prohibitions even if the permit has not yet been modified to incorporate the requirement.

1.3 Duty to Reapply

If a permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. In accordance with 18 AAC 83.105(b), a permittee with a currently effective permit shall reapply by submitting a new application at least 180 days before the existing permit expires, unless the Department has granted the permittee permission to submit an application on a later date. However, the Department will not grant permission for an application to be submitted after the expiration date of the existing permit.

1.4 Need to Halt or Reduce Activity Not a Defense

In an enforcement action, a permittee may not assert as a defense that compliance with the conditions of the permit would have made it necessary for the permittee to halt or reduce the permitted activity.

1.5 Duty to Mitigate

A permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

1.6 Proper Operation and Maintenance

1.6.1 A permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances that the permittee installs or uses to achieve compliance with the conditions of the permit. The permittee's duty to operate and maintain properly includes using adequate laboratory controls and appropriate quality assurance procedures. However, a permittee is not required to operate back-up or auxiliary facilities or similar systems that a permittee installs unless operation of those facilities is necessary to achieve compliance with the conditions of the permit.

1.6.2 Operation and maintenance records shall be retained and made available at the site.

1.7 Permit Actions

A permit may be modified, revoked and reissued, or terminated for cause as provided in 18 AAC 83.130. If a permittee files a request to modify, revoke and reissue, or terminate a permit, or gives notice of planned changes or anticipated noncompliance, the filing or notice does not stay any permit condition.

1.8 Property Rights

A permit does not convey any property rights or exclusive privilege.

1.9 Duty to Provide Information

A permittee shall, within a reasonable time, provide to the Department any information that the Department requests to determine whether a permittee is in compliance with the permit, or whether cause exists to modify, revoke and reissue, or terminate the permit. A permittee shall also provide to the Department, upon request, copies of any records the permittee is required to keep under the permit.

1.10 Inspection and Entry

A permittee shall allow the Department, or an authorized representative, including a contractor acting as a representative of the Department, at reasonable times and on presentation of credentials establishing authority and any other documents required by law, to:

1.10.1 Enter the premises where a permittee's regulated facility or activity is located or conducted, or where permit conditions require records to be kept;

1.10.2 Have access to and copy any records that permit conditions require the permittee to keep;

1.10.3 Inspect any facilities, equipment, including monitoring and control equipment, practices, or operations regulated or required under a permit; and

1.10.4 Sample or monitor any substances or parameters at any location for the purpose of assuring permit compliance or as otherwise authorized by 33 U.S.C. 1251-1387 (Clean Water Act).

1.11 Monitoring and Records

A permittee must comply with the following monitoring and recordkeeping conditions:

1.11.1 Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity.

1.11.2 The permittee shall retain records in Alaska of all monitoring information for at least five years, or longer at the Department's request at any time, from the date of the sample, measurement, report, or application. Monitoring records required to be kept include:

1.11.2.1 All calibration and maintenance records,

1.11.2.2 All original strip chart recordings or other forms of data approved by the Department for continuous monitoring instrumentation,

1.11.2.3 All reports required by a permit,

1.11.2.4 Records of all data used to complete the application for a permit,

1.11.2.5 Field logbooks or visual monitoring logbooks,

1.11.2.6 Quality assurance chain of custody forms,

1.11.2.7 Copies of discharge monitoring reports, and

1.11.2.8 A copy of this APDES permit.

1.11.3 Records of monitoring information must include:

1.11.3.1 The date, exact place, and time of any sampling or measurement;

1.11.3.2 The name(s) of any individual(s) who performed the sampling or measurement(s);

1.11.3.3 The date(s) and time any analysis was performed;

1.11.3.4 The name(s) of any individual(s) who performed any analysis;

1.11.3.5 Any analytical technique or method used; and

1.11.3.6 The results of the analysis.

1.11.4 Monitoring Procedures

Analyses of pollutants must be conducted using test procedures approved under 40 CFR Part 136, adopted by reference at 18 AAC 83.010, for pollutants with approved test procedures, and using test procedures specified in the permit for pollutants without approved methods.

1.12 Signature Requirement and Penalties

1.12.1 Any application, report, or information submitted to the Department in compliance with a permit requirement must be signed and certified in accordance with 18 AAC 83.385. Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under a permit, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be subject to penalties under 33 U.S.C. 1319(c)(4), AS 12.55.035(c)(1)(B), (c)(2), and (c)(3) and AS 46.03.790(g).

1.12.2 In accordance with 18 AAC 83.385, an APDES permit application must be signed as follows:

1.12.2.1 For a corporation, a responsible corporate officer shall sign the application; in this subsection, a responsible corporate officer means:

1.12.2.1.1 A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

1.12.2.1.2 The manager of one of more manufacturing, production, or operating facilities, if

1.12.2.1.2.1 The manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental statutes and regulations;

1.12.2.1.2.2 The manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and

1.12.2.1.2.3 Authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

1.12.2.2 For a partnership or sole proprietorship, by the general partner or the proprietor, respectively, shall sign the application.

1.12.2.3 For a municipality, state, federal, or other public agency, either a principal executive officer or ranking elected official shall sign the application; in this subsection, a principal executive officer of an agency means:

1.12.2.3.1 The chief executive officer of the agency; or

1.12.2.3.2 A senior executive officer having responsibility for the overall operations of a principal geographic unit or division of the agency.

1.12.3 Any report required by an APDES permit, and a submittal with any other information requested by the Department, must be signed by a person described in Appendix A, Part 1.12.2, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1.12.3.1 The authorization is made in writing by a person described in Appendix A, Part 1.12.2;

1.12.3.2 The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, including the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility; or an individual or position having overall responsibility for environmental matters for the company; and

1.12.3.3 The written authorization is submitted to the Department to the Permitting Program address in Appendix A, Part 1.1.1.

1.12.4 If an authorization under Appendix A, Part 1.12.3 is no longer effective because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Appendix A, Part 1.12.3 must be submitted to the Department before or together with any report, information, or application to be signed by an authorized representative.

1.12.5 Any person signing a document under Appendix A, Part 1.12.2 or Part 1.12.3 shall certify as follows:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

1.13 Proprietary or Confidential Information

1.13.1 A permit applicant or permittee may assert a claim of confidentiality for proprietary or confidential business information by stamping the words “confidential business information” on each page of a submission containing proprietary or confidential business information. The Department will treat the stamped submissions as confidential if the information satisfies the test in 40 CFR §2.208, adopted by reference at 18 AAC 83.010, and is not otherwise required to be made public by state law.

1.13.2 A claim of confidentiality under Appendix A, Part 1.13.1 may not be asserted for the name and address of any permit applicant or permittee, a permit application, a permit, effluent data, sewage sludge data, and information required by APDES or NPDES application forms provided by the Department, whether submitted on the forms themselves or in any attachments used to supply information required by the forms.

1.13.3 A permittee’s claim of confidentiality authorized under Appendix A, Part 1.13.1 is not waived if the Department provides the proprietary or confidential business information to the EPA or to other agencies participating in the permitting process. The Department will supply any information obtained or used in the administration of the state APDES program to the EPA upon request under 40 CFR §123.41, as revised as of July 1, 2005. When providing information submitted to the Department with a claim of confidentiality to the EPA, the Department will notify the EPA of the confidentiality claim. If the Department provides the EPA information that is not claimed to be confidential, the EPA may make the information available to the public without further notice.

1.14 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any action or relieve a permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under

state laws addressing oil and hazardous substances.

1.15 Cultural and Paleontological Resources

If cultural or paleontological resources are discovered because of this disposal activity, work that would disturb such resources is to be stopped, and the Office of History and Archaeology, a Division of Parks and Outdoor Recreation of the Alaska Department of Natural Resources (http://www.dnr.state.ak.us/parks/oha/), is to be notified immediately at (907) 269-8721.

1.16 Fee

A permittee must pay the appropriate permit fee described in 18 AAC 72.

1.17 Other Legal Obligations

This permit does not relieve the permittee from the duty to obtain any other necessary permits from the Department or from other local, state, or federal agencies and to comply with the requirements contained in any such permits. All activities conducted and all plan approvals implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations.

2.0 Special Reporting Obligations

2.1 Planned Changes

2.1.1 The permittee shall give notice to the Department as soon as possible of any planned physical alteration or addition to the permitted facility if:

2.1.1.1 The alteration or addition may make the facility a “new source” under one or more of the criteria in 18 AAC 83.990(44); or

2.1.1.2 The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged if those pollutants are not subject to effluent limitations in the permit or to notification requirements under 18 AAC 83.610.

2.1.2 If the proposed changes are subject to plan review, then the plans must be submitted at least 30 days before implementation of changes (see 18 AAC 15.020 and 18 AAC 72 for plan review requirements). Written approval is not required for an emergency repair or routine maintenance.

2.1.3 Written notice must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.2 Anticipated Noncompliance

2.2.1 A permittee shall give seven days’ notice to the Department before commencing any planned change in the permitted facility or activity that may result in noncompliance with permit requirements.

2.2.2 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.3 Transfers

2.3.1 A permittee may not transfer a permit for a facility or activity to any person except after notice to the Department in accordance with 18 AAC 83.150. The Department may modify or revoke and reissue the permit to change the name of the permittee and incorporate such other requirements under 33 U.S.C. 1251-1387 (Clean Water Act) or state law.

2.3.2 Written notice must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.4 Compliance Schedules

2.4.1 A permittee must submit progress or compliance reports on interim and final requirements in any compliance schedule of a permit no later than 14 days following the scheduled date of each requirement.

2.4.2 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.5 Corrective Information

2.5.1 If a permittee becomes aware that it failed to submit a relevant fact in a permit application or submitted incorrect information in a permit application or in any report to the Department, the permittee shall promptly submit the relevant fact or the correct information.

2.5.2 Information must be sent to the Permitting Program address in Appendix A, Part 1.1.1.

2.6 Bypass of Treatment Facilities

2.6.1 Prohibition of Bypass

Bypass is prohibited. The Department may take enforcement action against a permittee for any bypass, unless:

2.6.1.1 The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2.6.1.2 There were no feasible alternatives to the bypass, including use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. However, this condition is not satisfied if the permittee, in the exercise of reasonable engineering judgment, should have installed adequate back-up equipment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and

2.6.1.3 The permittee provides notice to the Department of a bypass event in the manner, as appropriate, under Appendix A, Part 2.6.2.

2.6.2 Notice of bypass

2.6.2.1 For an anticipated bypass, the permittee submits notice at least 10 days before the date of the bypass. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the conditions of Appendix A, Parts 2.6.1.1 and 2.6.1.2.

2.6.2.2 For an unanticipated bypass, the permittee submits 24-hour notice, as required in 18 AAC 83.410(f) and Appendix A, Part 3.4, Twenty-four Hour Reporting.

2.6.2.3 Written notice must be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

2.6.3 Notwithstanding Appendix A, Part 2.6.1, a permittee may allow a bypass that:

2.6.3.1 Does not cause an effluent limitation to be exceeded, and

2.6.3.2 Is for essential maintenance to assure efficient operation.

2.7 Upset Conditions

2.7.1 In any enforcement action for noncompliance with technology-based permit effluent limitations, a permittee may claim upset as an affirmative defense. A permittee seeking to establish the occurrence of an upset has the burden of proof to show that the requirements of Appendix A, Part 2.7.2 are met.

2.7.2 To establish the affirmative defense of upset, the permittee must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:

2.7.2.1 An upset occurred and the permittee can identify the cause or causes of the upset;

2.7.2.2 The permitted facility was at the time being properly operated;

2.7.2.3 The permittee submitted 24-hour notice of the upset, as required in 18 AAC 83.410(f) and Appendix A, Part 3.4, Twenty-four Hour Reporting; and

2.7.2.4 The permittee complied with any mitigation measures required under 18 AAC 83.405(e) and Appendix A, Part 1.5, Duty to Mitigate.

2.7.3 Any determination made in administrative review of a claim that noncompliance was caused by upset, before an action for noncompliance is commenced, is not final administrative action subject to judicial review.

2.8 Existing Manufacturing, Commercial, Mining, and Silvicultural Discharges

2.8.1 In addition to the reporting requirements under 18 AAC 83.410, an existing manufacturing, commercial, mining, and silvicultural discharger shall notify the Department as soon as that discharger knows or has reason to believe that any activity has occurred or will occur that would result in:

2.8.1.1 The discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

2.8.1.1.1 One hundred micrograms per liter (100 µg/L);

2.8.1.1.2 Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile, 500 micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol, and one milligram per liter (1 mg/L) for antimony;

2.8.1.1.3 Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 18 AAC 83.310(c)-(g); or

2.8.1.1.4 The level established by the Department in accordance with 18 AAC 83.445.

2.8.1.2 Any discharge, on a non-routine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

2.8.1.2.1 Five hundred micrograms per liter (500 µg/L);

2.8.1.2.2 One milligram per liter (1 mg/L) for antimony;

2.8.1.2.3 Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 18 AAC 83.310(c)-(g); or

2.8.1.2.4 The level established by the Department in accordance with 18 AAC 83.445.

3.0 Monitoring, Recording, and Reporting Requirements

3.1 Representative Sampling

A permittee must collect effluent samples from the effluent stream after the last treatment unit before discharge into the receiving waters. Samples and measurements must be representative of the volume and nature of the monitored activity or discharge.

3.2 Reporting of Monitoring Results

At intervals specified in the permit, monitoring results must be reported on the EPA discharge monitoring report (DMR) form, as revised as of March 1999, adopted by reference.

3.2.1 Monitoring results shall be summarized each month on the DMR or an approved equivalent report. The permittee must submit reports monthly postmarked by the 20th day of the following month.

3.2.2 The permittee must sign and certify all DMRs and all other reports in accordance with the requirements of Appendix A, Part 1.12, Signatory Requirements and Penalties. All signed and certified legible original DMRs and all other documents and reports must be submitted to the Department at the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

3.2.3 If, during the period when this permit is effective, the Department makes available electronic reporting, the permittee may, as an alternative to the requirements of Appendix A, Part 3.2.2, submit monthly DMRs electronically by the 20th day of the following month in accordance with guidance provided by the Department. The permittee must certify all DMRs and other reports, in accordance with the requirements of Appendix A, Part 1.12, Signatory Requirements and Penalties. The permittee must retain the legible originals of these documents and make them available to the Department upon request.

3.3 Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than the permit requires using test procedures approved in 40 CFR Part 136, adopted by reference at 18 AAC 83.010, or as specified in this permit, the results of that additional monitoring must be included in the calculation and reporting of the data submitted in the DMR required by Appendix A, Part 3.2. All limitations that require averaging of measurements must be calculated using an arithmetic means unless the Department specifies another method in the permit. Upon request by the Department, the permittee must submit the results of any other sampling and monitoring regardless of the test method used.

3.4 Twenty-four Hour Reporting

A permittee shall report any noncompliance event that may endanger health or the environment as follows:

3.4.1 A report must be made:

3.4.1.1 Orally within 24 hours after the permittee becomes aware of the circumstances, and

3.4.1.2 In writing within five days after the permittee becomes aware of the circumstances.

3.4.2 A report must include the following information:

3.4.2.1 A description of the noncompliance and its causes, including the estimated volume or weight and specific details of the noncompliance;

3.4.2.2 The period of noncompliance, including exact dates and times;

3.4.2.3 If the noncompliance has not been corrected, a statement regarding the anticipated time the noncompliance is expected to continue; and

3.4.2.4 Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3.4.3 An event that must be reported within 24 hours includes:

3.4.3.1 An unanticipated bypass that exceeds any effluent limitation in the permit (see Appendix A, Part 2.6, Bypass of Treatment Facilities).

3.4.3.2 An upset that exceeds any effluent limitation in the permit (see Appendix A, Part 2.7, Upset Conditions).

3.4.3.3 A violation of a maximum daily discharge limitation for any of the pollutants listed in the permit as requiring 24-hour reporting.

3.4.4 The Department may waive the written report on a case-by-case basis for reports under Appendix A, Part 3.4 if the oral report has been received within 24 hours of the permittee becoming aware of the noncompliance event.

3.4.5 The permittee may satisfy the written reporting submission requirements of Appendix A, Part 3.4 by submitting the written report via e-mail, if the following conditions are met:

3.4.5.1 The Noncompliance Notification Form or equivalent form is used to report the noncompliance;

3.4.5.2 The written report includes all the information required under Appendix A, Part 3.4.2;

3.4.5.3 The written report is properly certified and signed in accordance with Appendix A, Parts 1.12.3 and 1.12.5.;

3.4.5.4 The written report is scanned as a PDF (portable document format) document and transmitted to the Department as an attachment to the e-mail; and

3.4.5.5 The permittee retains in the facility file the original signed and certified written report and a printed copy of the conveying email.

3.4.6 The e-mail and PDF written report will satisfy the written report submission requirements of this permit provided the e-mail is received by the Department within five days after the time the permittee becomes aware of the noncompliance event and the e-mail and written report satisfy the criteria of Part 3.4.5. The e-mail address to report noncompliance is: dec-wqreporting@alaska.gov

3.5 Other Noncompliance Reporting

A permittee shall report all instances of noncompliance not required to be reported under Appendix A, Parts 2.4 (Compliance Schedules), 3.3 (Additional Monitoring by Permittee), and 3.4 (Twenty-four Hour Reporting) at the time the permittee submits monitoring reports under Appendix A, Part 3.2 (Reporting of Monitoring Results). A report of noncompliance under this part must contain the information listed in Appendix A, Part 3.4.2 and be sent to the Compliance and Enforcement Program address in Appendix A, Part 1.1.2.

4.0 Penalties for Violations of Permit Conditions

Alaska laws allow the State to pursue both civil and criminal actions concurrently. The following is a summary of Alaska law. Permittees should read the applicable statutes for further substantive and procedural details.

4.1 Civil Action

Under AS 46.03.760(e), a person who violates or causes or permits to be violated a regulation, a lawful order of the Department, or a permit, approval, or acceptance, or term or condition of a permit, approval or acceptance issued under the program authorized by AS 46.03.020 (12) is liable, in a civil action, to the State for a sum to be assessed by the court of not less than $500 nor more than $100,000 for the initial violation, nor more than $10,000 for each day after that on which the violation continues, and that shall reflect, when applicable:

4.1.1 Reasonable compensation in the nature of liquated damages for any adverse environmental effects caused by the violation, that shall be determined by the court according to the toxicity, degradability, and dispersal characteristics of the substance discharged, the sensitivity of the receiving environment, and the degree to which the discharge degrades existing environmental quality;

4.1.2 Reasonable costs incurred by the State in detection, investigation, and attempted correction of the violation;

4.1.3 The economic savings realized by the person in not complying with the requirements for which a violation is charged; and

4.1.4 The need for an enhanced civil penalty to deter future noncompliance.

4.2 Injunctive Relief

4.2.1 Under AS 46.03.820, the Department can order an activity presenting an imminent or present danger to public health or that would be likely to result in irreversible damage to the environment be discontinued. Upon receipt of such an order, the activity must be immediately discontinued.

4.2.2 Under AS 46.03.765, the Department can bring an action in Alaska Superior Court seeking to enjoin ongoing or threatened violations for Department-issued permits and Department statutes and regulations.

4.3 Criminal Action

Under AS 46.03.790(h), a person is guilty of a Class A misdemeanor if the person negligently:

4.3.1 Violates a regulation adopted by the Department under AS 46.03.020(12);

4.3.2 Violates a permit issued under the program authorized by AS 46.03.020(12);

4.3.3 Fails to provide information or provides false information required by a regulation adopted under AS 46.03.020(12);

4.3.4 Makes a false statement, representation, or certification in an application, notice, record, report, permit, or other document filed, maintained, or used for purposes of compliance with a permit issued under or a regulation adopted under AS 46.03.020(12); or

4.3.5 Renders inaccurate a monitoring device or method required to be maintained by a permit issued or under a regulation adopted under AS 46.03.020(12).

4.4 Other Fines

Upon conviction of a violation of a regulation adopted under AS 46.03.020(12), a defendant who is not

an organization may be sentenced to pay a fine of not more than $10,000 for each separate violation (AS 46.03.790(g)). A defendant that is an organization may be sentenced to pay a fine not exceeding the greater of: (1) $200,00; (2) three times the pecuniary gain realized by the defendant as a result of the offense; or (3) three times the pecuniary damage or loss caused by the defendant to another, or the property of another, as a result of the offense (AS 12.55.035(c)(B), (c)(2), and (c)(3)).

APPENDIX B

GETTING AMERICA BACK TO WORK

IPOP

2020 NARRATIVE AND PLAN OF OPERATIONS FOR THE BONANZA CHANNEL PLACER PROJECT, NOME, ALASKA

A SHOVEL READY PROJECT

2020 MINING SEASON • JUNE 1-OCTOBER 15

IPOP, a $12MM Nome area investment, is ready, willing and able to begin mining June 1, 2020. This is a "shovel ready" project, ready to spend roughly $800,000/month to benefit workers and companies in the Nome area economy. IPOP will pay a perpetual 3% mineral royalty to the state of Alaska estimated to be in the millions. IPOP waits on permits. Permits received after June 1 will result in a mining delay until the 2021 mining season.

APPLICANT INFORMATION

This section contains specific legal and corporate information about Applicant.

Corporate Information

Business Name: IPOP, LLC
Address: 9811 W CHARLESTON BLVD, #2-444, LAS VEGAS, NV 89117
Telephone: 702 460 1107
Fax: NONE
Website: NONE

President: BEAU EPSTEIN
Secretary: BEAU EPSTEIN

Corporate Officer Submitting Application
Name: BEAU EPSTEIN
Title: PRESIDENT
Telephone: 702 460 1107
Email: BEAU@ECOLOGICAL-RESTORATION.ORG

Designated Contact Person
Name: William Burnett
Title: Permitting Agent
Telephone: 907-373-4000
Email: billburnett@yukuskokon.com

Alaska Registered Agent
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9309 GLACIER HWY., STE. A-201
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TITLE PAGE

Title of Report
2020 Project Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska

Project Location
Nome, Alaska, U.S.A.

Prepared By
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Enigma Industries

Special Appreciation to Stakeholder Representatives From:
Bering Straits Native Corporation
City of Nome
Kawerak Inc.
Nome Chamber of Commerce
Nome Chapter of the Alaska Miners Association
Norton Sound Economic Development Corporation
Sitnasuak Native Corporation
Solomon Village Corporation

INTRODUCTION AND TERMS OF REFERENCE

Yukuskokon Professional Services, LLC. (YKPS) has prepared this Narrative and Plan of Operations for the Bonanza Channel Placer Project near Solomon, Alaska at the request of IPOP, LLC., a private U.S. company. IPOP LLC controls 100% of the Bonanza Channel Placer Project.

The purpose of this report is to provide background data for the proposed project, describe the affected environment, the land status, alternatives, and the project plan of operations.

The effective date of this Narrative and Plan of Operations is April 24, 2020.

Reliance on other experts

YKPS is no expert in legal matters, such as the assessment of the validity of the mining claims, and has relied upon client legal counsel to prepare Section 3 and advise other areas as required. Additionally, YKPS is no expert in essential fish habitat, fisheries, or endangered species and has relied upon the work of others and references as necessary. Additionally, YKPS has relied upon IPOP for any material environmental and permitting information that pertains to the Bonanza Channel Placer Project.

Frequently Used Acronyms, Abbreviations, Definitions and Units of Measure

In this report, measurements are generally reported in imperial units. Where information was originally reported in imperial units YKPS has sometimes made the conversions to metric, as shown below, specifically when reporting grades in grams, per tonne or grams per cubic meter. All assay data is in metric units. Frequently used acronyms, abbreviations, definitions and units of measure are listed as follows:

Project specific acronyms include:

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AMHW	Above Mean High Water
AMLLW	Above Mean Lower Low Water
BCPP	Bonanza Channel Placer Project
BMHW	Below Mean High Water
BMLLW	Below Mean Lower Low Water
BMP	Best management practices
DMDS	Dredge material disposal sites
EFH	Essential fish habitat
ES	Endangered species
IPA	Initial project area
IPOP	Applicant
MHW	Mean High Water
MLLW	Mean Lower Low Water
NMFS	National Marine Fisheries Service
SPCC	Spill prevention, control, countermeasure
SPT	Standard penetration tests
USACE	U.S. Army Corps of Engineers
USF&WS	U.S. Fish and Wildlife Service

Linear Measure		
1 centimeter	= 0.3937 inch	
1 meter	= 3.2808 feet	= 1.0936 yard
1 kilometer	= 0.6214 mile	
Area Measure		
1 hectare	= 2.471 acres	= 0.0039 square mile
Capacity Measure (liquid)		
1 liter	= 0.2642 US gallons	
Weight		
1 tonne	= 1.1023 short tons	= 2,205 pounds
1 kilogram	= 2.205 pounds	
Volume		
1 cubic meter	= 0.76 cubic yards	

Currency: Unless otherwise indicated, all references to dollars ($) in this report refer to currency of the United States.

Possible used acronyms and abbreviations

AA-	atomic absorption spectrometry
Ag-	silver
Au-	gold
cm-	centimeters
Core-	direct push core-drilling method
^{o}C-	degrees centigrade
°F-	degrees Fahrenheit
ft	foot or feet
g/t-	grams per tonne (1 g/t = 1ppm)
Ha-	hectares
Hz-	hertz
ICP-	inductively coupled plasma analytical method
In-	inch or inches
kg-	kilograms
km-	kilometers
l-	liter
lbs-	pounds
µm-	micron
m-	meters
mi-	mile or miles
mm-	millimeters
oz-	ounce
ppm-	parts per million (1ppm = 1g/t)
ppb-	parts per billion
QA/QC-	quality assurance and quality control
t-	metric tonne or tonnes

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1.0 PROJECT DESCRIPTION AND BACKGROUND

After much research and due diligence of the USGS writings Alaska mining records and other resources, IPOP LLC and its parent company, Rivers of Gold identified Bonanza Channel near Nome, Alaska as prospective placer ground because: 1) The dredges that operated in the Solomon River from 1900 to 1940's never placer mined in the general project area due to the unavailability of modern reliable pumps, 2) there were historical productive placer operations in the adjacent uplands, and 3) historical beach lines (proven to be rich with placer gold in Nome) had been identified as forming the northern margin of the Bonanza Channel and the Tidal Lagoon.

In 2018, IPOP LLC purchased claims from the State of Alaska and staked 32 claims over the estuary paralleling Norton Sound.

After lengthy delays IPOP obtained limited permits to conduct limited core sampling and test dredging on three of its thirty-two mining claims in the Bonanza Channel. Despite complex permit conditions, IPOP was able to confirm commercial significant quantities of placer gold with their preliminary exploration drilling, and now seeks permission to launch full-scale operations on the previously-permitted portion of the three claims. More generally, IPOP seeks permission to mine all thirty-two claims abiding by the operational guidelines of the IPOP permit. IPOP applies for these permits with knowledge of the challenges and burdens as a result of COVID-19. Mining has been recognized by the Governor of Alaska as an essential industry and mining remains one of the few industries to rebound quickly to help the local, state and national economies.

IPOP requests that the regulating agencies approve a permit that covers all thirty-two claims without regard to the order in which it mines its claims, subject to IPOP's compliance with its Permit guidelines and requirements including appropriate stipulations relating to river mouth avoidance for fish migration and spawning considerations.

1.1 Location

The Bonanza Channel Placer Project (BCPP) is located 24 air miles due east of Nome in the Bonanza Channel (Figure 1). IPOP claims and operations are protected from the Bering Sea by an approximate ½ mile-wide southern boundary barrier island traversed by the Nome-Council Highway (Figures 2, 3 and 4). On the north side of the Bonanza Channel are the uplands of the coastal plain. The geographic location of the BCPP is described in Table 1.1.

The area is devoid of trees. The mining areas are classified as Estuarine and Marine Wetland tidal habitat dominated by perennial plants (primarily grasses) on the Bonanza Channel uplands and barrier islands.

The area is surrounded by low hills of less than 200 feet elevation, and ridges to the north that have been sculpted by periods of glaciation. These hills are drained by the Bonanza, Eldorado, and Solomon Rivers, and various creeks that have provided source material for the river deltas and beaches that now form the Bonanza Channel coastal plain. The Bonanza and Solomon Rivers currently feed directly into the Bonanza Channel and the Tidal Lagoon where IPOP has mining claims (Figures 1-2, 1-3, 1-4).

Figure 1-1. Bonanza Channel Placer Project location

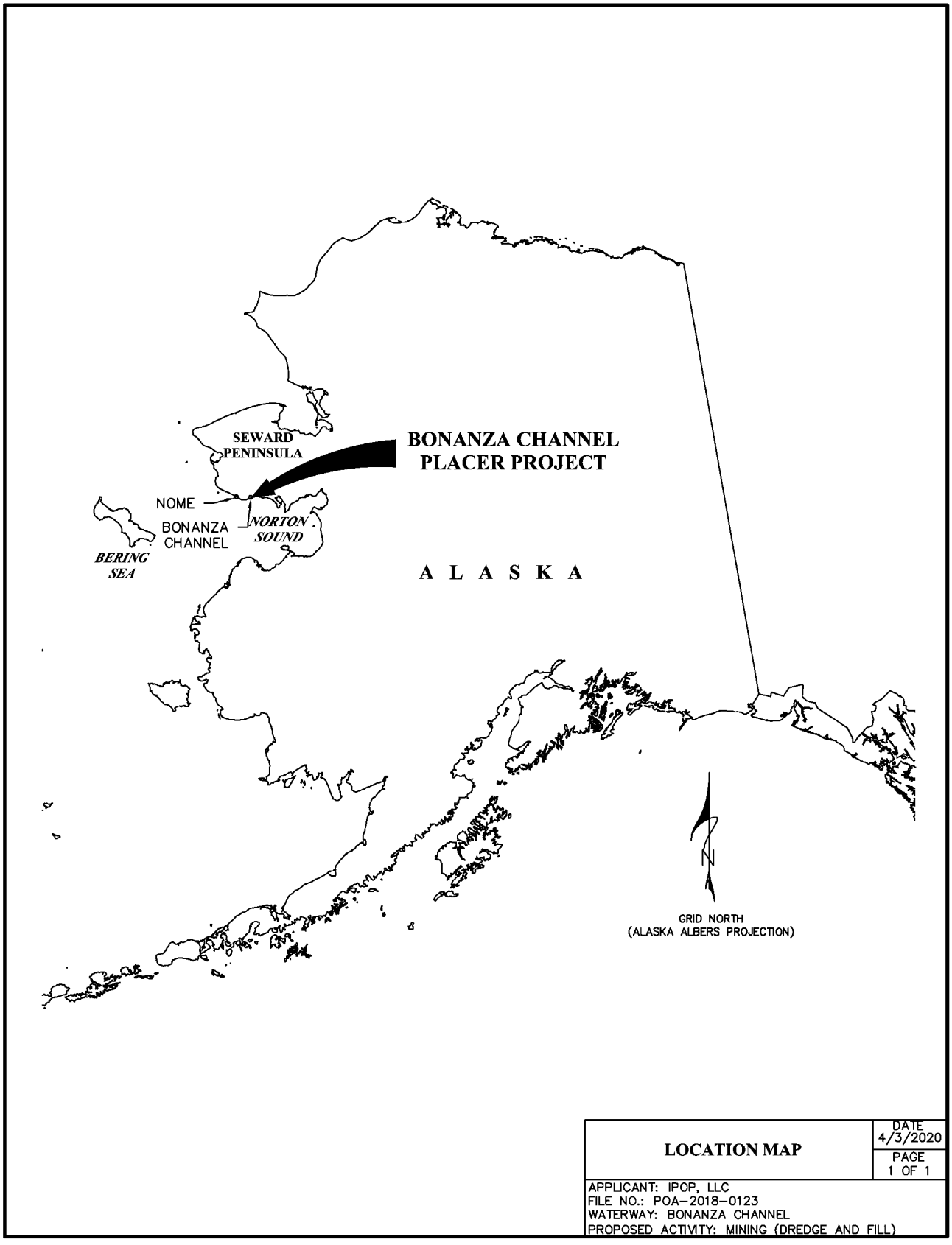


Figure 1-2. Initial project area, BCPP (graphic scale accurate, verbal scale refers to full size printed map)

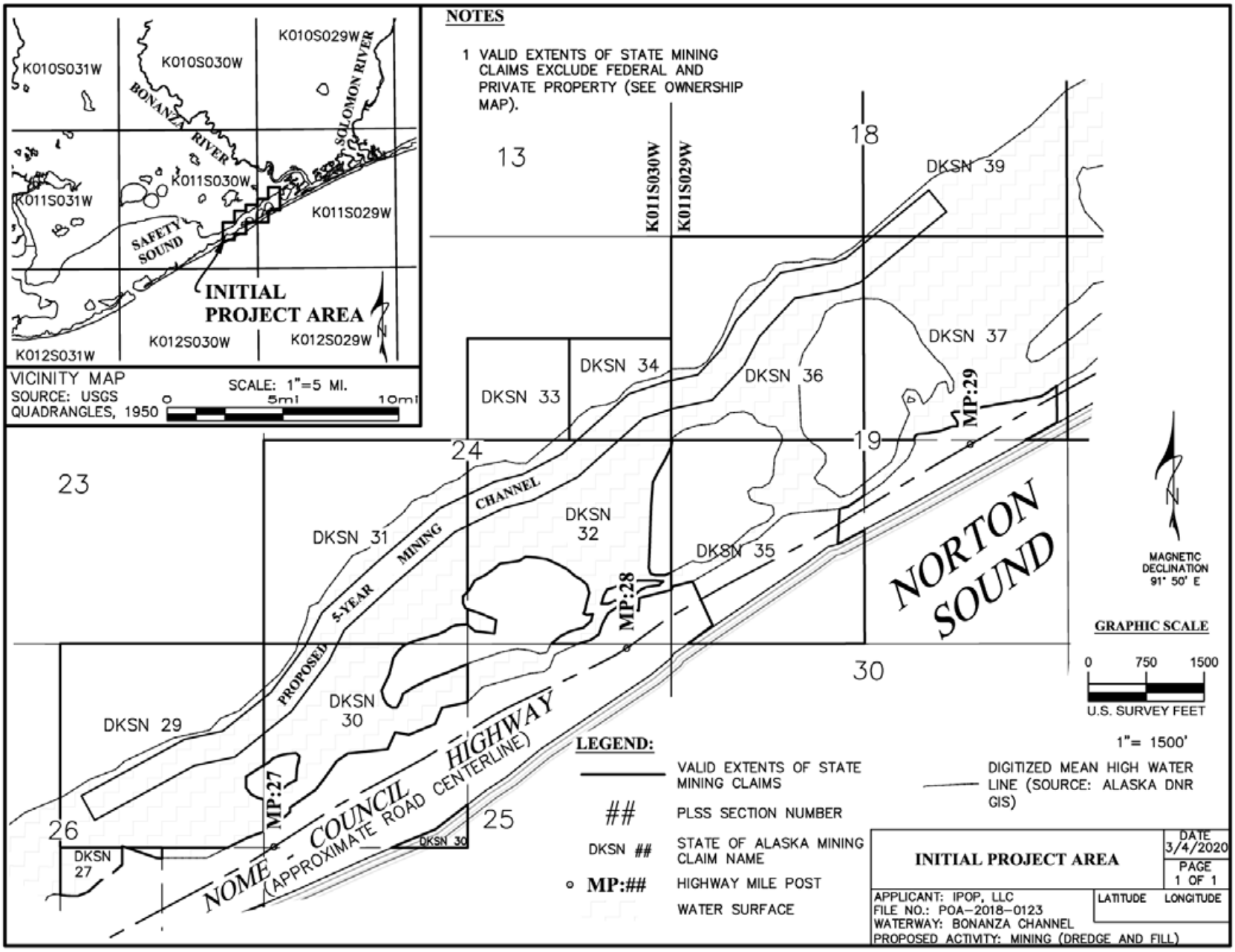


Figure 1-3. Central project area, BCPP (graphic scale accurate, verbal scale refers to full size printed map)

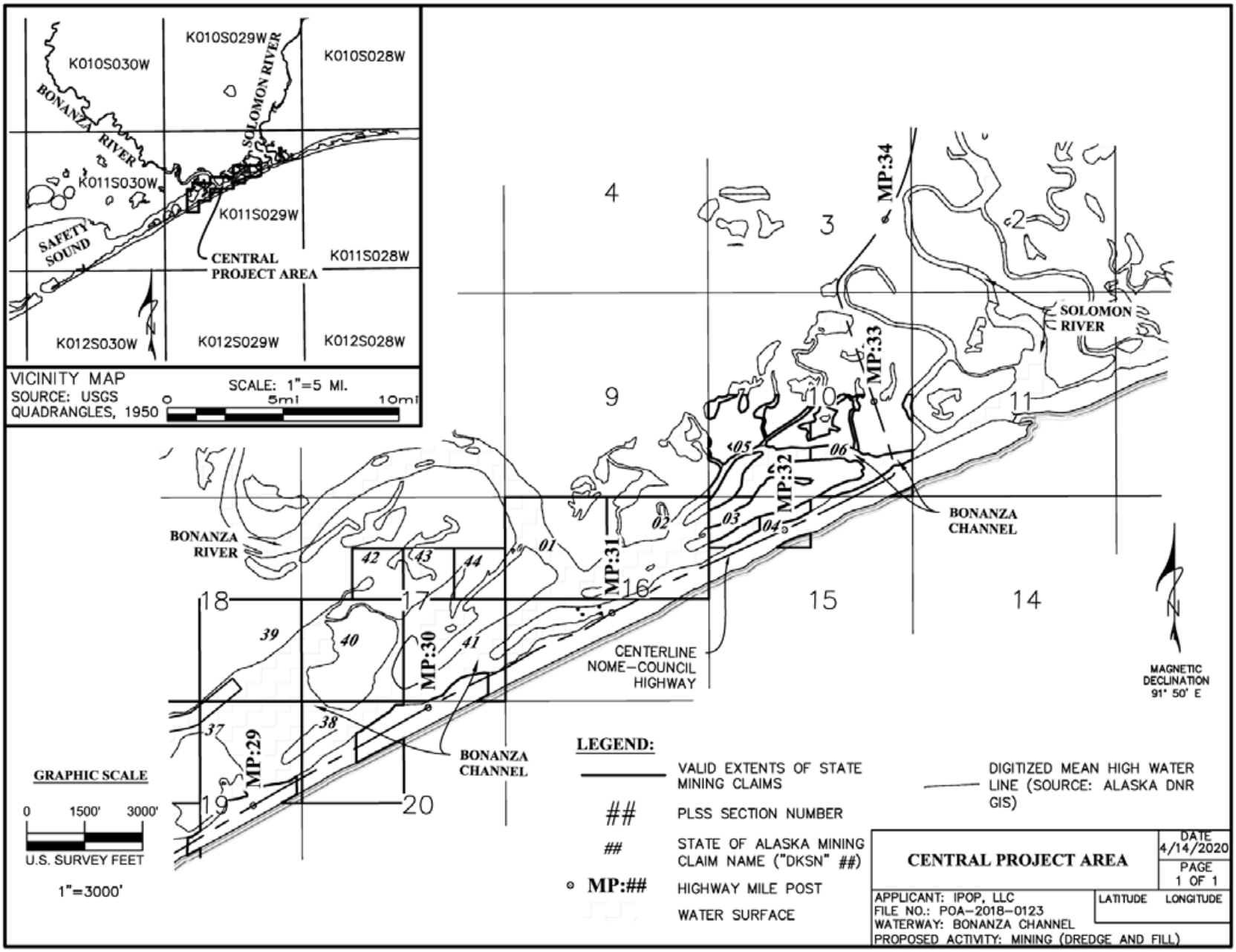


Figure 1-4. Eastern project area, BCPP (graphic scale accurate, verbal scale refers to full size printed map)

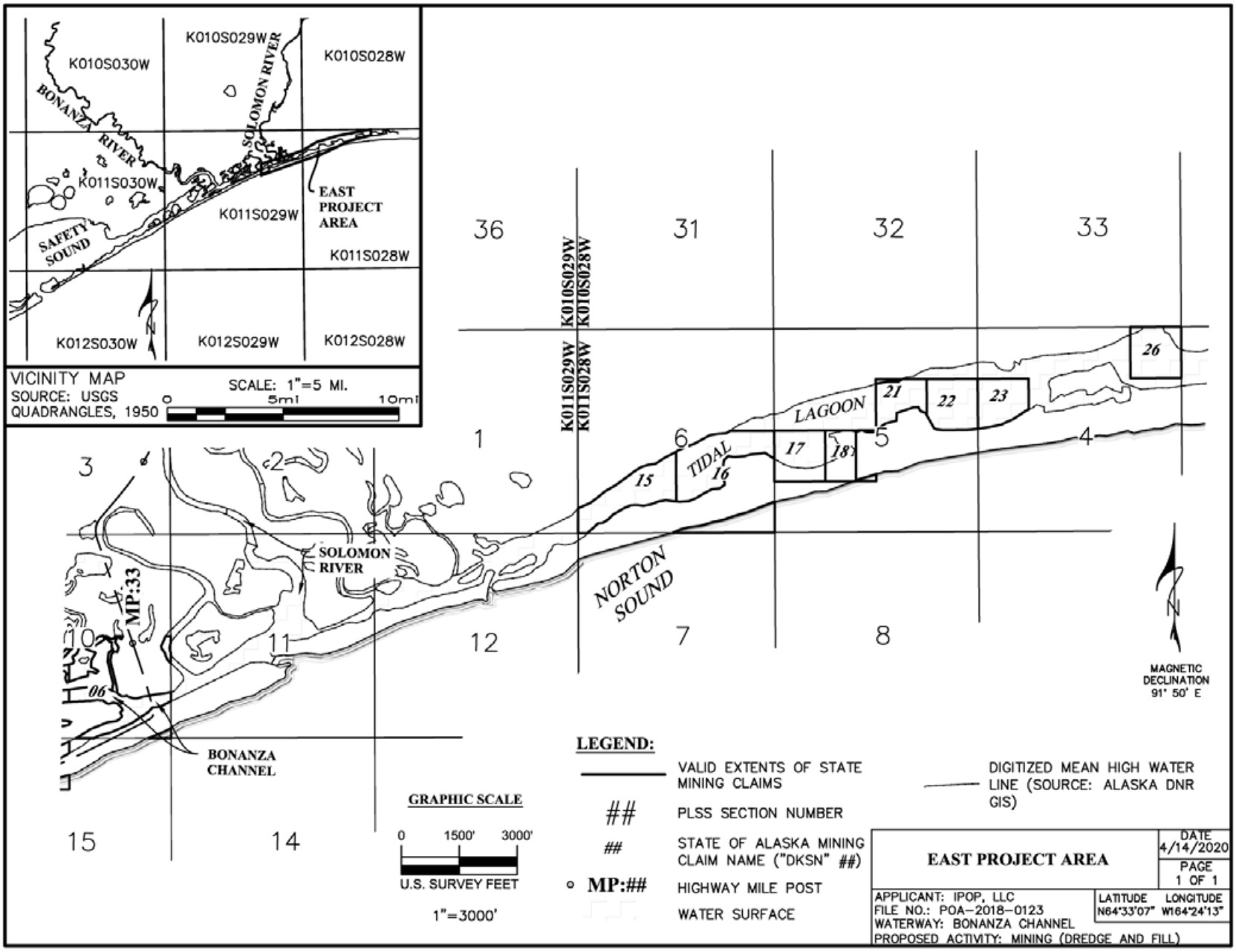


Table 1-1. Geographic location of the Bonanza Channel Placer Project

Item	Description
Bonanza Project Centroid	N64°32'28.22"; W164°27'01.03"
USGS Quadrangles	Solomon C-6, C-6 SE
Elevation	
Minimum	8 ft bmhw (various locations)
Maximum	112 ft amhw (DKSN 31)
Distance From:	
Nome	24 miles east
Solomon	1 mile south
Safety Sound	4,500 ft
Norton Sound	700-1,500 ft

amhw= above mean high water

bmhw = below mean high water

USGS = U.S. Geological Survey

DKSN = State of Alaska Mining Claim Number

The Bonanza Channel is a shallow estuary fed by two rivers, the Bonanza River and the Solomon River. Though the Bonanza Channel deepens where the Bonanza River drains into the estuary the lowest elevation observed on Applicant's claims are 8 feet below mean high water. The majority of the water portion of the mining claims is 2-4 feet below mean high water.

The flow rates in the estuary vary with respect to location and proximity to the source rivers that feed it. The majority of the Bonanza River drains to the NE of where it enters the Bonanza Channel; a small percentage of the Bonanza River volume drains slowly SW towards Safety Sound. The Solomon River drains into Norton Sound close to where it enters the Bonanza Channel and has little effect on the flow within the estuary. Both the flow of the Solomon and the majority of the flow from the Bonanza River enter Norton Sound (off the claims) at N64°32'57.96", W164°25'00.34". The waters of Safety Sound enter Norton Sound off of the claims at N64°28'20.70", W164°44'44.98".

The coastal region immediately north and bounding the proposed mining areas are rolling tundra, grasses, shrubs, persistent emergents, emergent mosses and other perennial plants consistent with large freshwater emergent wetlands.

The general project area is 28 miles east of Nome and is accessed from the Nome-Council Highway at Milepost 28 (usually open June through October), snowmobile (during winter and spring), helicopter, bush plane, or by boat from Norton Sound.

The surrounding area is very sparsely populated (10 people in 2010 census) consisting of the small, mostly seasonal community of Solomon which is 10 miles away at Milepost 38 and Council which is 44 miles away at Milepost 72.

1.2 Mining History

Like Nome, this area of the Seward Peninsula has considerable mineral endowment, consisting primarily of gold with some silver and other metals. The Seward Peninsula has been mined periodically for gold since gold was discovered in Council in 1897 and Anvil Creek in 1898, marking the beginning of the

Nome Gold Rush (Werdon et. al., 2005, Collier et. al, 1908, Brooks et. al, 1901). Gold mining on the peninsula has been from both from placer deposits in rivers and streams such as the Solomon River and Anvil Creek, and from beach placer deposits like those around the City of Nome and Bluff, and from lode deposits (like Big Hurrah and Rock Creek Mine).

The two primary mining districts on the Seward Peninsula are the Nome District where over 3.6 million ounces of gold production is recorded (mostly from placer deposits) and the Council-Solomon "District" (formerly Solomon and Bluff with Council being its own District) where over 1 million ounces of gold production has been reported (mostly from placer deposits) (Werdon et al., 2005). The largest production from a lode deposit was reported to be ~27,000 ounces mined from the Big Hurrah Mine ((Reed & Meinert, 1986) located within the Council-Solomon District, 5.6 miles from the nearest point on the IPOP Bonanza Channel Project. Due to extensive alluvial and colluvial cover and generally poor bedrock exposures in the surrounding hills, significant potential remains for discovery of similar lode deposits and sources for the rich Solomon and Ophir placers (Pink, 2011).

The Solomon River placers are described in ardf.wr.usgs.gov (specifically SO015 and others). Placer gold was mined here from 1903 (Collier, et. al, 1908) through 1963. The lower Solomon River area was mined by bucket-line dredges to within 2-1/2 miles upstream of the general project area and produced an estimated 125,000 ounces, where it is said that they stopped because they could no longer reach the bedrock with the machinery as they approached the sea and because they had reached the limitations of water delivery systems and could no longer supply the hydraulic forces necessary to separate gold from the river sands and gravels. As a result, no large-scale production mining ever occurred in the general project area.

The most notable placer deposit within the Council-Solomon district is Bluff, located approximately 35 miles further to the east along the beach from the general project area. This particular beach placer is said to be the richest placer gold deposit on the Seward Peninsula, (and possibly the world) per yard of material (Collier et. al., 1908). Bluff is adjacent to lode gold deposits where production was negligible, but the value of the gold in the beach placer was reported to be far richer than the richest beaches famously mined along the beaches of Nome (Brooks et. al, 1901).

1.3 Project Description

The BCPP is planned as a simple, low impact mining operation that will dredge for placer gold within the sediments of the Bonanza Channel. The proposed operation will: 1) provide a substantial multi-million dollar economic benefit to the community of Nome and Alaska, 2) have no significant environmental impact, 3) pose no substantive risk to fish, marine mammals, or wildlife, 4) co-exist peacefully with subsistence activities in the area 5) and most importantly leave no visible footprint.

The project consists of a 4 trailer mobile camp (to house workers) that will be parked on lands owned by the State of Alaska adjacent to the Nome-Council Highway.

There will be two small tender boats 25 feet or less, a cutterhead dredge (designed to operate in shallow estuarine waters) and a processing barge (designed to capture very fine gold particles). The project will be a seasonal summer/fall mining operation within the waters of the Bonanza Channel and the Tidal Lagoon with annual winter-time core drilling (exploration) from the ice once the channel and lagoon have frozen solid.

The project will be serviced by road from Nome, Alaska.

1.4 Project Summary Information

- Annual mining activity window June 1 – November 1
- Annual winter drilling activity window January 1 – May 31
- Project operating life of over 10 years.
- A total of over 9,000,000 cubic yards of material to be mined over the life of the project.
- Mining/processing rate of up to 900,000 cubic yards of material per year.
- Mining depth of 31 feet.
- Reclamation concurrent with mining, with temporary dredge material disposal sites reclaimed by the end of the project.
- No introduction of chemicals or toxic metals.
- Mining/dredging site accessed by a 2,150 - 4,500ft-long access channel that will be maintained and/or re-established annually.
- A one-acre camp site located down a 330ft-long access road, north of the Nome-Council Highway.
- 20-man, self-contained, temporary mobile camp powered by two 55 kilowatt (kW) generators.
- On-site temporary fuel storage consisting of a 3,124-gallon double wall fuel tanks for diesel and a single 792-gallon double walled gasoline tank.
- Double walled 1,240-gallon fuel transport/refueling tank mounted on one of the push boats.
- Project dredge operating schedule of two 12-hour shifts per day for an average of 20 weeks per year during a seasonal mining activity window June 1- November 1.
- Occasional seasonal winter delineation drilling schedule for 30 continuous days during the drilling activity window January 1 – May 31 per year for the purpose of directing annual mining with the aim of minimizing the environmental impact.
- Employment of 20 to 40 personnel for operations and seasonal start up, respectively.

1.5 Purpose and Need

The permit applicant's stated purpose for the BCPP (as required by the USACE to assess alternatives for the Clean Water Act 404(b)(1) evaluation) is: *To economically produce gold from IPOP's mining claims on the Bonanza Channel and Tidal Lagoon using proven technologies that are specifically designed for shallow water estuary dredging and ultra-fine gold recovery.*

The need for the BCPP is three-fold: *1) To provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, 2) to provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments, and 3) to develop and operate a gold mining project in Alaska in order to meet current and future demand for the metal.*

1.5.1 Socio-Economic Need

There are three major industries currently serving Nome, Alaska: Mining, commercial fishing, and tourism. Throughout the history of Nome, mining has continued to have the most impact on the Nome economy. Nome was founded on the economic importance of gold in the region, producing millions of ounces of gold during its 122 years of exploration and mining history. Although gold continues to be mined today, the shut-down of the Rock Creek Mine and other local smaller-scale operations have reduced

the demand for transportation, housing, goods and services. As a result, Nome and the surrounding communities have been hit hard economically. As of March, 2019, Nome had a population of 9,869 people, an unemployment rate of 11.9% (far above the average U.S. unemployment rate of 3.7%), and an average cost of living that was 14.9% higher than the U.S. average. IPOP's annual payroll and services during operations will be in excess of $3,000,000 per year.

Given the incredible resource-rich value of the Bonanza Channel sands coupled with the immense volume of potential ore in the general project area, the BCPP is expected to provide at minimum 10 years of positive socio-economic benefits to the city of Nome and the surrounding communities. These benefits will have a multiplier effect with regard to education, health and employment levels in the surrounding communities.

In 2018 alone, applicant has spent $2.87 million in Alaska in support of this project. IPOP projects that when operations are permitted this project will contribute up to $45 million in local taxes and $520 million in payroll and other goods and services over a 10-year period. Additionally, Applicant's shareholders are expected to bring an additional $1,000,000 to Nome businesses and tourism.

1.5.2 Alaska Economy Need

According to the Alaska Journal of Commerce, Alaska's economy is "sluggish" after three years of recession. With oil giant BP leaving the state, and continued uncertainty over the State budgets in the years ahead, the total effects on Alaska's economy are unclear.

What is clear is that Alaska is in need of more revenue to fill its budgetary shortfalls. Projects like the the BCPP will do just that, providing a projected royalty as high as $7 million to the state annually (using the three-year average gold price).

1.5.3 Need to Meet Current and Future Demand for Gold

Gold is important for providing economic backing for most economies and is considered a safety factor for global economic stability. Gold is also critical to jewelry, medicine (treatments for cancer and arthritis), electronics (smart phones, computers, etc.), aerospace engineering, nanotechnology, environmental control and protection. Without gold the satellites we rely upon for communication, defense, environment, etc. would fail. Without gold everything from ATMs to modern vehicles and airplanes would be inoperable. Virtually everything in our modern world is dependent upon gold.

The BCPP is forecasted to produce millions of ounces of gold and contribute to the current and future demand for this metal.

2.0 AFFECTED ENVIRONMENT

Because the operation is within an estuarine environment regarded by regulators as sensitive, the operation has been designed for avoidance and minimization of the environmental impacts to water bodies, wetlands, wildlife, special aquatic sites, areas of historical or cultural significance, and addressing the subsistence and other stakeholder concerns for operations within the Bonanza Channel and the Tidal Lagoon.

As designed, the project will meet or exceed local, state, and federal regulatory requirements. The following are some aspects of the project that support IPOP's position that there will be minimal environmental impact caused by the BCPP:

- The Project plan for the first five years is to mine the top 30 feet of the Bonanza Channel and Tidal Lagoon estuaries. This significantly reduces the footprint of the overall project as compared to mining at a shallower depth. Applicant reserves the right to seek approval to mine to greater depths if warranted by gold content, dredge capability and recovery.
- The mining operation within the estuary will be restricted to an area of 15 acres or less at any one time (or less than 0.1% of the 15,000 acres of habitat classified as the Bonanza Channel Estuarine System).
- The plan is to mine with concurrent reclamation, re-establishing the estuary as close to the original pre-mining extent and depth as possible, with the exception of the access channel through the center of the mining channel what will be left at 10 ft. BMHW to provide ecological enhancement to the waterway.
- The project will not use any chemicals.
- The operation will not create treatable waste water.
- The operation will operate entirely within its own containment area, thereby minimizing or eliminating turbidity effects of the remainder of the water body.
- The operation will incorporate the use of real-time monitoring devices to measure, record and notify the operator of excessive turbidity levels.
- The use of a turbidity curtain for containment will also isolate the project from fish.
- The project will be operated within strict accordance to the rules and best management practices as set forth in the project's standard operating procedures (SOP) that include but are not limited to:
    - Safe fuel handling
    - Additional pre-season site surveys and photographic inspections for eelgrass
    - Continuous wildlife and fish monitoring within the mining area
    - Continuous turbidity, conductivity, current, tidal and weather monitoring within the mining area
    - Strict maintenance and operation of the turbidity curtain containment area perimeter.
    - Strict adherence to speed limits both with trucks and other vehicles on the local roadways and with boats within the waters of the U.S.

- To address the concerns of The City of Nome that of the operation might adversely impact bird watching by tourists IPOP's machinery has been designed to operate at or below 80 decibels (dB).

- The in-water portions of the project will use temporary infrastructure that will be established at the beginning of each mining season and removed at the end of each mining season; provided, however, the support barge will be winterized (removing all fuel and other potential contaminants), and secured for overwinter storage within the operating area.
- All gray water and sewage generated by the operation will be secured on land and removed from the operating area weekly.
- To address concerns of adjacent property owners about potential trespass, the project will be operated within and accessed from lands owned by the State of Alaska only.
- IPOP will acquiesce in use by the public of its boat launch ramp for subsistence hunting and fishing.

In addition to protecting the environment, IPOP intends to manage its operations in a way that will be beneficial to the environment and ecology of the area by:

- Monitoring operations and collecting environmental and biological data that can be used for planning and management of the general area by State and federal agencies.
- Creation of new shallow areas that may occasionally be exposed as sand or mudflats, that may be colonized by beneficial microorganisms and could potentially serve as habitat for water birds, shorebirds and seabirds.
- Potentially increase the channel depth through dredging to improve the area for fish passage and establishing and environment where wild eelgrass beds may take root (IPOP has conducted extensive drone-based investigations of the operating area and has established that the nearest eelgrass bed is in Safety Sound, more than three miles away from the nearest claim). This 4K resolution drone footage has been previously provided to regulators along with a narrative statement concerning the absence of eelgrass, and will continue to be available for review. In particular, there is no eelgrass presence in DKSN 29-39 or in the proposed access route to those claims.

2.1 Other Resources

The Bonanza Channel is an area considered rich in mineral and other resources including fish and wildlife that residents of the nearby communities may use for both subsistence and tourism. The project is designed to protect these wildlife resources to the fullest extent possible.

2.2 Watershed and Wetlands

The Bonanza Channel and the Tidal Lagoon are the terminus of a vast watershed consisting of the Bonanza and Solomon River drainage systems. The Bonanza Channel comprises approximately 15,000 acres of habitat generally classified as E1UBL,[1] the components of which are:

- E: The Estuarine System consists of deep-water tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the

[1] A shallower classification code E2EM1P is applied to some areas of the Bonanza Channel, which is supposed to relate to areas "characterized by erect, rooted herbaceous hydrophytes" of a persistent nature (the "EM1" portion of the National Wetlands Inventory Description), but the harsh conditionsin the Channel , particularly ice scouring, prevent the formation of persistent vegetation.

open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines, there is appreciable dilution of sea water.

- 1: Subsystem Subtidal, substrate in these habitats is continuously covered with tidal water (i.e., located below extreme low water).
- UB: Class Unconsolidated Bottom includes all wetlands and deep-water habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.
- L: Water Regime Subtidal involves tidal salt water which continuously covers the substrate.

Contemporaneous restoration activities will ensure that IPOP's mining operations will cause no long-term adverse effects to the operating area's wetlands.

2.3 Fish and Wildlife

Fish. Fish species of the Bonanza and Solomon Rivers that feed the Bonanza Channel include: anadromous species of Dolly Varden, chum, Chinook, pink, coho salmon, and resident fresh water species of Arctic grayling, burbot, whitefish and northern Pike.

Saffron cod are known to present in two locations during the winter months when the fresh water starts to freeze and the salinity increases creating feeding areas for this fish. One location they are found is in Safety Sound approximately 1 mile from the nearest claim, and the other is near the Solomon Bridge near claim DSKN06.

There will be no dredging in, or impacts on, anadromous streams by the proposed mining operation. There are no anadromous fish spawning beds in the Bonanza Channel. The Bonanza River is a marginally productive anadromous system with small runs of salmon. Alaska's Department of Fish & Game acknowledges a dearth of scientific studies or data concerning the effects of estuarine or marine turbidity on salmonid species and whether or not turbidity would interfere with the migration of anadromous fish (Green, 2019). While there is no evidence that turbidity events in the estuary would form a barrier to the migration of anadromous fish in and out of the River or otherwise adversely affect them, and the scope of operations will leave large undisturbed corridors adequate for passage of salmon and resident fish to bypass the operation, undisturbed.

Exhibit 3 hereto is a draft Essential Fish Habitat Assessment for a portion of the project claims that include two claims within the initial project area (IPA) finding that the proposed mining activities in this plan of operations would not adversely affect essential fish habitat (EFH).

IPOP notes that even if turbidity did periodically impair migration, suction dredging enhances the food supply and water oxygenation. Suction dredging in other analogous habitats has been shown to attract fish and birds to feed on benthic organisms present in the discharge.

Dredge operations are only feasible when the water is open and ice-free and, therefore, will not occur concurrent to the presence of saffron cod which are present only when the area is ice-bound.

Birds. Littoral habitats of the Bonanza Channel area are used by tens of thousands of birds each year. The Audubon organization named this area one of the "Important Bird Areas" of North America due to the huge numbers of diverse species of birds that migrate north at different times to feed, breed and nest

from spring to fall. Early spring marks the time that large numbers of loons, waterfowl, shorebirds and gulls return to this area to feed in the mudflats, breed and begin nesting. Notable bird species that use this area include:

- Brant and common eiders that can include king, and rarely observed spectacled and Steller's Eiders. Eiders more commonly use the marine waters in the spring.
- Tundra Swan.
- Canada Goose, snow goose.
- Sandhill Crane.
- Various ducks (Northern pintail, greater scaup, American wigeon, long-tailed duck, red-breasted mergansers, green-winged teal, gadwell, Eurasian wigeon, ring-necked, and tufted ducks.
- All 5 species of loons (red-throated, Arctic, Pacific, common and yellow-billed).
- Shore birds include western sandpiper, rock sandpiper, red-necked phalarope, red phalarope, least sandpiper, semipalmated sandpipers, red-necked stint, dunlin, long-billed dowitcher, Black turnstone, lesser sand-plover, and ruff sandpipers.
- Arctic and Aleutian tern colonies (documented colonies in Safety Lagoon (Aububon.org, 2013)).
- At least 6 species of gulls.
- Lapland longspur and Savannah sparrow.
- Birds of prey (Peregrine falcons, long-tail jaegers and parasitic jaegers) feed on the songbirds, shorebirds and the eggs all summer.

While most of the migratory birds pass through this area on their spring migration, some stay for the summer. Swans are common in Bonanza Channel in the spring and fall, breeding swans move to upland ponds to nest and raise their young.

Because IPOP's dredging operation is quiet, it is not expected to disrupt or displace normal bird activities such as breeding, nesting or rearing in the general area. None of the mining or support operations will be on the grassy shores or the upland areas and ponds. IPOP's operations will not affect nesting birds. IPOP will not be dredging mudflats, and therefore will not adversely impact sand pipers or other shorebirds, seabirds or other waterfowl.

IPOP anticipates that in the dredge disposal sites, rapid colonization of micro-organisms typically found in mudflat ecosystems (and also an important food source for water birds, seabirds and shorebirds), will occur If so, this could potentially provide new feeding habitat for Sandpiper and other birds feeding in this area, and likewise provide new hunting grounds for birds of prey

Other Wildlife. The general project area contains no notable population of moose or musk ox, but small rodents, arctic and red fox and arctic ground squirrels are sometimes seen in the general project area. Winter wildlife includes various species of seals in the open ocean and occasionally they may follow tomcod into the deeper portions of the Bonanza River or in Safety Sound.

Summer mining will not negatively affect any of these species, and because mining will not take place during the winter months, the operation will not affect seals or polar bears

Exhibit 1 is an environmental report previously prepared by Michael Travis of Travis/Peterson Environmental Consulting in connection with the permitting of the activities within DKSN 29-39, not

including attachments. The data upon which he relied is generally applicable to the entire range of IPOP's claims and confirms that other species of interest are rare or non-existent in the area, making potential impacts on these species of regulatory significance. Listed polar bears (Ursus maritimus) are not present in the summer operational months, and sightings of Steller's eider (Polysticta stelleri), and spectacled eider (Somateria fischeri) are rare.

2.4 Eelgrass

IPOP has conducted an extensive photographic investigation concerning the presence of eelgrass beds, focusing on DKSN 29-39. Drone footage, coupled with boat-based ground truth investigations, has confirmed that the nearest eelgrass bed is in Safety Sound, more than three miles away from the nearest claim. Details of IPOP's eelgrass study can be found in Exhibit 2.

2.5 Resource Interrelationships

The resources of the general area include fish, waterfowl, other wildlife and eelgrass. Estuaries provide the ecosystem for all of these resources as well as providing nursery areas and protection from storm events.

Native Alaska representatives state that they have historically relied upon the Bonanza Channel area for subsistence hunting and gathering. The Nome-Council Road also provides access for local residents who occasionally use this area for recreational hunting, fishing and subsistence food gathering.

The Bonanza Channel area also supports a bird watching industry. Many bird watchers visit the area in May and June to view some of the over 200 migratory species of birds that pass through this area. This area is considered by the State of Alaska Department of Fish and Game as one of the top ten bird viewing spots in Alaska on the basis of accessibility and abundance of a variety of birds.

IPOP's activities will have a negligible impact to the wildlife resources of this area because:

- Mining and subsistence can coexist in the Bonanza Channel.
- IPOP's operational footprint is small.
- The sound level for the machinery will be quieter than a typical over road truck driving down the Nome-Council Highway.
- The dredge is a slow-moving piece of equipment that will be standing still most of the time.
- All boats will observe slow speed limits and not cause wakes that might disturb fish or birds.
- Best management practices will be employed to protect the estuary.

2.6 Traditional Ecological Knowledge

Traditional knowledge includes contemporaneous observations by local residents and their recollections of climate conditions, animal populations, and changes brought about by development of the region, including placer mining, roads and commercial fishing. IPOP is committed to engaging and collaborating with the local residents and other stakeholders to create a positive impact for all from dredging in the Bonanza Channel. In particular, IPOP acknowledges that Kawerak, Inc., a regional non-profit, tribal consortium of the Bering Strait Region representing 19 tribes, is the primary advocate for protecting the Bonanza Channel for subsistence by members of the local tribes.

2.7 Climate Change

Rising sea levels in the Bonanza Channel area as a result of climate change may be expected to affect flooding of the uplands and mudflats. The increased frequency and intensity of storms from climate change could change the freshwater input in the headwaters of the watershed. Increased flooding in the estuary and could exacerbate sedimentation or, in some cases, remove sediments and nutrients and cause turbidity. These effects of global warming could alter the geomorphology of the estuary (such as removal or addition of mudflats, erosion of uplands and barrier islands) altering the habitat, biological processes and the estuarine ecosystem, inducing complex outcomes for the biota.

In estuaries, storm pulsing provides not only benefits to the biocomplexity of the ecosystem, but they also can be detrimental. Storms can reduce wetlands locally through mortality, alter wetland productivity for long periods beyond the extent of a storm event, alter salinity in the water and soils, and cause ecosystem state changes (Day, et al., 2008). Special aquatic sites that fisheries rely upon may be lost over time with intertidal wetlands loss as a result of these storms due to climate change.

In the case of the Bonanza Channel, current storm events have allegedly become less predictable and more intense with time and occur on a more random frequency than in the past. Storms have periodically washed out the Nome-Council Highway in several places and flooded the highway near the Solomon Bridge, submerging uplands to 6.8 feet above mean high water (AMHW) when driven by southwest winds. Conversely, when storms blow in from the northeast, the winds can blow nearly all of the water out of the Bonanza Channel, creating vast sandbars and mudflats.

The negative effects of global warming are well documented for song birds in the U.S. and for waterfowl. Habitat for shorebirds, seabirds, and water birds is slowly diminishing world-wide as a direct result of global warming and sea level rise.

Local residents contend that recently there has been less snow and ice than there has been historically. Salmon productivity has decreased locally as well which might be attributable to global warming. Diminishing sea ice induces seals (that depend on the ice for resting, mating and birthing their offspring) to relocate.

Polar Bears that once were seen in this area have migrated north because of declining sea ice, (necessary for hunting seals) that has reduced if not eliminated their presence in Norton Sound.

The mining activities as proposed will not cause sea levels or rivers to rise, and will not cause storm events or reduction of sea ice. Although emissions from IPOP's operations will create a small carbon footprint, IPOP will not engage in blasting, significant haulage equipment or rock crushing, grinding and processing circuits that creates fugitive dust pollution.

2.8 Incomplete and Unavailable Information

IPOP has specific protocols and systems in place that will disseminate information as mining and reclamation happens and anticipates that it may have to alter its plans annually to address any unsupported assumptions contained in this application. Relevant data will continue to be collected during the course of mining. This data will be incorporated into subsequent plans and application amendments for the benefit of State and Federal environmental agencies. Incomplete or unavailable information at the time of this application are:

- Tides. Applicant has relied on State and Federal short or long-term tidal influence data.
- Water Level History. Data on depth of water in the general project area as it relates to weather is non-existent.
- Flow/Current. The water current the area of the mining is highly variable with respect to depth and location across the channel. Though Applicant has measured flow in specific locations, they are site-specific measurements and may not be 100% representative of the entire width and depth of the Bonanza Channel.
- Water Volumes. Water volumes (acre feet) through the Bonanza Channel per day or month are not known.
- Conductivity. Data with respect to salinity layering in the channel, or salinity changes due to storm events or tides does not exist within Bonanza Channel.
- Background Turbidity. The turbidity of the estuary is affected by winds and storms, seasonal runoff and tides and as such background turbidity levels are highly variable. Although some turbidity measurements have been taken by Applicant, no long-term real-time turbidity measurements for the Bonanza Channel exist.
- Mining/Dredging Turbidity. A thorough turbidity plume test has not been completed. The use of the turbidity curtain as a *Best Management Plan* (BMP) is one reason why this test is not needed.
- Weather Patterns. Storm frequency or intensity, wind, precipitation, ambient temperature for the area is unknown and undocumented.
- Bottom Depth Profile. Available depth management tools are incapable of accurately measuring depths of less than 6ft. IPOP surveyed the Bonanza Channel with sonar, finding the channel was too shallow (<6ft) for this method to work. IPOP also took physical depth measurements by boat and from core drilling and supplemented this data with 4K video footage (that accurately identifies the very shallow areas where sonar will not work). Thus the topography used in this application is reasonably, but not precisely approximate, but not accurate.
- Bulking Factor. Many factors affect material bulking, and settling velocities, and consolidation of material, and settling/reduction of pore space with removal of water. Lab-based tests cannot realistically calculate the ultimate bulking factor of the material of the dredged material from Bonanza Channel. Bulking factors vary depending upon material size fractions and percentages thereof (*i.e.*, clay, silt, sand), salinity of the water, depth of burial, pore space, density, machinery being used to dredge out the material, and how the material is deposited (on land, submerged, submerged with a current removing the clay in a turbidity plume), etc.. The bulking factor assumptions in the application are based upon the best references and engineering experience available.
- Eelgrass. IPOP conducted a drone-supported photographic eelgrass survey and coupled that with ground-truth surveys with an underwater camera towed behind a boat to prove that no eelgrass is growing within the claims DKSN 29-39. Though Applicant contends that there is no eelgrass in the years 1-5 mining area, the data may be incomplete locally. As part of the project's standard operating protocols, the areas planned for seasonal mining will be surveyed and sampled on a 50 ft grid before mining, and any eelgrass beds discovered will be avoided by Applicant.
- Fish Studies. Studies of fish have never been conducted in the general project area; therefore, the presence or absence of salmon, smolt or other fish species is unknown. Dredging operations

during the first five years will not take place on any known fish migration pathways; therefore, the presence of migratory fish in the project is expected to be minimal.

- Subsistence/Recreational Data. There is no official record of use of the area by subsistence or recreational users of the general project area.
- Tourists. There is no official record of the number of tourists that visit the general project area.
- Endangered or Threatened Species. There is no official record confirming the presence of endangered or threatened species in the general project area. Sightings of listed bird, seal and polar bear species are extremely rare. IPOP is committed to conducting around-the-clock wildlife monitoring for these or other species use the general project area.

3.0 LAND OWNERSHIP, MANAGEMENT AND USE

This section discusses the status of the lands that includes and surrounds the entire project area. A general land ownership map is included as Figure 3-1. A more detailed land ownership map is included as Exhibit 2.

3.1 Land Ownership

For the purposes of this Narrative, the term "general project area" includes the 32 State of Alaska mining claims owned by Applicant and identified herein, exclusive of all valid existing rights; section 6 of Township 11 South, Range 28 West, the surface of which is owned by Solomon Native Village Corporation and the subsurface of which is owned by Bering Straits Native Corporation; US Surveys 10249 and 10251, the Erwin Tucker Native allotment; all adjacent public lands, rights-of-way and waters owned by the State of Alaska within Township 11 South, Ranges 28, 29 and 30 West; and all adjacent public lands under the jurisdiction of the U.S. Fish and Wildlife Service.

The land ownership in the general project area is divided among three categories of entities: The State of Alaska, Bering Straits and Solomon Village Native Corporations and the owners of Alaska Natives allotments as is shown on the map in Plate 1.

The subject 32 State of Alaska Mining claims are all located within the Kateel River Meridian in the State of Alaska. These claims are all within Township 11 South.

The following claims are within Range 28 West:

Claim Name	ADL Number	Date Located	Rec. Doc. No.	Section	¼ or ¼ ¼ section
DKSN 15	ADL726979	12/28/2017	2018-000030-0	6	SW
DKSN 16	ADL726980	12/28/2017	2018-000031-0	6	SE
DKSN 17	ADL724968	8/3/2017	2017-000079-0	5	SW
DKSN 18	ADL724969	8/3/2017	2017-000069-0	5	NESW
DKSN 21	ADL724970	8/6/2017	2017-000070-0	5	SWNE
DKSN 22	ADL 724971	8/6/2017	2017-000794-0	5	SENE
DKSN 23	ADL 724972	8/3/2017	2017-000795-0	4	SWNW
DKSN 26	ADL 724973	8/6/2017	2017-000796-0	4	NENE

The following claims are within Range 29 West:

Claim Name	ADL Number	Date Located	Rec. Doc. No.	Section	¼ or ¼ ¼ section
DKSN 01	ADL 724966	8/3/2017	2017-000789-0	16	NW

DKSN 02	ADL 724967	8/3/2017	2017-000790-0	16	NE
DKSN 03	ADL 726975	12/28/2017	2018-000026-0	15	NW
DKSN 04	ADL 726976	12/28/2017	2018-000027-0	15	NENW
DKSN 05	ADL 726977	12/28/2017	2018-000028-0	10	SW
DKSN 06	ADL 726978	12/28/2017	2018-000029-0	10	SE
DKSN 35	ADL 726989	12/29/2017	2018-000040-0	19	SW
DKSN 36	ADL 726990	12/29/2017	2018-000041-0	19	NW
DKSN 37	ADL 726991	12/29/2017	2018-000042-0	19	NE
DKSN 38	ADL 726992	12/29/2017	2018-000043-0	20	NW
DKSN 39	ADL 726993	12/29/2017	2018-000044-0	21	SE
DKSN 40	ADL 726994	12/29/2017	2018-000045-0	17	SW
DKSN 41	ADL 726995	12/29/2017	2018-000046-0	17	SE
DKSN 42	ADL 726996	12/29/2017	2018-000047-0	17	NW
DKSN 43	ADL 726997	12/29/2017	2018-000048-0	17	SWNE
DKSN 44	ADL 726998	12/29/2017	2018-000049-0	17	SENE

The following claims are within Range 30 West:

Claim Name	**ADL Number**	**Date Located**	**Rec. Doc. No.**	**Section**	**¼ or ¼ ¼ section**
DKSN 27	ADL 726981	12/29/2017	2018-000032-0	26	NWSE
DKSN 28	ADL 726982	12/30/2017	2018-000033-0	26	NESE
DKSN 29	ADL 726983	12/29/2017	2018-000034-0	26	NE
DKSN 30	ADL 726984	12/29/2017	2018-000035-0	25	NW
DKSN 31	ADL 726985	12/29/2017	2018-000036-0	24	SW
DKSN 32	ADL 726986	12/29/2017	2018-000037-0	24	SE
DKSN 33	ADL 726987	12/29/2017	2018-000038-0	24	SWNE

DKSN 34	ADL 726988	12/29/2017	2018-000039-0	24	SENE

Each claim was located using state-of the art global positioning technology and with scrupulous attention to private property boundaries and lands controlled by the U.S. Fish & Wildlife Service. None of the claims overlay or subsume any private property or Alaska Native Allotments. The claims are all located on Bonanza Channel on the Seward Peninsula and are isolated from Norton Sound by a barrier island. The claims are all on land that is and at all relevant times was open to mineral entry under the Alaska Land Act, A.S. 38.05.190 *et seq.*

3.2 Legal Access

The Nome-Council Highway transects the Bonanza Channel barrier island. The following claims are adjacent to and contiguous with the Nome-Council Highway right- of-way:

1. DKSN 02, ADL 724967;
2. DKSN 35, ADL 726989;
3. DKSN 38, ADL 726992; and
4. DKSN 41, ADL 726995.

The contiguous claims can be accessed directly from the Nome-Council Highway as well as by State rights-of-way at the Safety Sound bridge or the Solomon River bridge. The claims can be accessed by wheeled or tracked vehicles and snowmobiles. During periods of open water, the claims can be accessed by small vessels and barges.

3.3 Land Management

3.3.1 Bering Straits and Solomon Native Corporations

Title to the surface of Kateel River Meridian Township 11 South, Range 28 West, section 6, was patented to Solomon Native Corporation pursuant the Alaska Native Claims Settlement Act as Patent Number 50-2004-0449 on September 24, 2004. A copy of this patent was recorded in the records of the District Recorder for the Cape Nome Recording District on July 3, 2006, as Document No. 2006-001001-0.

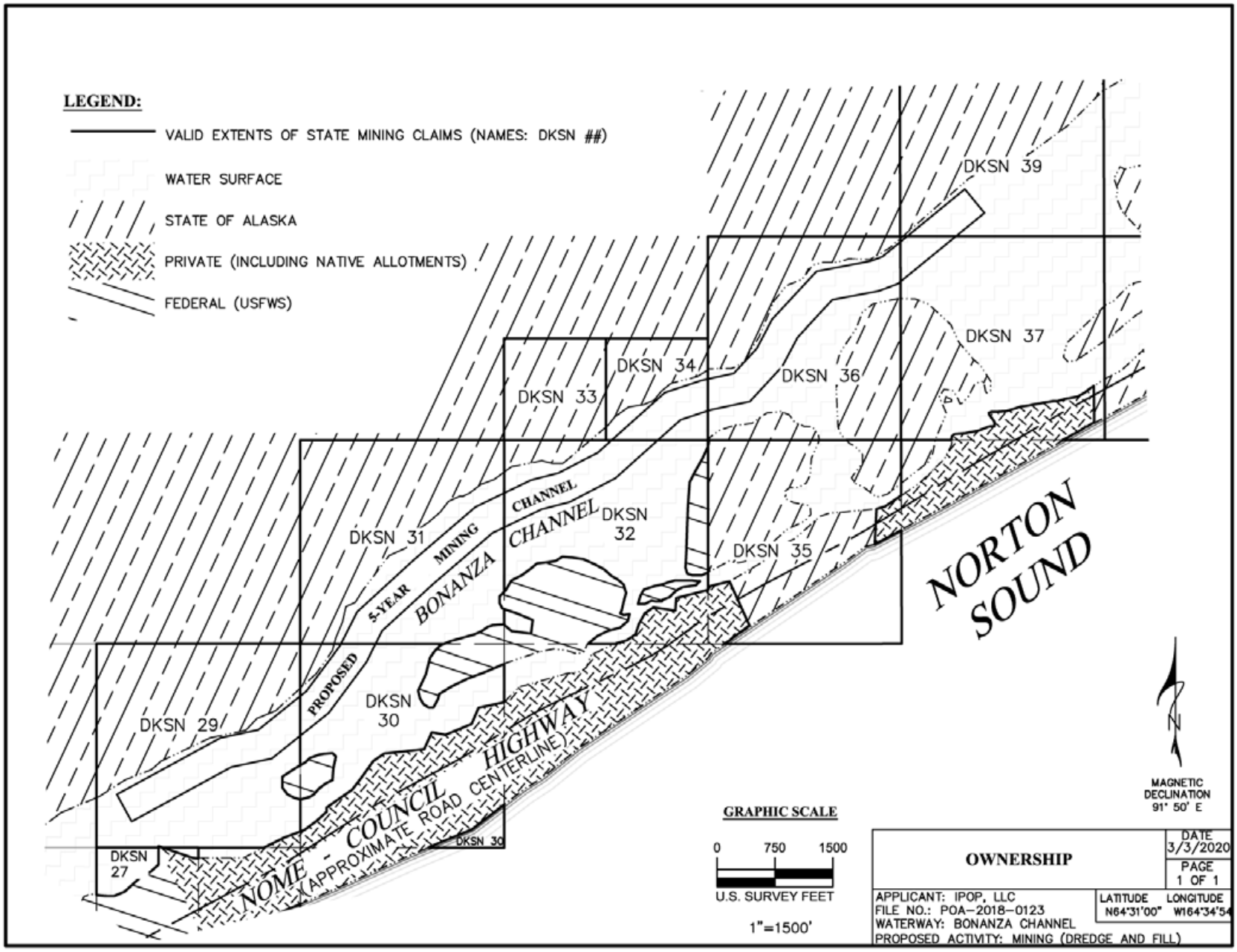
Title to the subsurface estate of Kateel River Meridian Township 11 South, Range 28 West, section 6, was patented to Bering Straits Native Corporation pursuant the Alaska Native Claims Settlement Act as Patent Number 50-2004-0450 on September 24, 2004. A copy of this patent was recorded in the records of the District Recorder for the Cape Nome Recording District on February 14, 2002, as Document No. 2005-000292-0.

DKSN 15 and DKSN 16 (ADL 726979 and 726980) are located within this section, below the high-water line, on tidelands owned by the State of Alaska pursuant to the Alaska Statehood Act. No trespass was committed when locating these claims, and no monuments were located on lands owned by Solomon Native Village Corporation or Bering Straits Native Corporation.

3.3.2 State of Alaska

Title to Kateel River Meridian Township 11 South, Range 28 West, sections 4 and 5 and was patented to the State of Alaska pursuant to the Alaska Statehood Act as Patent Number 50-2007-0278 on March 5,

Figure 3-1. General land ownership surrounding the IPA (graphic scale accurate, verbal scale refers to printed map)



2007. A copy of this patent was recorded in the records of the District Recorder for the Cape Nome Recording District on July 3, 2006, as Document No. 2007-000914.

Title to Kateel River Meridian Township 11 South, Range 29 West, was patented to the State of Alaska pursuant to the Alaska Statehood Act as Patent Number 50-2008-0477 on September 9, 2008, a copy of which patent is recorded in the records of the District Recorder for the Cape Nome Recording District on September 15, 2008 as Document No. 2008-001503-0.

Title to Kateel River Meridian Township 11 South, Range 30 West, was patented to the State of Alaska pursuant the Alaska Statehood Act as Patent number 50-98-0397 on June 30, 1998, a copy of which patent is recorded in the records of the District Recorder for the Cape Nome Recording District on July 29, 1998, in Book 350 at pages 220-221, as Document No. 1998-000881-0.

3.3.3 Bureau of Land Management

No lands owned or controlled by the United States Department of the Interior, Bureau of Land Management, are within or adjacent to the general project area.

3.3.4 Fish and Wildlife Service

Lands managed by the Fish and Wildlife Service are adjacent to the general project area. The subject placer mining project does not involve any upland mining and will not encroach on Fish and Wildlife Service Managed lands.

3.3.5 Native Allotments

There are 11 Native Allotments adjacent to the project area:

USS 10249, Lot 2	Heirs of Ester James	1993-000784-0
USS 10249, Lot 3	Myrtle Ann Komakhuk	1991-001666-0
USS 10251, Lot 1	Heirs of Shirley Nickalaskey	2013-000452-0
USS 10251, Lot 2	Heirs of Margaret L. Trigg	1992-000818-0
USS 10251, Lot 3	Heirs of Jerome Trigg, Sr.	2013-000451-0
USS 10251, Lot 4	Heirs of Darlene Barbara Trigg	1993-000423-0
USS 10251, Lot 5	Heirs of Carl Takak	1995-000358-0
USS 10251, Lot 6	Heirs of Minnie Fagerstrom	1991-001248-0
Garfield Subdivision, Lot 1A	Myrtle Ann Komakhuk	2015-000417-0
Garfield Subdivision, Lot 1B	Pete Larson, Jr.	1995-000500-0

Tucker Subdivision, Lots 1 -10	Erwin Tucker	2018-000380-0

None of Applicant's claims encroach on any Alaska Native Allotment.

3.3.6 Local Management

The project area is in the unincorporated borough of Nome Alaska and is managed by the Alaska State legislature. There are no site-specific statutes or regulations that impact the general project area.

3.4 Land Use

3.4.1 Subsistence

There are reports that the project area is used by members of the Nome Community for subsistence fishing, egg gathering, berry picking and migratory waterfowl hunting.

3.4.2 Recreation

The primary recreational activity in the project area is the Iditarod Dogsled Race which takes place each year in March. There are some reports that the general project area is occasionally used for casual recreation.

3.4.3 Tourism

There are anecdotal reports that visitors travel to Nome to observe seasonal migratory waterfowl migrations. The Nome visitor industry reports that such visits generate substantial revenue from such visits. It is anticipated that mining will not impact tourism during bird migrations or during any other timeframe.

4.0 ALTERNATIVES ANALYSIS

Applicant has explored and evaluated all reasonable and practicable alternatives for the proposed project that could potentially fulfill the project purpose and need while minimizing the environmental impacts of the operation. This section describes the alternatives considered and IPOP's proposed alternative.

4.1 Alternatives Consideration

The process for developing the alternatives for consideration by Applicant involved:

- Research as to the availability of placer ground that would meet Applicant's objectives; the project's purpose and need.
- Public outreach including public meetings and consulting with various stakeholders in the community.
- Consultation with the local Tribes and Regional Native Corporations (which is an on-going process that will continue).
- Hiring consultants and advisors to suggest and develop alternatives for consideration for all components of the project.

The team considered alternatives relating to the following aspects of the project:

1) Project location and layout including access and transportation.
2) Mining method and production rate
3) Processing equipment, location and gold recovery
4) Mining layout and dredge material disposal sites
5) Dredge area access
6) Camp impacts, location and power
7) Environmental considerations including air quality, turbidity, fish and wildlife impacts and reclamation
8) Social mitigation related to subsistence, recreational use and tourism

4.2 Alternatives Screening

Alternatives were screened by Applicant on the basis of the following criteria:

- Must meet the project's stated purpose and need.
- Must be reasonable and practicable; meaning that the alternatives must be economical, technologically achievable and logistically reasonable.
- Must be alternatives that would reduce adverse environmental impacts, or would add an environmental benefit.

Exhibit 4 summarizes the alternatives considered for the proposed project, the results of the screening, and the conclusion of each option.

4.3 Detailed Analysis of Applicants Proposed Alternative

Based upon the alternative analysis conducted by Applicant, the BCMP, as proposed, best fits within the screening criteria used by both the USACE and Applicant as described in section 4.2.

Details of the proposed project are discussed in the following sections.

4.4 Project Location

Applicant chose the Bonanza Channel and Tidal Lagoon locations for its proposed project based upon the following:

1) The Seward Peninsula is one of the most productive placer gold districts in the State of Alaska.
2) IPOP focused its search for mining properties that would permit use of efficient state-of-the-art floating cutterhead dredge technology in shallow, calm water.
3) Of the two proximate historic placer mining areas, the Solomon area has seen less placer mining than the Nome Mining area, making the general project area more prospective for the discovery of au un-mined placer deposits.
4) The Bonanza Channel is located down-stream of a highly productive stream placer (lower Solomon River) and a high-grade lode gold source (Big Hurrah).
5) The Bonanza Channel has not seen any reported placer production.
6) The Bonanza Channel may be on the edge of a paleo beach strand line, implying a theoretical trap for placer gold.
7) The ground was selected by the State of Alaska for its mineral potential; as such it was the most economical-open for mineral entry alternative in the Nome District.

No other project location met the project's needs. All alternative locations were either too expensive to purchase or had been mined out. No other locations met Applicant's requirement for shallow calm waters.

Applicant's proposed project is water dependent, thus the chosen location is key to the stated purpose for the BCPP: "*To economically produce gold from IPOP's mining claims on the Bonanza Channel and Tidal Lagoon using proven technologies that are specifically designed for shallow water estuary dredging and ultra-fine gold recovery."*

4.5 Access and Transportation

Access to mining projects has a direct impact on the economics of an operation as does the transportation for freighting of equipment, materials and supplies to service the mining operation, especially in remote Alaska. Nome has a well-established all-weather airport with regularly scheduled air cargo and commercial flights from Anchorage and a deep-water port with seasonal barge service for fuel and equipment. The Bonanza Channel area a prime location for a placer gold operation because it is located immediately adjacent to the Nome-Council Highway obviating the need to pioneer a new road to the general project area.

4.6 Mining Method

Applicant has developed a custom dredge specifically designed to operate in shallow inland waterways, consistent with the experience of Applicant's principals. The mining method and the availability of shallow, prospective lagoon was central to the concept, planning and economics of the envisioned project. The economics of operating within a shallow lagoon required a very efficient dredge with a high production rate. Although there are many kinds of dredges, a cutterhead dredge was the most efficient and practicable style of dredge for the operation for the following reasons:

1) Large gravels and boulders that would not hinder the performance of a cutterhead dredge are rare in this geological setting.
2) The sand/silt sedimentary estuarine column is often thick in this geological setting, and a cutterhead dredge is the most efficient method for dredging such materials.
3) A cutterhead dredge is smaller, and thus able to float on a well-designed pontoon system in very shallow waters, and better than a large trailing suction dredge to navigate a narrow inland waterway.

4.7 Material Processing

Applicant has elected to use the cutterhead dredge recovery system because it provides the most environmentally sound method for placer gold mining. Applicant determined the most reasonable option was to employ an on-site trailing processing barge that uses only gravity for the recovery for gold. The environmental benefits to this alternative are:

1) This method allows processing of the sands and the immediate re-deposition of the sands to the bottom of the estuary from which they were removed.
2) This method uses no chemicals in its gold extraction and is not harmful to the environment.

4.8 Mining Layout

The mining layout for Applicant's proposed project is based on locating the mining area in a single continuous "mining channel" located where Applicant had previously conducted exploratory drilling that indicated the presence of economic gold concentrations. The mining channel is designed to be a single continuous path. This allows the layout to combine all dredge material disposal sites (DMDS) into a single area between the mining area and the north shore of Bonanza Channel. This layout allows dredging to advance systematically through the gold-enriched sands to a prescribed depth, resulting in a predictable plan, with predictable results, thereby minimizing the environmental impact of the mining operation. Applicant's mining layout also creates new shallows in the DMDS for possible shorebird, seabird and water bird habitat.

4.9 Dredge Area Access

Access to the dredging area of Applicant's proposed project (Years 1-5) is through State of Alaska Claim DKSN 35, avoiding all private property. An access channel approximately 3,800ft-long will be dredged and maintained to accommodate the dredge and service vessels. This location is preferred because it was the shortest path to the mining area from State owned land; and because it is the option with the least environmental impact. The DMDS are contained between the uplands

and the access channel, providing an environmental benefit of added shallows and possibly mudflats during low water. The dredge access channel will not impede, but rather improve navigability through this area of Bonanza Channel.

4.10 Camp Considerations and Power

Applicant will place a small man camp on State Claim DKSN 35, immediately off of the Nome-Council Highway. The camp will be self-contained as described in Section 5.2. This camp option is the preferred alternative because of cost and liability reasons. The camp will house workers thereby eliminating the need for crew vehicles to travel the gravel highway twice daily. Applicant considers this less impactful to birds and other wildlife, and reduces the overall carbon footprint of the operation.

4.11 Environmental Impacts and Benefits

Applicant believes that its operation will have no significant adverse environmental impact on the Bonanza Channel or the Tidal Lagoon. The negligible water current and tidal exchanges will allow the BMPs proposed for the project (specifically a bottom-mounted turbidity curtain) to protect the inland waters from the negative effects of turbidity. This, coupled with the lack of salmon habitat in this shallow lagoon makes this an ideal place to mine for placer gold.

Possible benefits to the project include:

1) The deposition of dredged sediment into the near-shore shallows of the estuary in DMDS will potentially provide potential habitat for shorebirds, seabirds and water birds.
2) The project will leave the main part of the channel deeper, providing a deeper-water environment for the support productive eelgrass beds.
3) Applicant will routinely collect a wide array of environmental data during the mining and will provide the regulatory agencies with the information to improve future management of the inland waters of Alaska.

4.11.1 Visual Impacts

The project is designed to limit both the long-term and short-term visual impacts.

1) The camp is 100% modular and is constructed of quality materials that will not blow away in a storm, and will be properly maintained during the life of the project.
2) The dredge disposal sites are designed to at or BMLLW and to not look like typical dredge spoil piles.
3) The access channel and the mining area will be below water, and pose no visual impact.
4) The mining operation will consist of a minimum amount of small equipment surrounded by a floating barrier and will occupy a small footprint.

4.11.2 Air Quality

The operation uses highly efficient Tier III engines, with state-of-the-art emission controls. The operation will have a smaller carbon footprint than a typical land-based placer mine because it will not be using heavy equipment to excavate, haul and load material in a screen plant. The operation will not produce any fugitive dust.

4.11.3 Noise

Noise from the operation will be continuous sounds from the dredging and processing operation, with intermittent sounds from the push boat outboard engines (that will be operated at slightly more than an idle and never at full throttle). Most of the underwater sounds from cutterhead dredging is associated with the engines, generators and pumps with additional sounds from the rotation of the cutterhead in the substrate and movement of material through the pipeline (Reine & Dickerson, 2014).

Applicant's machinery is designed to emit in-air sounds below 80 decibels (engines and onboard pump sounds). Underwater sound levels are reduced in the proposed operation by eliminating large pumps to pipe tailings long distances; instead the operation deposits tailings directly into the water off of the processing barge, and short distance pumping of tailings in some cases. Because the dredge will be churning soft sand and silt, underwater sounds emitted will be much less than similar dredges operating in harder substrate or materials with abundant gravel. This coupled with the reduced sound propagation due to the complex geomorphology of the Bonanza Channel (shallow depths, shoals, islands, barrier island and seagrass), the > 25 ft depth of the mining channel and the acoustic attenuation from the use of a turbidity curtain surrounding the entire dredging operations suggest that the noise impacts to fish and wildlife will be negligible.

4.11.4 Effects on Fish

The bottom-mounted turbidity curtain will completely contain the operation and its turbidity, thus limiting any potential negative effect on aquatic life and will provide a barrier that will keep fish from entering the mining area.

4.11.5 Eelgrass and Essential Fish Habitat

There is no eelgrass in the mining area. The vegetated shallows impacted by Applicant's proposed mining operation and access for years 1-5 on DKSN 29, 30, 31, 32, 33, 34, 35, 36, 37 and 39 are not considered to be essential fish habitat; therefore, the operation in this location will not be a detriment to any essential fish habitat.

4.11.6 Effects on Wildlife

The general project area is important habitat for many migratory bird species in spring, summer and fall. However, because there will be no heavy equipment, travel, or loading noises and no dust the operation will not affect the birds using this area. Likewise, because the operation is in the water it will not affect any nesting birds, or any land-based wildlife; nor will impact any seals or other such wildlife that may enter the general project area between freeze-up and break-up (outside of the annual mining activity window) to follow winter food sources.

4.11.7 Impacts on Subsistence

The project is very small, comprising 0.1% of the total inland waters and Applicant believes that subsistence and mining at this small scale can peacefully co-exist in the general project area.

4.12 Impacts to Tourism

The Nome tourism industry relies in part on visitors who come to the general project area for bird watching. There are designated bird watching sites near the Safety Sound Bridge and for 16.6 miles along the Nome-Council Highway with Norton Sound on one side and the Wildlife Refuge and wetlands on the other side. These bird observation areas will not be impacted by Applicant's operation. Additionally, the project is a very small operation (active dredge area less than 1,240 feet long), representing only a fraction (less than 1.5%) of the total length of road accessible bird viewing areas adjacent to the highway.

4.13 Avoidance, Minimization and Compensation Statement

The project design presented in this section includes numerous measures to avoid and minimize environmental and other impacts to the resources of the general project area through strict alternatives analysis (Exhibit 4). Applicant will work with USACE throughout the permitting and public review process to identify any other potential measures or alternatives that meet the project need, that are both reasonable and practicable, that create a benefit to the environment.

Because of the nature of this project, it is impossible to avoid impacting WOUS and aquatic habitat. If necessary, Applicant will work with the USACE to implement a compensatory mitigation plan that is appropriate for the final project as established in the *2008 Compensatory Mitigation for Losses of Aquatic Resources: Final Rule,* that provides mechanisms for compensatory mitigation for unavoidable impacts to WOUS.

5.0 PLAN OF OPERATIONS

This Plan of Operations for the BCPP covers a period of 5 years, starting June 2020 through June 2025. The BCPP is entirely on State of Alaska mining claims in waters over which the U.S. Army Corps of Engineers asserts jurisdiction.

5.1 General Operational Plans

Figure 5-1 shows the overview of the BCPP. The BCPP operation will dredge/mine the sands located at the base of the inland waterway using a high-capacity cutterhead dredge and recover gold with a self-contained gravity recovery processing platform that is connected to the dredge by a 300 ft. long floating pipe. The critical components of the BCPP operation include a 22-man camp and staging area on state land uplands, multi-year exploration/delineation drilling and a multi-year dredging operation (for the production of gold) in an inland estuarine waterway accessed by a dredged channel. The operation is seasonal, with the annual mining activity window June 1- November 1 (operation under ice-free conditions), and the annual drilling activity window January 1- May 31st (exploration and delineation drilling occurring over ice and snow). The following sections detail the components of this operation.

5.2 Base Camp Operations, Waste Disposal, Fuel and Staging

IPOP proposes to locate its camp and staging areas adjacent to the Nome-Council Highway (a "summer" seasonal state-maintained dirt and gravel road) on upland State mining claim DKSN38 (Figure 5-1) approximately bounded by the four points 513, 514, 515, and 516 on Plate 1: Western and Central Blocks with Ownership. Plate 1 also provides the precise latitude and longitude of these points. Temporary structures, facilities and staging areas will cover 1.2 acres of uplands after setup operations.

5.2.1 Camp and Waste Disposal

The approximate base camp location within the parcel of state land is shown in Figure 5-2.

The office and living quarters are all on wheels and will be transported to the site at the beginning of the annual mining activity window and elevated on 6” x 6” timber crib-sets above typical flood stage elevation. Cargo containers are set on 6” x 6” x10' timber crib-sets and will remain in place for the duration of the project. The camp structures will be removed at the end of the annual mining activity window to winter storage in Nome.

Temporary structures in approximately the configuration as shown in Figures 5-2 and 5-3 will be placed at the base camp.

Camping structures are RV trailer type quarters. RV trailers are supplied by their own diesel generators on board. Additionally, two diesel generator sets, MTU 4R0113 DS60, 55 kWe /60 Hz /Prime, will be located in the campsite. The units are shown in Figure 5-3 on the right as two red boxes and located and labeled on Figure 5-2. Emissions data provided by the manufacturer shows grams per hour of NOx + NMHC, CO and PM as 3.5, 0.97 and 0.32, respectively.

Figure 5-1. Bonanza Channel Placer Project overview map (graphic scale is accurate, verbal scale refers to full size printed map)

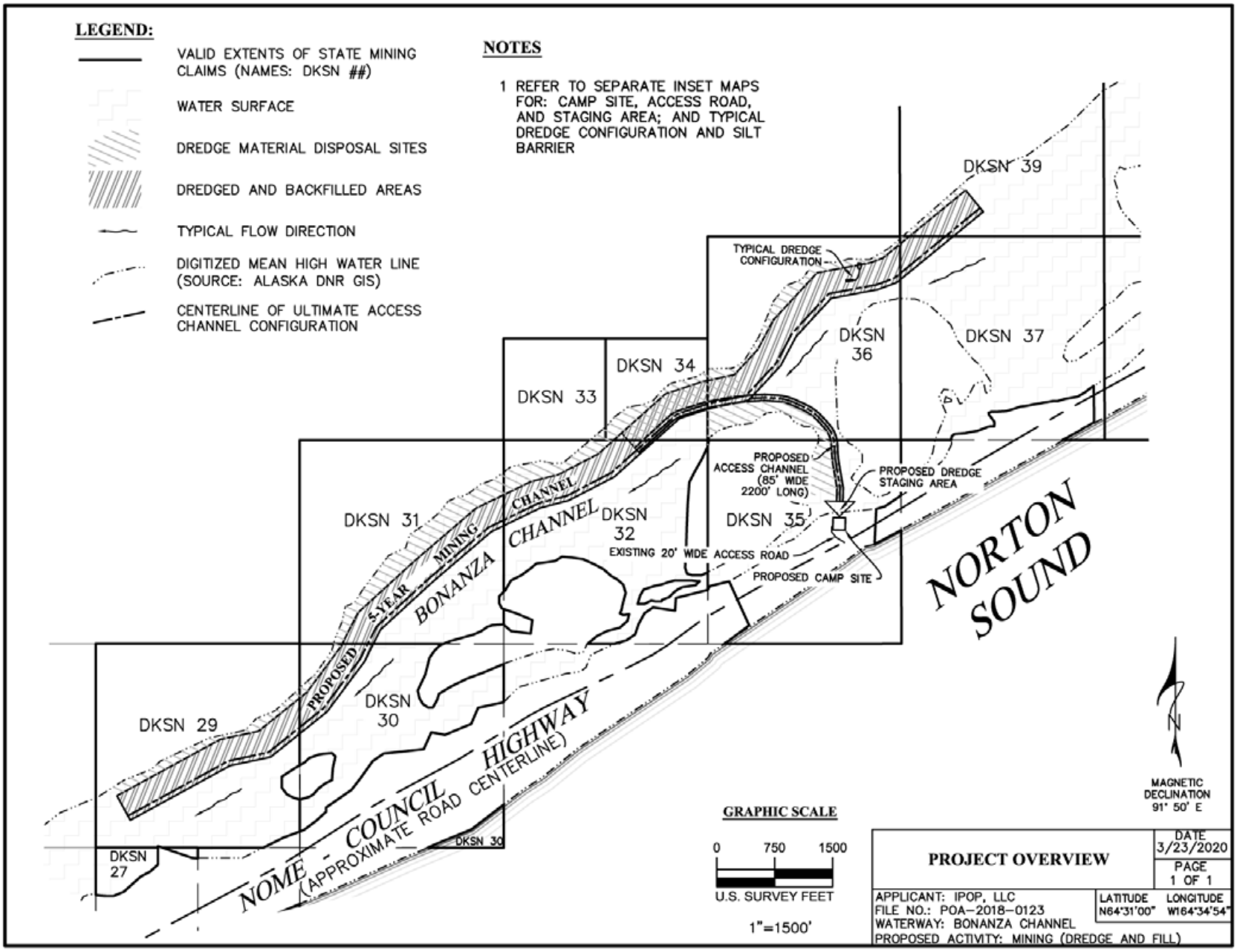


Figure 5-2. Camp Location (graphic scale is accurate, verbal scale refers to full size printed map)

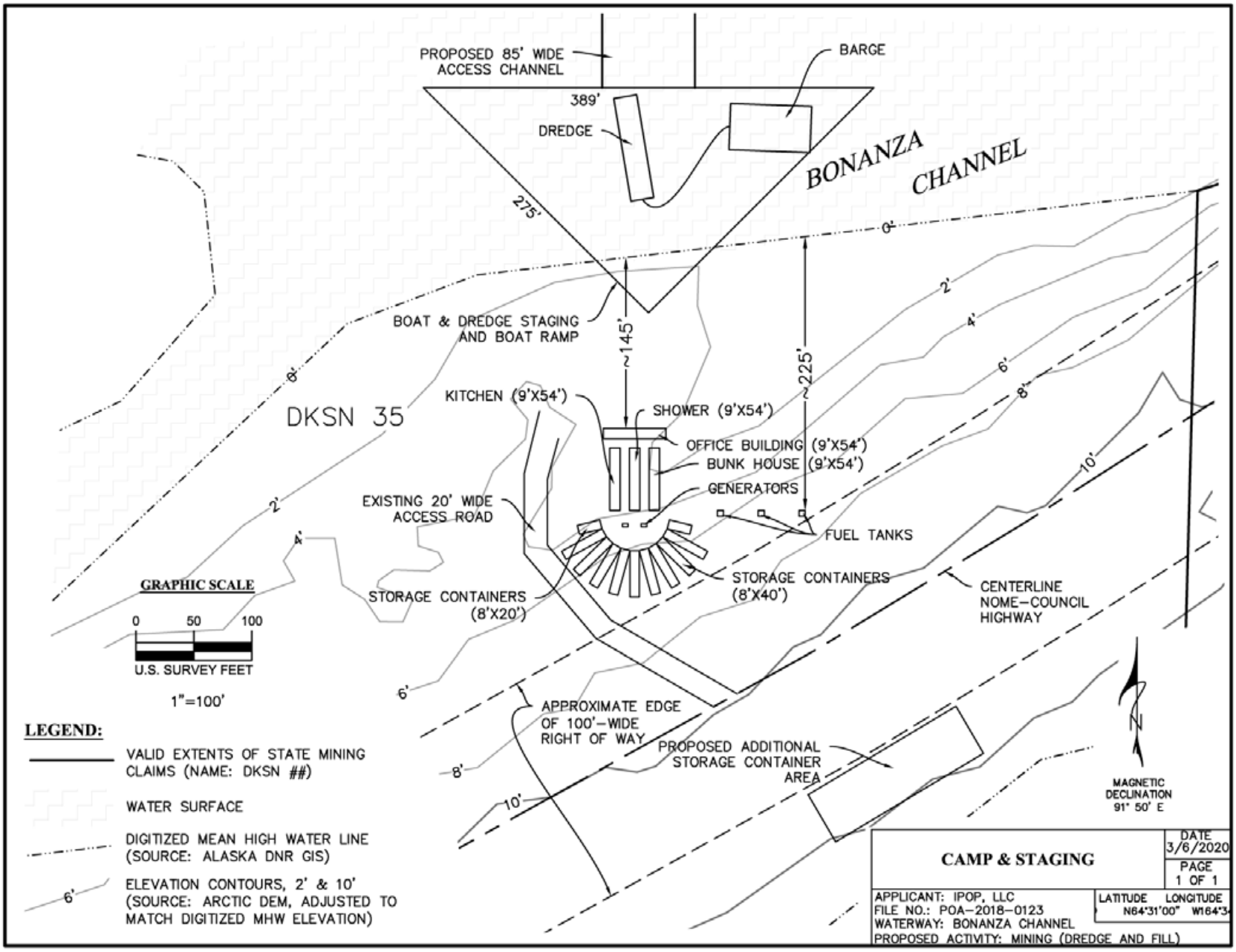
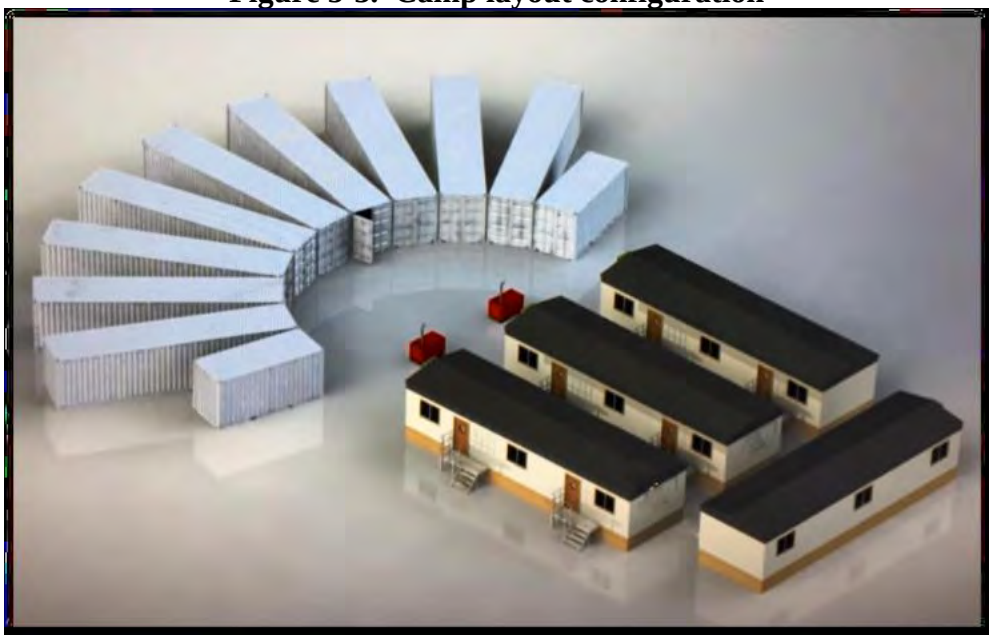


Figure 5-3. Camp layout configuration



An Atlas Model AT25263+APC desalination unit with a 2-inch intake pipe will be used to provide potable water, on demand, to the work camp at a rate of 3 gallons per minute.

No wastewater will be discharged. All toilet facilities have holding tanks. The tanks will be emptied by a Madden Sewer truck from Nome, AK.

5.2.2 Fuel Storage and Handling

Fuel deliveries to the camp shall be made by truck by either Bonanza or Crowley fuel distributors. Both gasoline and diesel shall be supplied, with the diesel fuel number one diesel which is low sulfur diesel approved by the EPA.

At the camp, two large fuel tanks will be stored on a 53 ft. trailer, which can be quickly removed if necessary with the Peterbilt tractor, allowing the fuel to be stored at all times 125 feet or more from the water's edge. Specifically, the trailer will hold a Western Global TransTank Pro P12 with a 3,124-gallon capacity to store the diesel fuel. A TransCube Global 30TCG 793-gallon double walled fuel tank will hold the gasoline. Both tanks have double walls and internal baffles to prevent fuel surge and provide safe handling and transportation. They are approved to transport fuel on road/rail/sea under UN, ADR, RID, IMDG, USDoT, UIC, and TIR regulations. Tank specifications for all fuel tanks are shown in Exhibit 5. Each tank is equipped with 150-foot special 300 PSI multipurpose arctic grade (-65 to +180 degrees) RMA Scoville hoses. Pump and tank fittings are housed in a lockable, vented cabinet. IPOP also will have fuel spill and oil spill emergency response kits on hand and a Spill Prevention, Control and Countermeasure Plan (SPCC) in place for the operation.

A TransCube Global 40TCG (1,240-gallon capacity) equipped with the same 150-foot special 300 PSI multipurpose arctic grade (-65 to +180 degrees) RMA Scoville hoses is installed on the larger of the two push boats for the operation (See section 5.3.3 for push boat details). When additional

fuel is required for operations, the hoses will simply be extended to the boat to fill up this tank. The push boat will dock with the processing barge and dredge platform as required, refueling those tanks; less than a fifteen-foot hose extension should be required to accomplish this.

The primary fuel consumption will be the generator on the processing barge (the unit has a built-in 350-gallon diesel tank) and the diesel engine powering the dredge (800-gallon diesel tank). At full, uninterrupted operational scale, each of these tanks can support approximately two days of operations, meaning that fuel deliveries will be required every other day or so. There is a smaller diesel hydraulic unit at the rear of the processing barge to raise and lower the spuds, with its own smaller tank, subject to intermittent use and infrequent filling.

The push boat itself has sufficient inbuilt gasoline tanks that, given the distances involved, it should require refueling with gasoline from the tank on the trailer only once a month or so. A smaller aluminum boat with a thirty-two-horsepower gasoline engine will be used to transport crew back and forth and minimize use of the larger vessels.

5.2.3 Equipment Staging

Both the suction dredge and the processing equipment, and the platforms they both sit on will be staged and assembled at the camp site using a Lima 900 110-ton crane. Both the dredge and the processing equipment sit on top of platforms built from multiple, 40 ft. by 10 ft. sectional barges create a substantial platform for the project's equipment, as illustrated in Figure 5-4.

Figure 5-4. Sectional barge platform general layout

The sectional float plant manufacturing plant in Indiana will supply consulting and directing personnel to the target site for the assembly and buildup of the sectional floating barge.

IPOP's calculations suggest that the barges, fully loaded, will draw less than 2' 9" of water. IPOP has conducted depth measurements in the vicinity of the camp showing an area of water that will suffice to launch the barges from the shore by rolling them off the edge of the land into the water using marine air bags. Because a significant portion of the platforms will be over the water before the vessel tips off the airbags into the water (particularly when launching them light end), they should float immediately.

Figure 5-5 is from 4K drone footage conducted by IPOP showing the launching area for the dredge and processing platform.

Figure 5-5. Dredge and processing platform launch site (4K drone footage)

5.3 Details of Equipment

The inventory of equipment to be used includes a single-engine 10" dredge using a controllable 36" Vosta cutterhead on an innovative, high-technology barge described in detail below. (The cutterhead is a device that generates a vortex of current in the water to dislodge the layers of compacted clay, loose gravels and sands; no cemented aggregates will be present that would require "cutting".) The suction dredging barge will be connected by up to 300 ft. – 600 ft. of 10 in. pipe to a 40 ft. x 70 ft. processing barge, also described in detail below.

The suction dredging and processing barges are not self-propelled, other than to the extent that they can "walk" by controlling vertical ground anchors called "spuds," described below. The barges will also be moved by using two barge tenders or "push boats" depicted below.

5.3.1 Suction Dredge Barge Details

The suction dredging barge is based on technology commonly used by the U.S. Army Corps of Engineers to dredge rivers and harbors. It consists of two parts, shipped separately by tractor trailer and joined at the site into a single unit. Figure 5-6 is a picture of the front section on a trailer

Figure 5-6. Front section of dredge barge on a trailer

The rear of the front section holds host two large vertical "spuds" within the gray holders visible at the rear of the front section. The spuds which may be raised, lowered and angled (to provide a "walking" effect that can move the entire dredging barge).

A 35 foot "ladder" which is raised and lowered with cables emerges from the front side of the front section (the left-hand side of the above picture). The cutter head is at the end of this ladder, shown in this photograph of the ladder and head under construction (Figure 5-7).

The front section as shown in Figure 5-6 will be supplemented with pontoons on each side, giving it a total width of approximately 20 ft.. Figure 5-8 illustrates the assembled version of the front section (including the pontoons). This section is 50 ft. long by 20 ft. wide.

On the right side of Figure 5-8 one can see the two spuds; on the left, the ladder and cutting head (which also contains the 10 in. suction dredge pipe leading to the cutter head).

An "idler float" will be attached to the rear of the dredge when assembled. The idler float section is narrower, being 40 ft. long and 11 ft. wide. Figure 5-9 is a photograph showing the front

Figure 5-7. Cutterhead and ladder under construction

of the rear section (where it connects to the front section). The gray box on top of the barge is the power used to move the spuds.

When the front section and the idler float are connected on site, the resulting vessel will appear as illustrated in Figure 5-10.

The single spud at the rear of the idler float as shown in figure 5-10 serves as a pivot point for the entire 90 ft. barge. By anchoring the pivot point in the rear, the cutter head can work a precise pattern up to 200 ft. wide. A large arc can be cut back and forth to the appropriate depth, and then the front spuds are used to advance the dredge an incremental distance, and the dredge pivots from the new point to cut advancing arcs.

A Caterpillar ACERT C15 diesel engine is mounted on the suction dredging barge. It will power the cutterhead portion of the mining system and raise and lower the spud anchor system. The Caterpillar ACERT C15 engine emissions meet China Nonroad III Standards, U.S. EPA Tier 3 Equivalent Standards and EU Stage IIIA Equivalent Standards.

Figure 5-8. Schematic of assembled cutterhead dredge

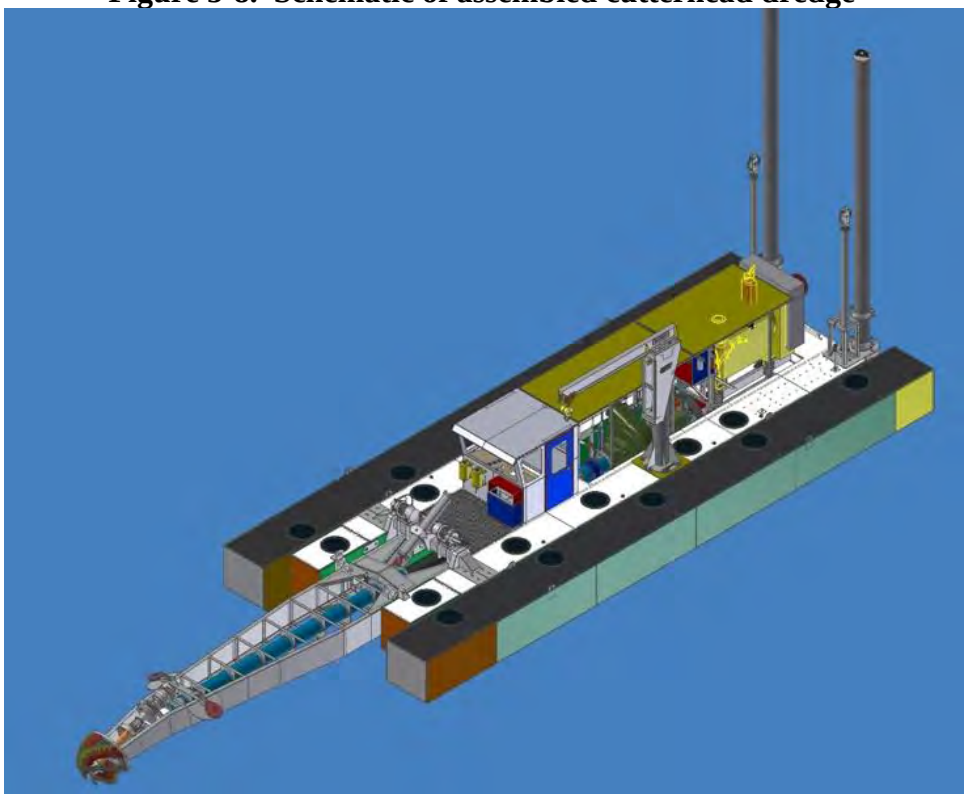


Figure 5-9. Idler float showing pin bushings where it attaches to the dredge

Figure 5-10. Complete assembled cutterhead dredge and idler float

The suction dredging barge, fully assembled, can excavate approximately 267 cubic yards per hour, based on an engineering analysis supplied by Pearce Pump Supply. Exhibit 6 is a copy of the System Curve and Pump Evaluation prepared by Pearce. The slurry volume being pumped to the processing barge from the dredge is anticipated to be between 20 to 30% solids based on reports from Bering Sea gold suction dredges. For purposes of the estimated production quantity, the Exhibit 5 analysis assumes 25% solids by weight.

A John Deere 173 hp engine will be installed on the suction dredging barge to operate a small auto crane mounted on the port side. This engine meets EPA Tier 3 standards. It will provide the power to raise and lower the spud anchor system.

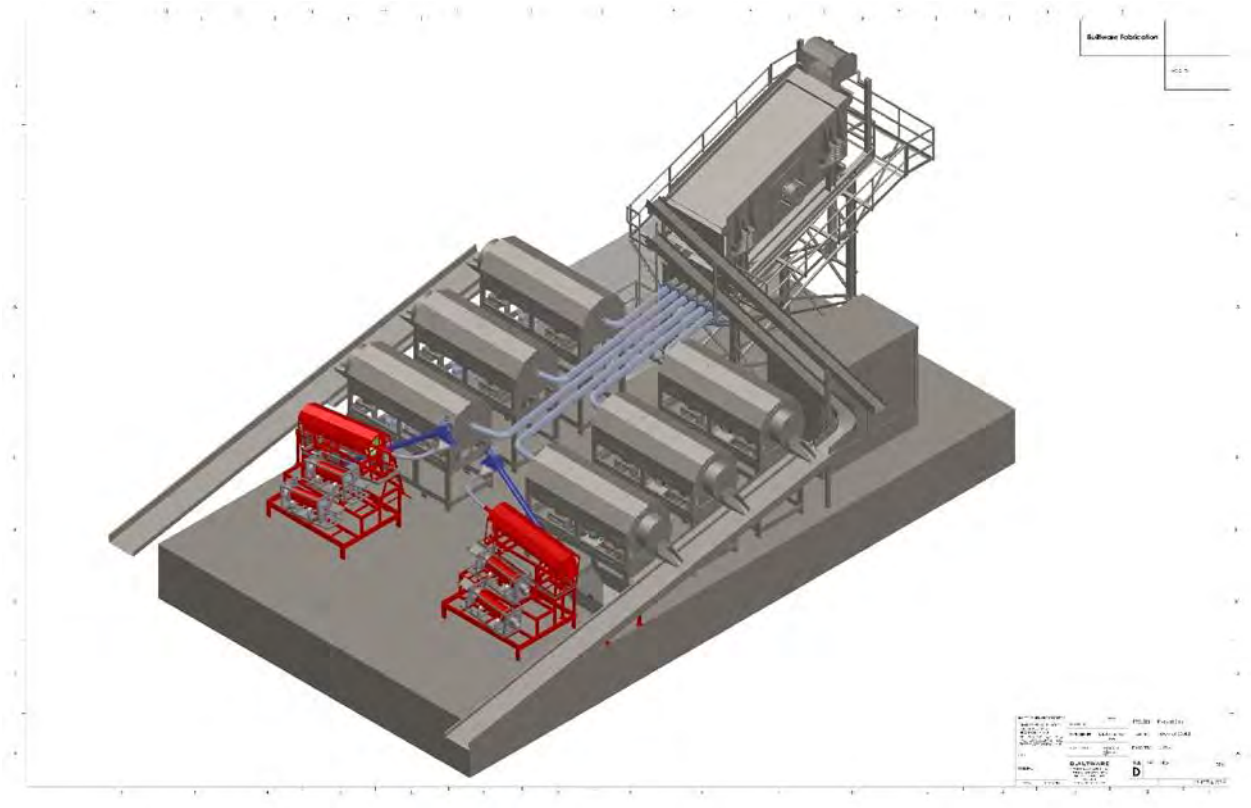
State-of-the-art Hypac© software for dredging control, in conjunction with GPS readings and computer control, the software will allow both excavating and re-depositing materials in a controlled and planned manner, maintaining a record of activities.

5.3.2 Processing Barge Details

The processing barge is a fully equipped, self-contained floating wash and gold recovery plant. The deck space is 40 ft. wide x 64 ft. long. The barge pontoons are made in eight separate sections that will be pinned and bolted together at the camp site as described below. A structural steel sub-deck is pinned and bolted onto the Pontoons. The sub-deck is a mounting platform for all the heavy equipment components. Figure 5-11 is a drawing of the processing portion of the barge (it does not show the two hydraulically controlled spuds on the barge which will be located near the secondary and finish concentration area).

The processing barge incorporates a 20 ft. x 8 ft. operator control room, complete electrical wiring and plumbing, an enclosed 225 kw diesel generator with fire suppression system, a small diesel hydraulic unit for raising and lowering the spuds, a crew disembarkation dock, safety hand railing's and work platforms, work and navigation lights, life vests and rings, radio communication, fog horn, fire extinguishers, first-aid kit and the listed processing equipment described below.

Figure 5-11. Processing components of the processing platform



A generalized processing flow diagram is shown in Exhibit 7. The following describes the process in more detail.

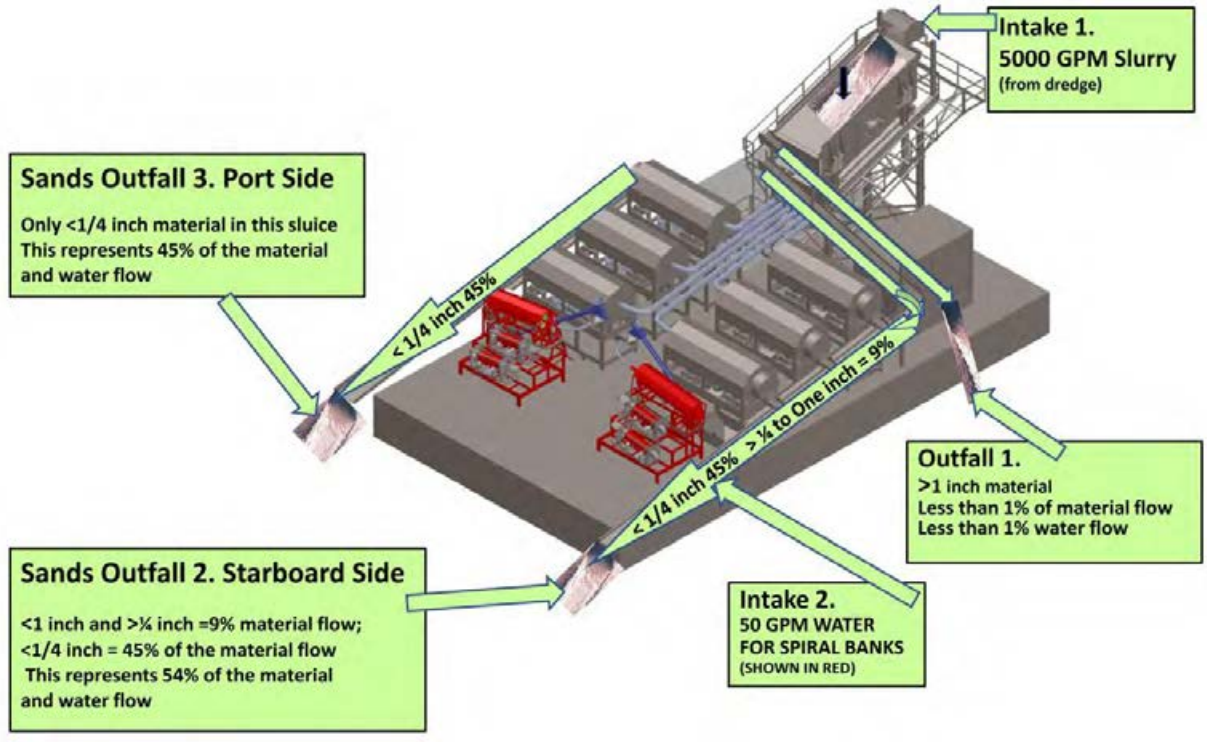
The processing barge is connected to the suction dredging barge, via a 10" internal diameter floating poly pipeline. The dredging operation will only suck up materials smaller than 4".

The 10" poly pipeline from the dredge connects to the processing barge's 10 in. slurry feed hose delivering natural sands and gravels from the bottom. The slurry hose feeds directly to a break box. The break box delivers the material downward to the screen deck shaker. The break box is located above the feed end of a vibrating screen deck classifier (*Intake 1*, Figure 5-12).

The slurry stream falls onto the vibrating screen deck classifier. There are two 7 ft. x 16 ft. screen deck sections, one above the other. The top screen deck is made of polyurethane, with a non-clogging 1 in. square hole pattern. The lower screen deck is made of polyurethane, with a non-clogging ¼ in. square hole pattern. Three products are made by the screen classifier, 1" to 4" Stone, 1 in. - 1/4 in. Gravel and -1/4 in. Sand.

The 1 in. – 4 in. material is expected to be less than 1% of the total solids volume. This product falls from the top deck of the screen onto a 24 in. discharge chute and directly off the starboard side of the barge directly back into the water (*Outfall 1,* Figure 5-12).

Figure 5-12. Processing barge intakes and outfalls



The 1" to ¼" material from the lower screen is diverted into a 24" chute connecting to the starboard side nugget sluice, which is labeled *Sands Outfall 2* in Figure 5-12. The 1" to ¼" gravel product will constitute approximately 9% of the total solids volume out of *Sands Outfall 2*.

The - ¼" sand product will constitute approximately 90% of the total solids. This product will pass (as a slurry) from the lower screen and fall into a catch trough. The catch trough will carry the slurry to the centrifuges.

There are six individual 42" low-G centrifuges being used as the primary gold concentrators. Each centrifuge has the production capability of 75 ton/hr. Five of the centrifuges will be in operation at any one time, while the sixth will be in "cleanup mode" allowing 24/7 operation without any production loss time for cleanup.

A low-G centrifuge is a batch type primary concentrator that holds the concentrate inside its concentrate chambers, until cleanup is made. To clean out the centrifuge, the RPM is stepped down allowing the concentrate to fall from the chambers and wash out flowing into the concentrate trough that flows by gravity into a concentrate auger bin.

The rejected discharge from the centrifuges is split into two equal halves, with three centrifuges feeding each half and discharging into port and starboard side nugget sluices. Each sluice is 4 ft x 40 ft.. This material is discharged equally from *Sands Outfall 2* and *Sands Outfall 3* (Figure 5-12).

There are two 6 in. x 18 ft. concentrate augers with holding bins. The concentrate augers feed the primary concentrate from the centrifuges to the secondary and finish concentration circuit.

The secondary and finish concentration circuit consists of two reverse multi-helix spiral banks. The spiral bank is made of a 24 in. x 8 ft. primary spiral cleaner, a 16 in. x 4 ft. secondary spiral cleaner and a 16 in. x 4 ft. spiral finisher. The 16 in. spiral finisher will produce a smelt grade product, ready for pouring into a gold bar. A negligible percentage of the discharge from *Sand Outfalls 2 and 3* will consist of rejected heavy mineral material from the concentrate. From the assay data from the core drilling (Exhibit 8C), the heavy mineral sands will consist of minerals containing arsenic, copper, lead, and trace amounts of mercury. Any heavy metals that are recovered along with gold will disposed of in accordance with applicable law.

A diesel generator set, MTU 8V1600 DS400, 365 kWe /60 Hz /Prime, 208 - 600V, will be located on board the processing platform. The emissions data provided by the manufacturer are as follows: NOx + NMHC, CO, PM are 5.01, 0.52, and 0.04, respectively. All units are in g/hp-hr and shown at 100% load (not comparable to EPA weighted cycle values). Emission levels of the engine may vary with ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, and measuring instrumentation.

The processing barge also has an on-board lab equipped with a fume hood and a small smelting furnace for making gold doré.

5.3.3 Barge Tender/Push Boat Details

Figure 5-13 is a photograph of the two barge tenders that will be used for the operation. The two boats are powered by Suzuki DF350A outboard engines. The larger boat (approximately 25 ft x 11 ft) has two engines, and will carry fuel as described below, the smaller boat (approximately 20 ft. x 11 ft.) has one engine.

Figure 5-13. Barge tenders/push boats for the operation

5.4 Description of Dredged or Filled Soils

Applicant conducted core drilling in 2019 to characterize the soil from the mining area and to gather material for bench-scale metallurgical testing. This drilling consisted of 13 holes down to

a depth up to 31 ft. BMHW (below mean high water). Details for this drilling are included in Exhibit 8. Additional drilling is planned for 2020-2024.

5.4.1 Geochemistry

Applicant submitted 3 hand-dug samples from the area and drilling samples from 13 holes drilled in 2019 to American Assay Labs in Sparks, NV. Each hole was composited from top to bottom. A representative split was taken by the lab for each drill hole and analyzed for whole rock geochemistry using ICP (inductively coupled plasma) for 48 elements, XRF (X-Ray Fluorescence) Fusion and XRD (X-Ray Diffraction for various rock forming minerals. Analytical results for all these samples are shown in Exhibit 8 and are considered representative of the geochemistry of the IPA down to a depth of 31 ft/ BMHW (below mean high water).

No hazardous, toxic or radiological waste issues were indicated in the drilling samples. Chemical analysis of the drilling samples did not indicate any sort of human-caused chemical contamination.

The following elements of concern to water quality are discussed below. The potential for element leaching into the water is minimal because the elements are tied up in stable buried minerals in the sand that would need prolonged exposure and leaching to oxidize and release contamination. Because the minerals are not ground or crushed (as is done to liberate the elements for assaying) during the mining and gold recovery process, and because the concurrent reclamation results in rapid burial of the sediment (limiting exposure time) and only a very small percentage of the minerals will remain exposed on the bottom of the waterway at completion of the reclamation; therefore, it is extremely unlikely that these elements will leach into the waterbody.

Arsenic. Arsenic is commonly associated with gold ores from the Orogenic gold deposits found on the Seward Peninsula and its presence in the general project area is due only to local mineralogy. Big Hurrah lode deposit, 5.6 miles to the NE of the general project area, contains occurrences of arsenopyrite (AsS_2) suggesting a source for the arsenic in the project beach sands (Novagold Resources, 2007). On the basis of the concentration of arsenic in the sediment from these samples, concentrations are far less than metallic element arsenic regularly reported in samples from the Nome Harbor and the Snake River that have been reported as high as 200 mg/kg (181.44 ppm) (Northwest Aquatic Sciences, 1991; Woodward-Clyde, 1998; USACE, 2019). Arsenic concentrations in the 2019 drilling averaged 8.01 ppm, far less than the concentrations found in Nome and far less than the marine sediment screening level of 57 mg/kg (51.71 ppm) total arsenic currently used by the USACE Alaska District under the dredged material management guidelines (DMM) 2018.

Mercury. The samples that contained mercury on the claims were taken from the underwater sediment NW corner of mining claim DKSN31. A trace amount of mercury was detected in these samples (0.022 ppm). Samples from the Big Hurrah lode deposit 5.6 miles from the project site, shows an average mercury content of 0.065 ppm from 1,400 soil samples (Novagold Resources, 2007), indicating that the mercury present in the samples taken from the IPA are likely representative of naturally occurring, local mineralogy that has deposited in this area along with the gold in which it correlates.

Copper. Copper is a mineral found in some breccias at the Big Hurrah lode deposit in the hills to the NE of the IPA (grades in soil as high as 695 ppm) (Novagold Resources, 2007). Copper is present in concentrations from the drill holes averaging 16.83 ppm.

Lead. Lead in soil geochemistry from the nearby Big Hurrah lode deposit is fairly consistent, averaging 22.07 ppm in 1,400 soil samples (Novagold Resources, 2007). Chemical analysis from the drilling in the IPA shows an average lead content of 37.15 ppm. The higher-than-background lead concentration may be due to lead shot from waterfowl hunting.

5.4.2 Soil Size Fraction

The observations of 2019 drilling recorded the presence mostly sand with minor quartz cobbles and a recognizable clay layer that could be correlated with depth, hole-to-hole, across the area drilled. American Assay labs returned results for sieve analysis for the representative size fraction of material from the thirteen 2019 drill holes and reported the percentages for sand, silt and clay sized fractions. Though the drilling did hit a few boulders of quartz, these were not included in the size fraction analysis; material >1/4 inch is rare and represents less than 10% of the material that will be mined using the cutterhead dredge method.

The size fractions of all the holes are fairly consistent. The ratio of sand to silt and sand to clay is considered within the range of variability expected for tidal sedimentary sequences in high energy locations like the Bonanza Channel. Table 5-1 details the results of the sieve analysis.

Table 5-1. Results of 2019 drilling sieve analysis

Hole_ID	Sand %	Silt %	Clay %
BH-01	82.03	12.75	5.22
BH-02	94.58	3.05	2.37
BH-03	89.25	6.09	4.66
BH-04	77.7	16.55	5.75
BH-05	72.14	21.32	6.54
BH-06	83.75	11.42	4.82
BH-06 Dup	85.77	9.54	4.69
BH-07	83.26	11.13	5.61
BH-08	81.37	13.66	4.97
BH-09	80.42	14.46	5.11
BH-10	77.63	18.01	4.36
BH-11	82.24	14.12	3.64
BH-12	72.33	22.06	5.6
BH-12 Dup	74.59	17.7	7.71
BH-13	84.32	12.14	3.55
Averages	*81.62*	*13.12*	*4.94*

*Dup = duplicate analysis

5.4.3 Stability Assumptions

Soil stability evaluation is critical for determining the angles of repose for the trenches and working faces with respect to depth and for understanding the dynamics of backfill/reclamation or the slopes of the DMDS. The following are the most significant components affecting soil stability and shear stress in a dredging operation:

- Soil size fractions
- Water content
- Pore space (density)
- Depth of dredge channel
- Water depth

In-Situ Stability

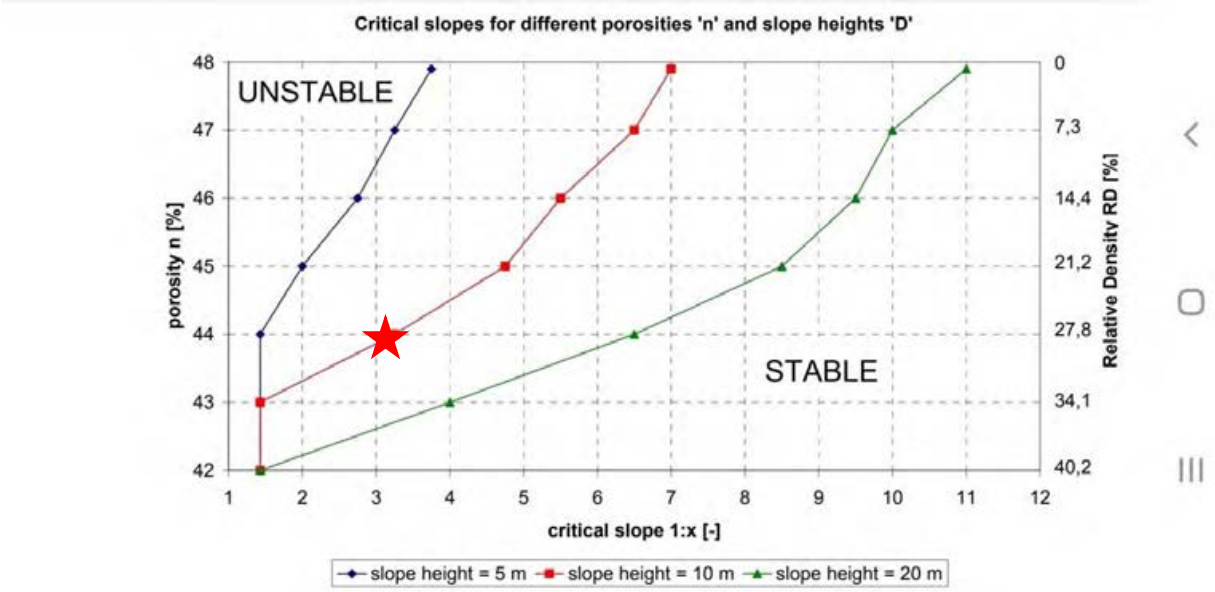
Size fractions are known from the test drill hole analysis and show that the material averages 81.6% sand, 13.12% Silt, and 4.94% clay. Normal facies changes in a beach stratigraphic sequence results in highly variable sand, silt and clay layers that can affect the in-situ stability of the soil. In general, sand is the most stable.

In most depositional settings porosity, or conversely density, changes with respect to depth. In nearly all cases the sediment becomes denser with depth. Water content is directly proportional to porosity; the sediments will contain less water with depth in the sedimentary column. The angle of internal friction is influenced by all these as shown by the chart in Figure 5-14. Shear failure is the most common instability mechanism for slopes (Raaijmakers, 2005). The project conducted no in-situ standard penetration tests (SPT), so the geotechnical properties of the soil could not be determined, thus Applicant has assumed well-drained soils with a relative density averaging 27.8%, based largely on the stratigraphy from the drilling. Based on this Applicant has assumed the worst-case scenario for this relative density and a maximum mining depth of thirty-one feet (represented on the 10m depth line in Figure 5-14 in all of its designs. The slopes of the cuts are assumed to be listric in section, ranging from 16° near the slope toe, and steepening toward the surface to nearly 20° with an overall slope of 18.4° or 3:1 (H:V).

Dredged Fill Stability

Water content will vary between in-situ sediment and dredged sediment, whereby hydraulic dredging disrupts the settled and compacted soils, mixes them with water and jettisons the slurry through the system. When these soils are discharged rocks and the coarser size fractions of sand settle to the bottom rapidly stacking up relatively steeply near the outfall. Silt is carried a bit further by the current created by the discharge and runs down the toe of the sand pile. Clay remains in suspension for a longer period of time, and flocculates depending upon various factors like water conductivity, current, and nature of the clay. As such, clay will precipitate over much larger areas and will not generally affect the stability of dredged fill at the immediate point of discharge. Because of these factors, the DMDS slopes are designed at a 3:5:1 horizontal to vertical slope under water. Fill slopes will be monitored during operations and designs will be adjusted if necessary.

Figure 5-14. Critical slopes for typical dredge channels depending on depth and porosity (*modified after* Raaijmakers, 2005). BCPP design slope indicated by red star.



5.4.4 Bulking Factor

During the dredging process a change in density is caused by the increase of void space that causes the dredged soil to expand. This is referred to as "bulking". The "bulking factor" is a multiplier describing the amount the soil expands once it is dredged and discharged (as opposed to "swell factor" which is normally represented in percentage). The bulking factor for soils is primarily dependent upon the following factors:

1) In-Situ soil density
2) Soil size fractions and percentages thereof
3) Depth of discharge/fill
4) Types of machinery used in the dredging operation
5) Water current
6) Rates of settling
7) Water conductivity

The rates of settling, or sedimentation behavior of hydraulically dredged soils can be explained by the settling characteristics typical of the depositional environment. Three types of settling can occur: Discrete settling, flocculant settling and zone settling. Discrete settling is where particles settle individually with a constant rate such as stones and coarse-grained heavy sands. Discrete settling results in less material bulking, but this is entirely dependent upon the grain size and morphology. Discrete settling is less common than the other two types of settling and would be less common in the case of the BCPP because the coarse material represents less than 10% of the anticipated mined material. In flocculant settling particles agglomerate to form flocs and settling rate increases with time resulting in added bulking of the soils (i.e., clays). In zone settling the particles agglomerate further and settle as a three-dimensional lattice and start to consolidate as

they settle because the single network of floc is in a state of compression from the beginning of the settling (Lin, 1983). The dredged material is expected to settle by a combination of all three of these types. The settling behavior of the material will affect its ultimate density (void space/porosity) as fill as does the self-weight consolidation, and subsequently the bulking factor of the soil due to hydraulic dredging.

Rather than conduct in-situ SPT tests to determine the geotechnical properties of the soil (to provide a basis for more rigorous and detailed bulking factor determination) Applicant has used various references and consultation with dredge soil engineering firms to determine the worst-case scenario for bulking of the dredged materials for the purposes of designing the layout of DMDS adjacent to the mining area that can accommodate the maximum bulking that could occur (worst case scenario).

The calculations for bulking are detailed in Table 5-2 using typical bulking factors as described in (Lacasse et.al, 1977 and Bray et. al., 1996). For this project Applicant is assuming an average bulking factor of 1.075 considering self-weight consolidation will occur on 7.5% of the material deposited and buried in the deepest part of the mining channel. The DMDS are discussed in Sections 5.8.1 and 5.9.2.

Table 5-2. Calculated bulking factor for the BCPP

Typical B.F.	Reference	Sand	Silt	Clay	*Average Bulking Factor by Drill Hole*	
	Bray et. al., 1996	1.15	1.25	1.1		
	Lecasse et. al., 1977	1.1	1.3	1.5		
	Drill Hole ID	**Sand**	**Silt**	**Clay**	B.F. Bray	B.F. Lecasse
2018 Core Holes	BH-01	82.03	12.75	5.22	1.16	1.15
	BH-02	94.58	3.05	2.37	1.15	1.12
	BH-03	89.25	6.09	4.66	1.15	1.13
	BH-04	77.7	16.55	5.75	1.16	1.16
	BH-05	72.14	21.32	6.54	1.17	1.17
	BH-06	83.75	11.42	4.82	1.16	1.14
	BH-06 Dup	85.77	9.54	4.69	1.16	1.14
	BH-07	83.26	11.13	5.61	1.16	1.14
	BH-08	81.37	13.66	4.97	1.16	1.15
	BH-09	80.42	14.46	5.11	1.16	1.15
	BH-10	77.63	18.01	4.36	1.17	1.15
	BH-11	82.24	14.12	3.64	1.16	1.14
	BH-12	72.33	22.06	5.6	1.17	1.17
	BH-12 Dup	74.59	17.7	7.71	1.16	1.17
	BH-13	84.32	12.14	3.55	1.16	1.14
Bulking Factor		**Average B.F. (all holes less dups)**			**1.16**	**1.15**
		5% Self Weight Consolidation			**1.10**	**1.09**
		7.5% Self Weight Consolidation			**1.07**	**1.06**

5.5 Description of Water

As discussed in Section 2, the overall project area consists of estuarine waters, fed two rivers. The waters of the Bonanza River split, travelling both NE and SW along the Bonanza Channel. The water passing the IPA travels from this river 5.1 miles SW discharging into Safety Sound. Safety Sound connects to Norton Sound (the Ocean) 4.3 miles SW of the general project area.

The water in Bonanza Channel is a combination of seawater and fresh water and currents are affected by the tidal influence.

5.5.1 Tidal Dynamics

Applicant has not collected detailed tidal data for the general project area, nor is there any pre-existing tidal data available for reference except for the MHW line from Alaska DNR GIS that is referenced in the maps throughout this narrative. The water depths in Bonanza Channel are affected by wind and storm surges more than they are by tide with the rare storm surges as high as 6.8 ft. AMHW during the winter months. Recent storm events and associated water levels for the Nome area are shown in Table 5-3. Storms within the annual mining activity window are very rare, with the largest recent storm event on September 27, 2019 recorded at 3.8 ft. AMHW.

According to the Nome tidal data, MLLW at Nome is only 1.33 ft. BMHW. The tidal range in the Bonanza Channel would be considerably less. Multiple visual observations by various employees and contractors of Applicant, review of drone footage, and other anecdotal evidence indicate very little tidal influence occurs in the IPA due to 1) a normal SW flowing water current from Bonanza River, 2) the narrow nature of the ocean inlet in Safety Sound, and 3) the distance from Safety Sound to the IPA. Based upon field observations and drone footage showing the water levels, beaches, and time of day, the MLLW is approximately 1 ft. BMHW in the IPA.

Table 5-3. Recent storm events and water levels in feet (NOAA, 2019)

Date	NAVD88	MLLW	MHW
9/27/2019	7.7	5.1	3.8
2/12/2019	8.9	6.3	5.0
2/20/2018	7.6	5.0	3.7
12/21/2017	9.7	7.1	5.8
1/1/2017	10.7	8.1	6.8
10/29/2016	10.3	7.7	6.4
11/9/2015	8.9	6.3	5.0
11/10/2014	7.9	5.3	4.0

Applicant will gather continuous tidal influence data during mining periods. Because storm surges and wind events are unpredictable Applicant has designed its project around a maximum 3.8 ft surge AMHW due to N-NE winds. As a secondary precaution, the standard operating procedure will be to suspend operations during such storm events to mitigate risk of potential turbidity release from the mining containment as water levels either rise or fall (depending upon the wind direction).

5.5.2 Water Current

Applicant has not collected data on the total acre feet of water that moves through the IPA, however Applicant has collected some water current data (Tables 5-4 and 5-5) that shows a general SW flow of water towards Safety Sound ranges from 2.5-7 mph (3.710.3 feet per second). These measurements in Table 5-5 were taken in the area of the perceived maximum flow, however currents do vary with respect to depth within the water column, depths of the channel, bends in the channel, and so forth. The measurement in table 5-4 was within the initial mining area (3.7 feet per second). The overall range of water current collected by Applicant has been incorporated into the design of the turbidity curtain containment.

5.5.3 Water Characteristics

Chemistry:
Because the operation will not discharge pollutants into the receiving waters (per the meaning of the Clean Water Act) and because there is no addition of materials, Applicant has not collected background water chemistry data characterizing the water in the Bonanza Channel, or more specifically the IPA. Other than temporary turbidity contained by the turbidity curtain, the mining proposed by Applicant will not alter the water chemistry.

Conductivity:
Exhibit 9 details conductivity and temperature measurements taken in nearby Safety Sound. Because the conditions are different upstream of Safety Sound Applicant has collected some conductivity tests in the IPA (Table 5-4). Though these tests are accurate, Applicant expects water conductivity to vary depending upon tides or storm events. For the purpose of this application, using these measurements, Applicant has considered the water to be fresh water, and considered the stricter fresh water quality standards in its application materials.

Turbidity:
Applicant has collected some turbidity readings across the general project area as shown in Tables 5-3 and 5-4 and Figure 5-15. Physical observations by Applicant's employees and consultants working in the IPA, and the high variability of the turbidity readings in Table 5-4 and Figure 5-15 support Applicant's conclusion that turbidity in the IPA is not static. Turbidity in a very shallow lagoon like this will be very dynamic, constantly changing with small breezes, heavy winds, tides, stormwater runoff, or spring snow and ice melt.

Because of the unpredictability of turbidity levels in the IPA and the plan to contain turbidity behind a turbidity curtain, no further turbidity measurements were taken.

5.6 Bathymetric Profile

Applicant attempted sonar and GPS bottom depth profiling, determining that most of the lagoon is too shallow (less than six feet deep) for this method to work. As a result, the approximated bottom profile BMHW is based upon limited site field measurements and drilling data.

Table 5-4. Background water sampling 9/23/19 in the IPA

Date: 09/23/19

Start Time:	**1:25 PM**	**Wind Speed Knotts**	**10**
End Time:	**3:48 PM**	**Wind Direction**	**SW**
Current Speed mph	**2.5**	**Water Depth Feet**	**2**

Test Points	900	901	902	903	904	905	906	907
Time	1:25 PM	1:29 PM	1:33 PM	1:35 PM	1:37 PM	1:39 PM	1:41 PM	1:43 PM
TEMPERATURE C	5.4	5.4	5.4	5.5	5.4	5.4	5.3	5.4
DO	11.72	11.78	11.82	11.76	11.88	11.89	11.95	11.88
Specific Conductance	2773	2219	2170	2801	1996	2018	1867	1928
SAL-ppt	1.44	1.14	1.11	1.45	1.02	1.03	0.95	0.98
pH	7.79	7.97	8	7.98	8.02	8.02	8	8.02
TURBIDITY (NTU)	4.46	3.31	3.36	3.51	2.92	2.76	2.65	2.62
GPS -(Lat-Lon)	N64°31'04.03"	N64°31'03.73"	N64°31'04.53"	N64°31'04.99"	N64°31'03.20"	N64°31'03.15"	N64°31'02.26"	N64°31'03.20"
GPS - Longitude	W164°34'33.69"	W164°34'35.65"	W164°34'35.66"	W164°34'34.33"	W164°34'32.75"	W164°34'34.44"	W164°34'32.00"	W164°34'35.50"

Test Points	908	909	910	911	912	913	914
Time	1:45 PM	1:56 PM	1:57 PM	1:58 PM	2:03 PM	2:08 PM	2:14 PM
TEMPERATURE C	5.4	5.5	5.5	5.4	5.4	5.4	5.4
DO	11.87	11.84	11.88	11.88	11.98	11.87	12.11
Specific Conductance	1996	2146	2401	2383	2078	2027	1739
SAL-ppt	1.02	1.1	1.23	1.22	1.06	1.03	0.88
pH	8.03	8.02	8.01	8.03	8.07	8.03	8.06
TURBIDITY (NTU)	2.67	3.15	3.15	3.3	4.32	2.78	2.3
GPS -(Lat-Lon)	N64°31'03.40"	N64°31'04.92"	N64°31'05.90"	N64°31'06.87"	N64°31'05.28"	N64°31'03.05"	N64°31'01.41"
GPS - Longitude	W164°34'37.96"	W164°34'37.75"	W164°34'35.11	W164°34'35.94"	W164°34'39.71"	W164°34'30.02	W164°34'36.31"

(All testing is done @ 2 feet increments until bottom is reached)

Applicant verified the depth data against drone footage to create the approximated bottom profile map (Figure 5-16).

During mining, the operation will continue to survey the bottom profile of all the claims using an RTK survey instrument, ultimately providing a more accurate bottom profile representation at the time of the survey (noting that the bottom profile in this environment is not static).

5.7 Gold Resource

Little is known about the distribution and overall quantity of the gold present in the general project area beyond the results of the core samples that have been taken, although there are reports of very good gold grades adjacent to the claim block near the Solomon River. Collier *et. al.*, (1908) identified the bluffs bounding the Bonanza Channel as likely to be marking an old sea beach and postulated that such beaches, if found, would likely prove to be as rich as the present beach at Nome. Contrary to the evidence for gold in this location the commonly held local belief is that no gold exists within the Bonanza Channel because there has not been any historic or

Table 5-5. Bonanza Channel background turbidity and water flow rates

Bonanza Channel & River Turbidity Measurement Exploration Study									
Date	Time (hh:mm:ss)	Lattitudfe / Longitude		File Name	Sample	Turbidity (NTU)	Flow (mph)	Flow (f/s)	Flow (m/s)
5/31/2019	12:41:20	N 64.32'34.9"	W 164.26'38.1"	BC1A	1	5.6	5.6	8.2	2.5
5/31/2019	12:42:20	N 64.32'34.9"	W 164.26'38.1"	BC1B	2	7.7	5.6	8.2	2.5
5/31/2019	12:51:35	N 64.32'00.0"	W 164.29'54.0"	BC2	3	10.9	3.5	5.1	1.5
5/31/2019	12:56:36	N 64.31'35.4"	W 164.31'26.6"	BC3	4	12.1	4.0	5.9	1.8
5/31/2019	13:00:30	N 64.31'32.3"	W 164.33'12.2"	BC4	5	4.3	0.0	0.0	0.0
5/31/2019	13:12:08	N 64.30'26.7"	W 164.36'47.6"	BC5	6	9.3	7.0	10.3	3.1
5/31/2019	13:19:01	N 64.31'14.3"	W 164.34'23.8"	DL1	7	12.4	5.5	8.1	2.4
5/31/2019	13:26:15	N 64.30'49.5"	W 164.35.35.8	DL2A	8	7.9	6.0	8.8	2.6
5/31/2019	13:30:06	N 64.30'49.5"	W 164.35.35.8	DL2B	9	8.1	6.0	8.8	2.6
5/31/2019	13:51:06	N 64.30'41.9"	W 164.36'01.5"	DL3A	15	9.5	3.5	5.1	1.5
5/31/2019	14:08:10	N 64.32'40.6	W164.26'13.1	BCBR01A	17	7.7	6.0	8.8	2.6
5/31/2019	14:09:10	N 64.32'40.6	W164.26'13.1	BCBR01B	18	6.0	6.0	8.8	2.6
5/31/2019	14:54:55	N 64.32'23.2"	W 164.29'45.9"	BR1	19	7.7	6.0	8.8	2.6
5/31/2019	14:56:13	N 64.32'42.1"	W 164.30'53.7	BR2A	20	6.3		0.0	
5/31/2019	15:00:28	N 64.32'42.1"	W 164.30'53.7	BR2B	21	6.1			
5/31/2019	15:03:30	N 64.32'18.5"	W 164.32'10.1"	BR3	22	6.8			
5/31/2019	15:06:56	N 64.32'58.0"	W 164.32'55.6"	BR4	23	11.6			
5/31/2019	15:11:29	N 64.32'52.2"	W 164.34'09.0"	BR5	24	7.7			
					Average NTUs	8.4			

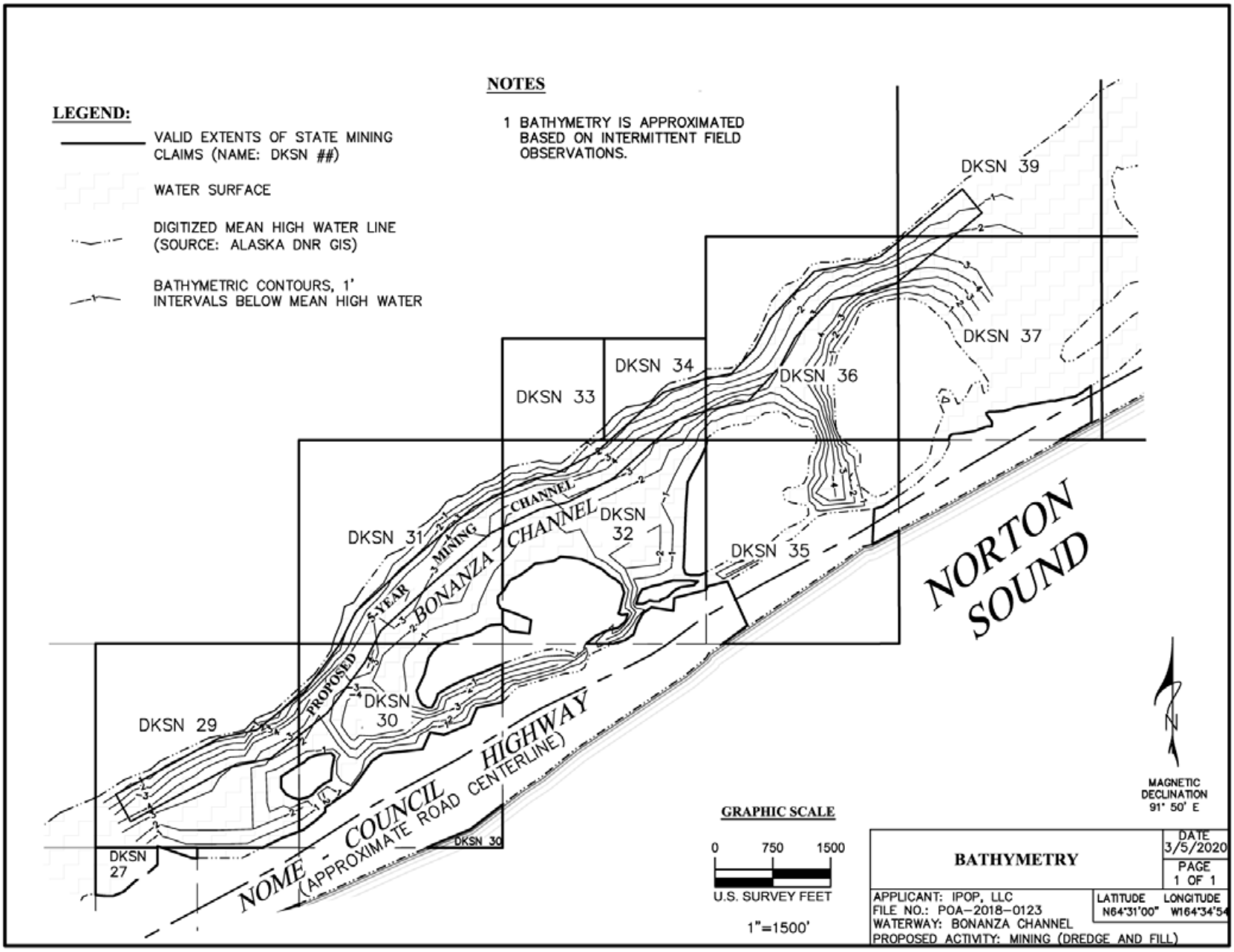
BC=Bonanza Channel
BR=Bonanza River
BCBR=Bonanza Channel Bridge
DL=Dredge Location (near as possible to planned plume study locations)

documented gold production from this area. This however can be explained by how this area was mined in the past (upstream, see Section 1.2) and the historic unavailability of technology to effectively recover fine gold (-100 to -400 mesh) as seen in the Bonanza Channel.

In general, placer deposits contain coarse gold near the source, and finer gold further away from the source. Gold in its natural state always contains chemical impurities such as silver, and dross (copper, lead, iron, etc.). These impurities make gold more resistant to abrasion during stream or ocean current transport. The gold found in Nome is very pure, averaging close to 900 fine, meaning 10% of the gold would be composed of silver and dross. Because the Nome gold is so pure, the Nome beach placer deposits often contain very fine gold (-100 mesh). In beach deposits such as Nome and the deposits in the Bonanza Channel the gold has been transported for long distances and ground very fine by waves hitting the beach obliquely. Thus ,the very fine nature of some of the gold in the Bonanza Channel is a direct result of severe storm and long transport distances.

Figure 5-15. Bonanza Channel Turbidity Measurements, May 31, 2019

Figure 5-16. Bathymetry map; elevation in feet BMHW (graphic scale is accurate, verbal scale refers to full size printed map)



5.7.1 2019 Exploration Drilling

In 2019 Applicant completed 13 test holes to 31 feet over an area 500-1000ft wide by 5,000ft long. This drilling occurred during the spring under ice bound conditions. Applicant used a GeoProbe© 540MT direct push drill to core a 2.25 outer diameter hole down to refusal (average 30 ft.). The drill core was drilled in 4 ft. increments (runs), each run was contained in a plastic pipe-like sleeve and boxed to be shipped to American Assay Labs for analysis. Because the samples were in plastic sleeves, they were unadulterated and essentially 100% of the recovered sample was retained.

The purpose of the drilling was to characterize the sediments as well as to explore for the presence of economical concentrations of gold. The Figure 5-17 illustrates the locations of those drill holes, Exhibits 8C, 8F and 8G detail the results of those drilling, and Exhibit 8D and 8E documents a strict chain of custody for those samples from the time they were collected until the time for which they were processed.

The 2019 drill holes were assayed at American Assay Labs in Sparks, Nevada for a 48-elemental suite, whole rock geochemistry, and size fraction analysis. Applicant did not fire assay for total gold as strict whole rock assay for gold in a placer deposit is not a standard procedure for testing for gold. Rather Applicant chose to combine 100% of the lab reject material and process it though a scaled version of the centrifuges that it has installed on its processing barge. Exhibit 8F and 8G shows the results of that test. Though the test does not describe the vertical or lateral distribution of gold in the sands, it does indicate the presence of a significant amount of gold present, estimated at 7 grams of gold from the 323 pounds of drill sample processed (representing an average calculated gold grade of 49 g/m³ from the drill holes).

5.7.2 Delineation Drilling Plan

Figure 5-18 shows the delineation drill plan for the IPA, mining years 1-3. Applicant designed this drill plan to define the gold distribution across these mining areas both laterally and vertically. The drill plan consists of 235 holes laid out in a grid with the expectation of drilling one to two seasons ahead of the mining for planning/minimization purposes. As of this writing, no delineation drill holes have been drilled towards this goal, because the additional drilling has not been permitted.

5.7.3 Inferred Gold Resource and Economic Analysis

Though no reported gold resources estimated at this time for the BCPP the sands of the Bonanza Channel fit the definition of "ore" under 40 CFR § 440.141: *(13) "Ore" means gold placer deposit consisting of metallic gold-bearing gravels, which may be: residual, from weathering of rocks in-situ; river gravels in active streams; river gravels in abandoned and often buried channels; alluvial fans; sea-beaches; and sea-beaches now elevated and inland. Ore is the raw "bank run" material measured in place, before being moved by mechanical or hydraulic means to a beneficiation process*.

The 2019 drilling from the project area was successful in that it did indicate a strong presence of gold in the IPA as documented in Exhibit 8F and 8G.

Figure 5-17. 2019 drill hole locations (graphic scale is accurate, verbal scale refers to full size printed map)

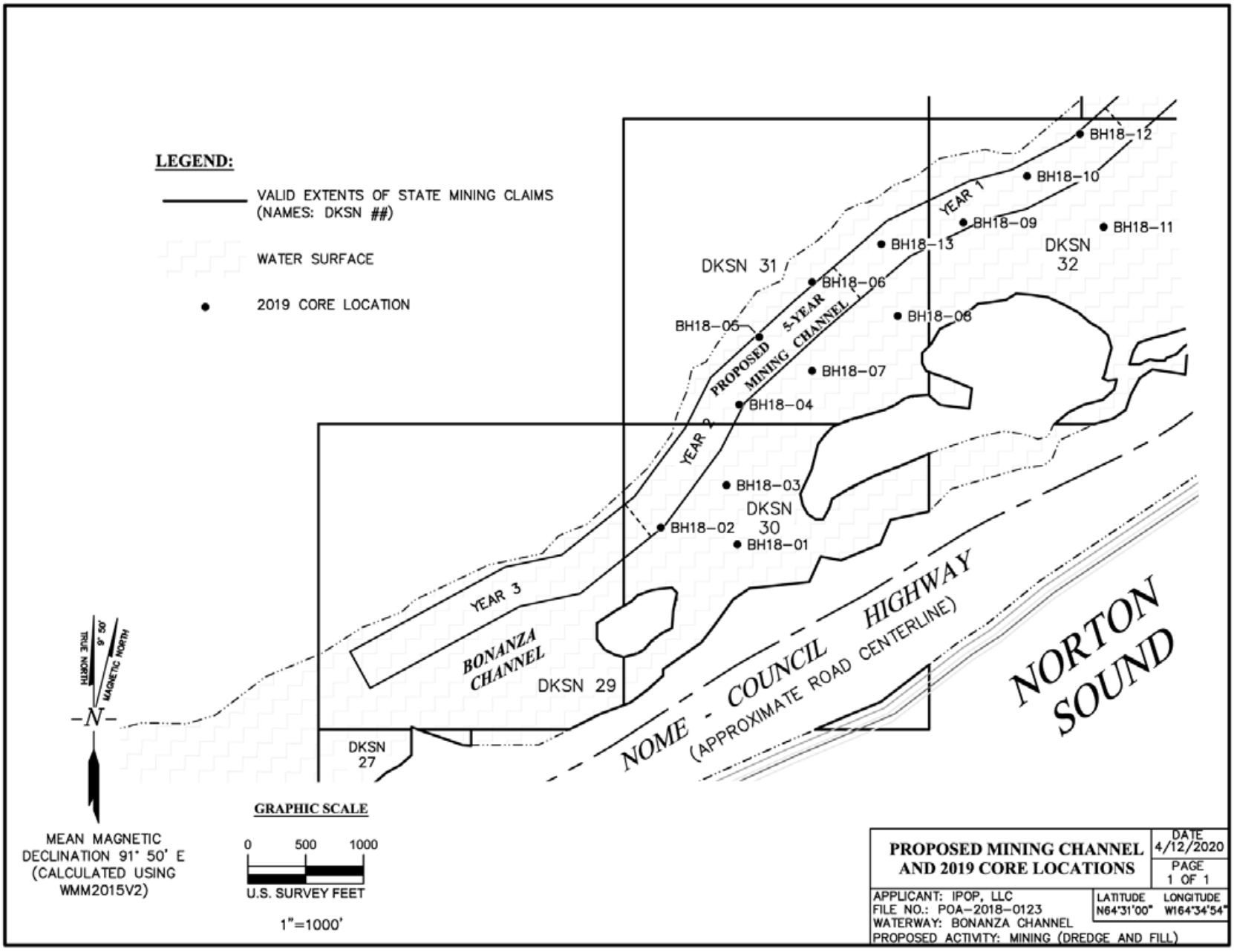
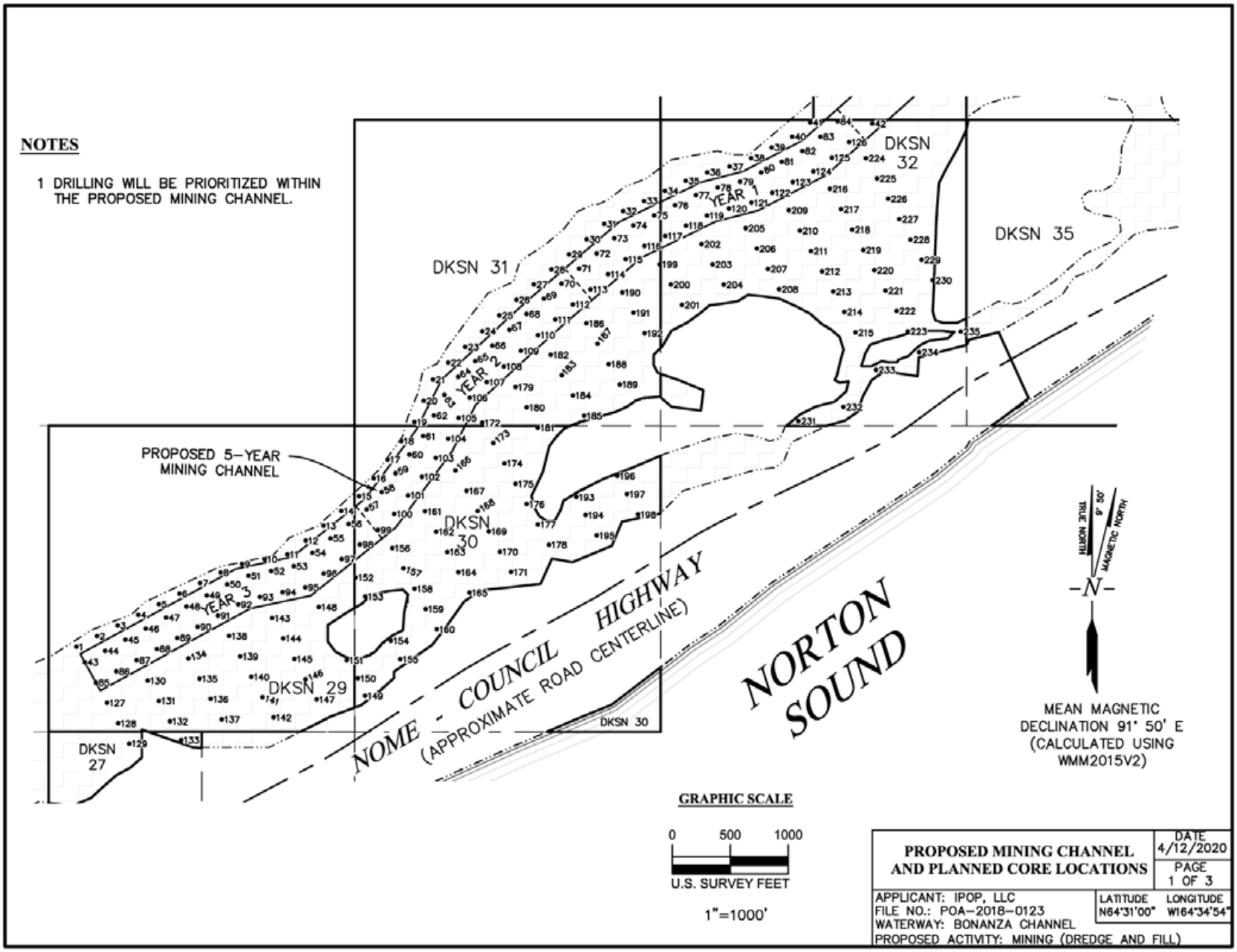


Figure 5-18. Planned delineation drill hole locations (graphic scale is accurate, verbal scale refers to full size printed map)



William J. Burnett, Certified Professional Geologist, has reviewed the drilling, sampling and processing methodology and the sample chain of custody and finds the data reasonable for estimating the economics/placer mine potential in the initial mining area. As such William Burnett calculated a break-even cut-off grade for the BCPP based on Applicant's estimated operating costs inflated by a contingency factor of 1.5. The variables considered in the economic evaluation are shown in Table 5-6.

Table 5-6. Key economic assumptions for BCPP cut-off grade

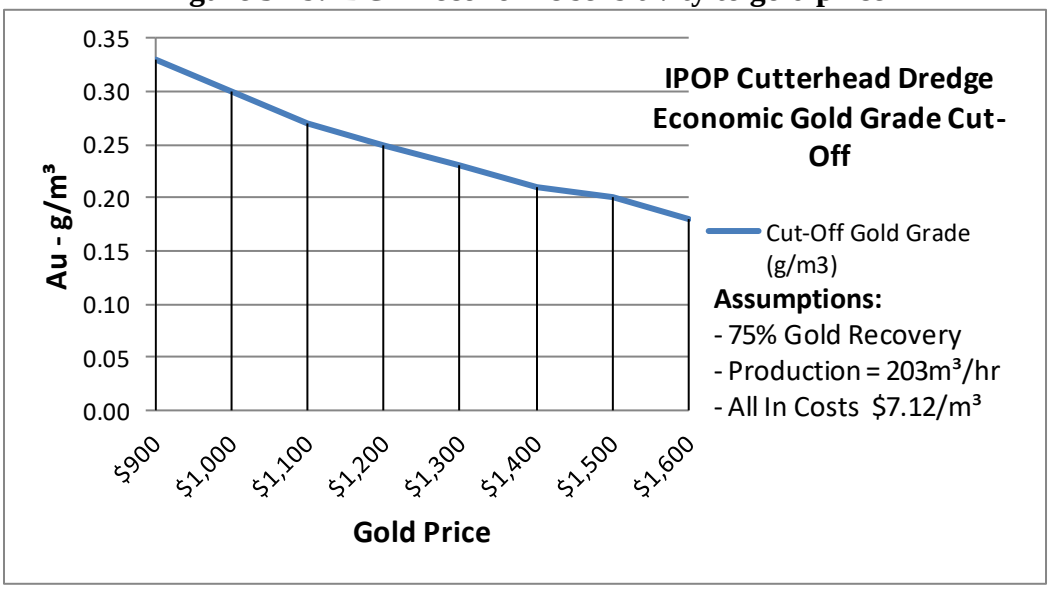
Cost Center	**$/m³**
G&A	$ 2.00
Fuel	$ 0.40
Camp	$ 0.50
Mining	$ 1.80
Processing	$ 1.32
Environmental Compliance	$ 0.10
Maintenance	$ 1.00
Total All-In Dredging Cost/m³	**$ 7.12**
Gold Price	$ 1,300
Recovery	75.0%
$/Gram	$ 31.35
Calculated Cut-Off (grams/m³)	**0.23**

On the basis of this economic analysis a lowest economic gold grade cut-off was determined using the designed throughput of 267yd³/hr (203m³/hr), 90% equipment availability, 75% gold recovery (the tests of the equipment indicate higher overall recoveries than this), and a 3 year running average gold price of $1300/ounce, the economic cutoff for this operation as designed is 0.23 g/m³. This is made possible by the highly efficient, low operating cost machinery developed by Applicant for this project.

Because of the high throughput, the project is not very sensitive to gold recovery or gold price. Figure 5-19 shows the cut-off grade sensitivity to gold price. At the date of this writing the gold price is over $1,700/ounce (off the chart in Figure 5-19; today's economic cut-off would be below 0.15 g/m³).

Based on the visual estimates of gold recovered from the 2019 drilling from the tests using the exact centrifuges that are installed on the processing barge, William Burnett is of the professional opinion that the area drilled in 2019 is economic to mine by the methods presented in this application if all operating costs assumptions are correct.

Figure 5-19. BCPP economic sensitivity to gold price



5.7.4 Future Exploration and Delineation Drilling

As demonstrated in this section, Applicant's project does not require significant gold concentrations to be economic. However, Applicant intends on-ongoing annual exploration and delineation drilling of its claims for planning and minimization purposes; focusing mining on the highest gold grade zones in the claim block. Applicant expects the drilling plans, techniques and processing/analysis of the core samples to evolve over time as more is learned about the distribution and size fractions of the gold.

5.8 Dredge Area Access Channel (5 Year Plan)

Figure 5.1 is an overview of the project showing the mining location, dredge material disposal sites, and the access channel inside and outside the IPA. The access channel (or trench) for the operation is also depicted in Figure 5-20 with corresponding cross sections shown in Figures 5-21.

The access channel is designed to be 50 ft. wide at the bottom with a maximum water depth of 10' BMHW. The dimensions and depth of the access channel may be adjusted shallower or narrower as experience dictates. The access channel slopes are expected to be an overall slope of 3:1 or steeper; therefore, at its maximum near the shore the access channel will be 104 ft. wide in plan-view, narrowing 6 ft. for every additional foot of water depth. The channel will average 85 ft. wide over most of its length (3,800 ft.) to the mining area.

The access channel will be extended and maintained throughout the length of the mining channel for continued access to current year and future year mining areas (see Sections 5.9.3 and 5.9.4). As both a safety precaution and a form of environmental mitigation, a categorical limit of three m.p.h. shall be imposed on all barges and tenders. Low speeds also will avoid problems from grounding on irregular shoals throughout the claims.

Figure 5-20. Access channel with cross section locations (graphic scale is accurate, verbal scale refers to full size printed map)

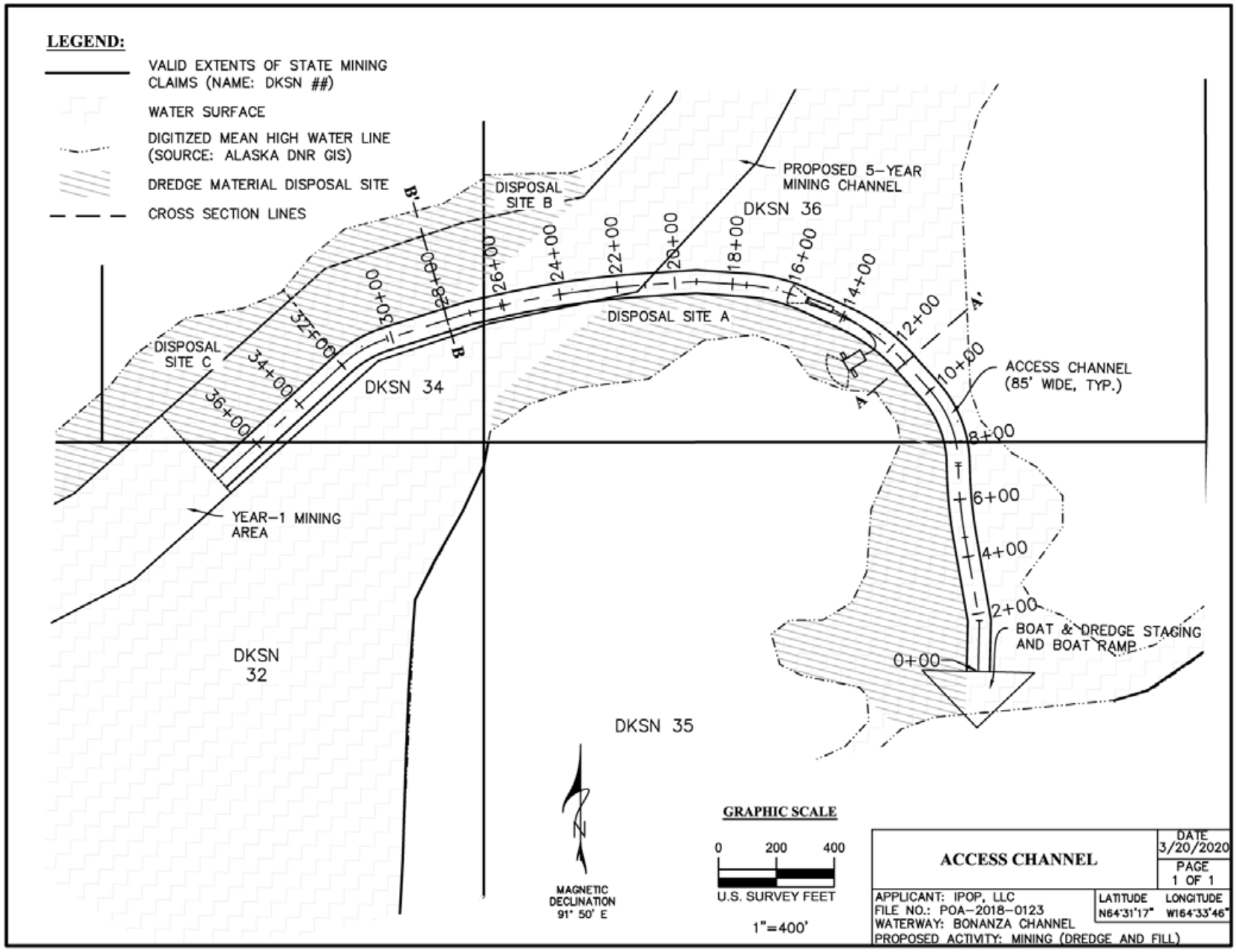
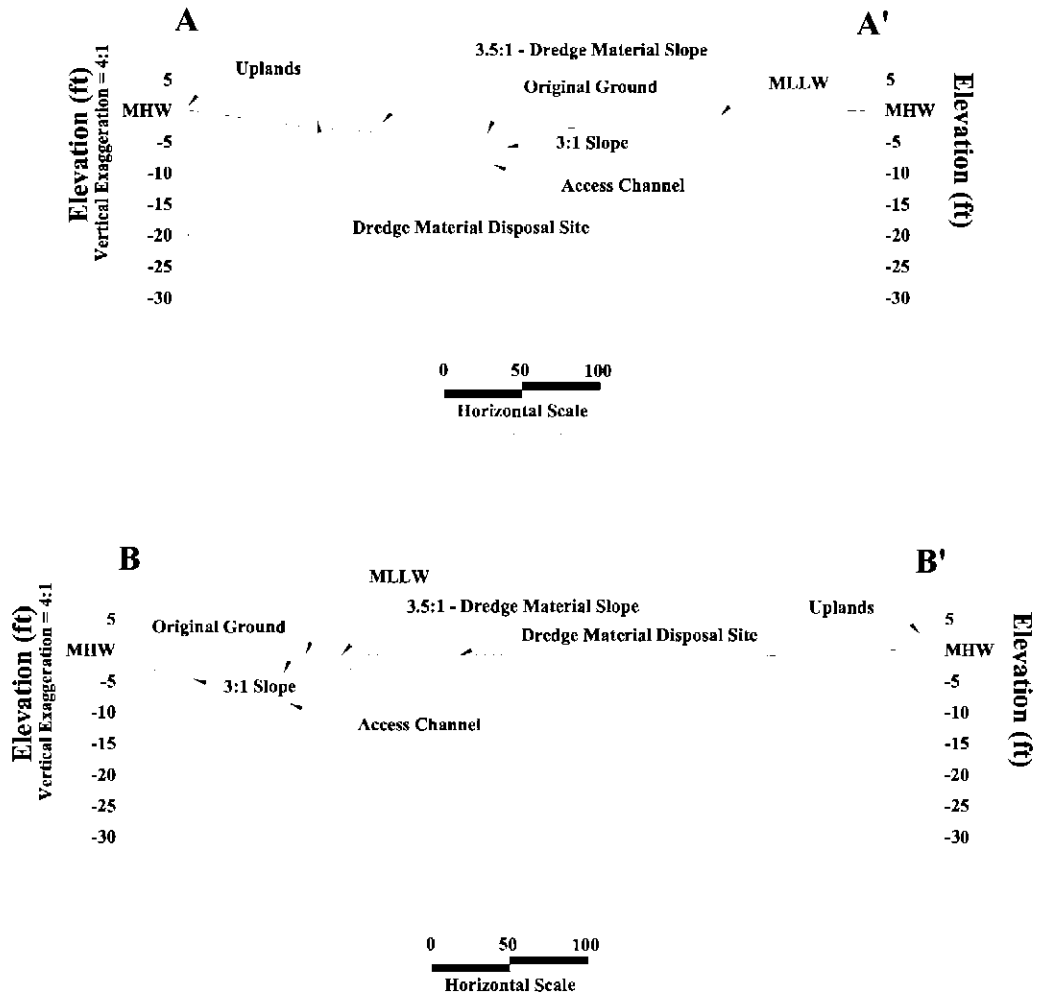


Figure 5-21. Typical cross sections of access channel dredge and fill: A-A' and B-B'



CROSS SECTIONS

5.8.1 Dredged Material Disposal Sites (Access Channel)

Dredge material disposal sites (DMDS) are planned adjacent to the access channel and nearby islands or uplands. Considering the calculated bulking factor for the soils all of the material removed from the access channel is expected to fit in DMDS "A", "B" a portion in DMDS "C" BMHW (volumes listed in Table 5-7). Applicant will also temporarily deposit a portion of the material AMHW if material bulking exceeds expectations. Any such material will be reclaimed to MLLW at the end of each mining activity window

The access channel will be developed by dredging to planned depth and discharging the dredged soil by pipe or by processing barge into the DMDS. Turbidity from the development of the access will be controlled by using the turbidity curtains (see Section 5.10.1). The turbidity curtains will be anchored and sealed on the bottom of the lagoon, to contain all turbidity. Figure 5-22 shows the typical stages of access development and depicts the typical configuration of the turbidity curtains during the construction of the access channel.

5.8.2 Maintenance of Access Channel

As the access channel is critical for ongoing operations. Because there is literally no current in most of the area of the access channel, and because the operational plan is to dredge the channel to 10 ft. depth BMHW to start, maintenance requirements will be minimal.

5.9 Dredging Operations (5 Year Plan)

The nominal activity window is expected to be between June 1 and October 15 annually. Dredging is expected to occur 24 hours per day with a production rate of 267yd³/hr for the work window of 140 days. Assuming 100% equipment availability the operation will dredge at most 897,120 yd³ over an area of not more than 21.7 acres per year (considering design slopes of mining channel). Because of the nature of the equipment, and possible weather impacts to the operation, this production estimate is considered the best-case scenario; Applicant expects 90-95% equipment availability to be more likely during operations, so in actuality the annual acreage mined may be less than 21.7 acres.

The mining channel is designed around the capabilities of the dredge at 200 ft. wide at the bottom, 31 ft. deep from the surface of the water. Dredged trench slope angles are dependent upon the types of material being dredged and the depth of the trench and consideration of the most common instability mechanism for slopes, shear failure (Raaijmakers, 2005). Wave load was not considered in the design of the slope angles because of the shallowness of the estuary and the fact that wave effect rapidly peters out with depth. The trench slope is assumed to be an overall listric shape, standing at 2.7:1 (H:V) or 20 degrees near the top, and 3.7:1 at the bottom of the trench, for an overall average design slope average of 3:1 similar to breaching test results during suction dredging (Maertens, Van Alboom, Haelterman, & Couck, 2014). Consideration of the 3:1 (H:V) trench slope makes the overall mining trench width at the top 360 ft. wide at its maximum (see Figures 5-23 and 5-28 [*Cross Section C-C'*]).

The mining layout for years 1-5 is shown in Figure 5-24. This layout is based on a mining trench 360 ft. wide, located in a single continuous "mining channel" by capturing areas where the

Figure 5-22. Access channel development stages (graphic scale is accurate, verbal scale re. printed map)

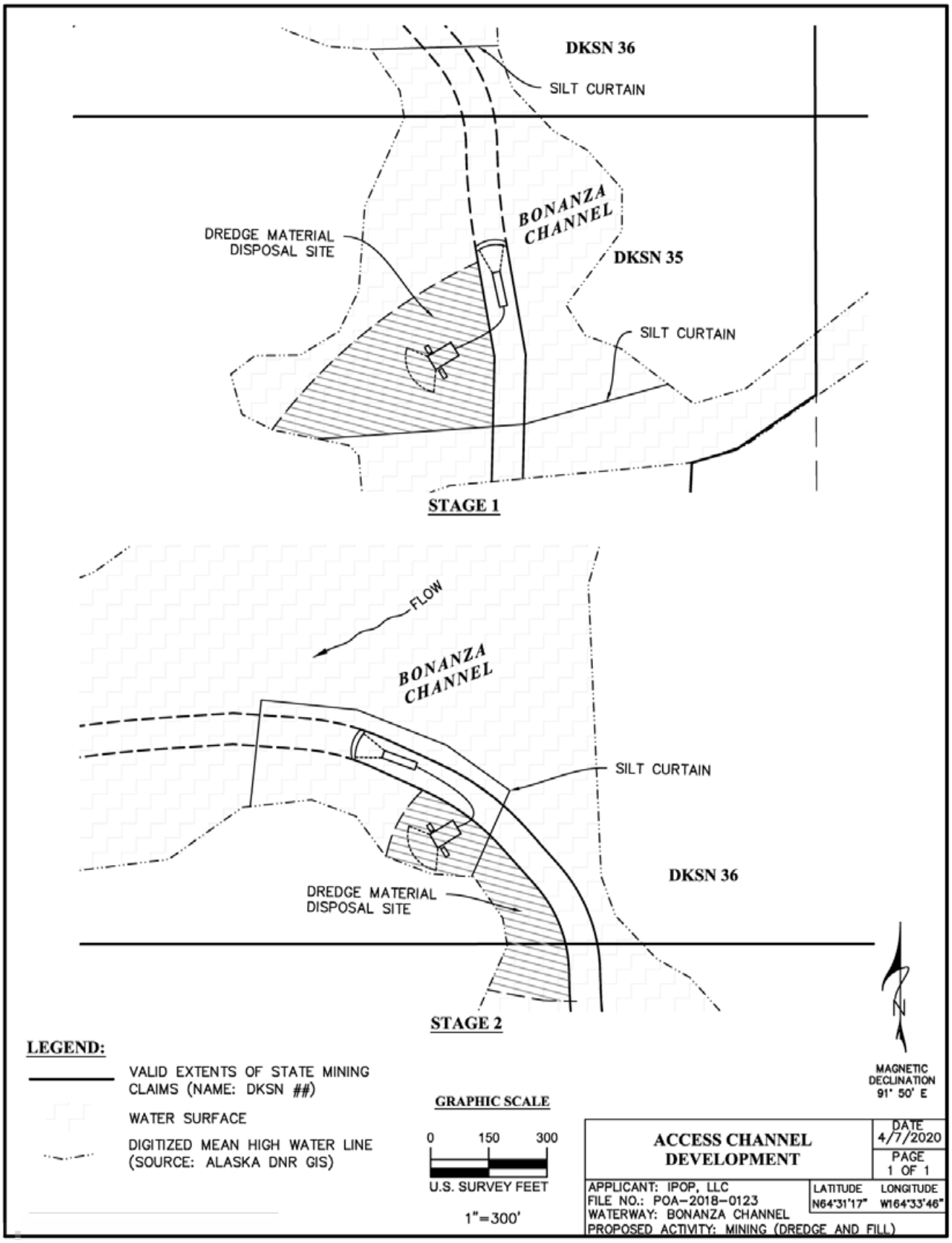


Figure 5-23. Typical dredging layout map showing typical BMP layouts, cut and disposal (graphic scale is accurate)

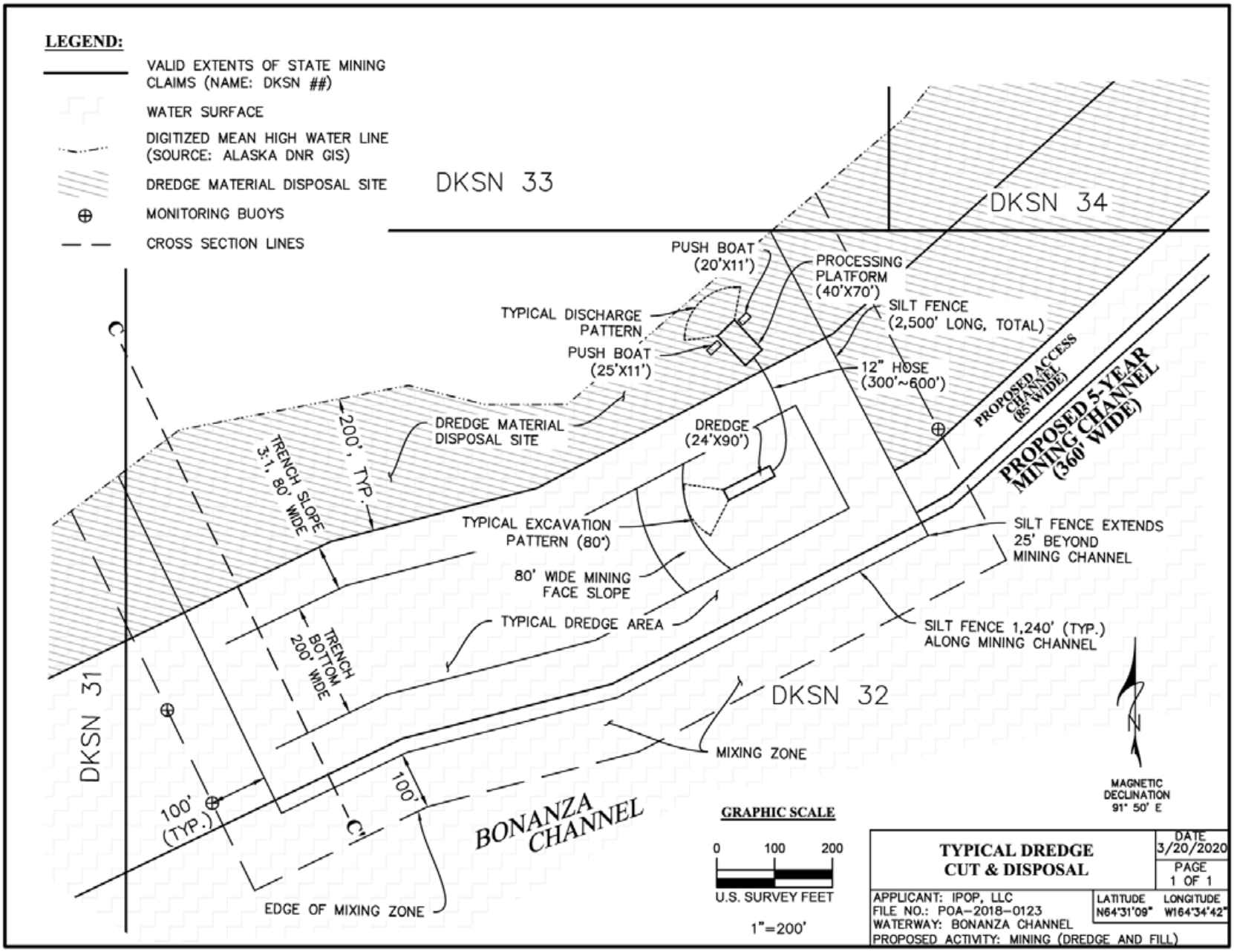
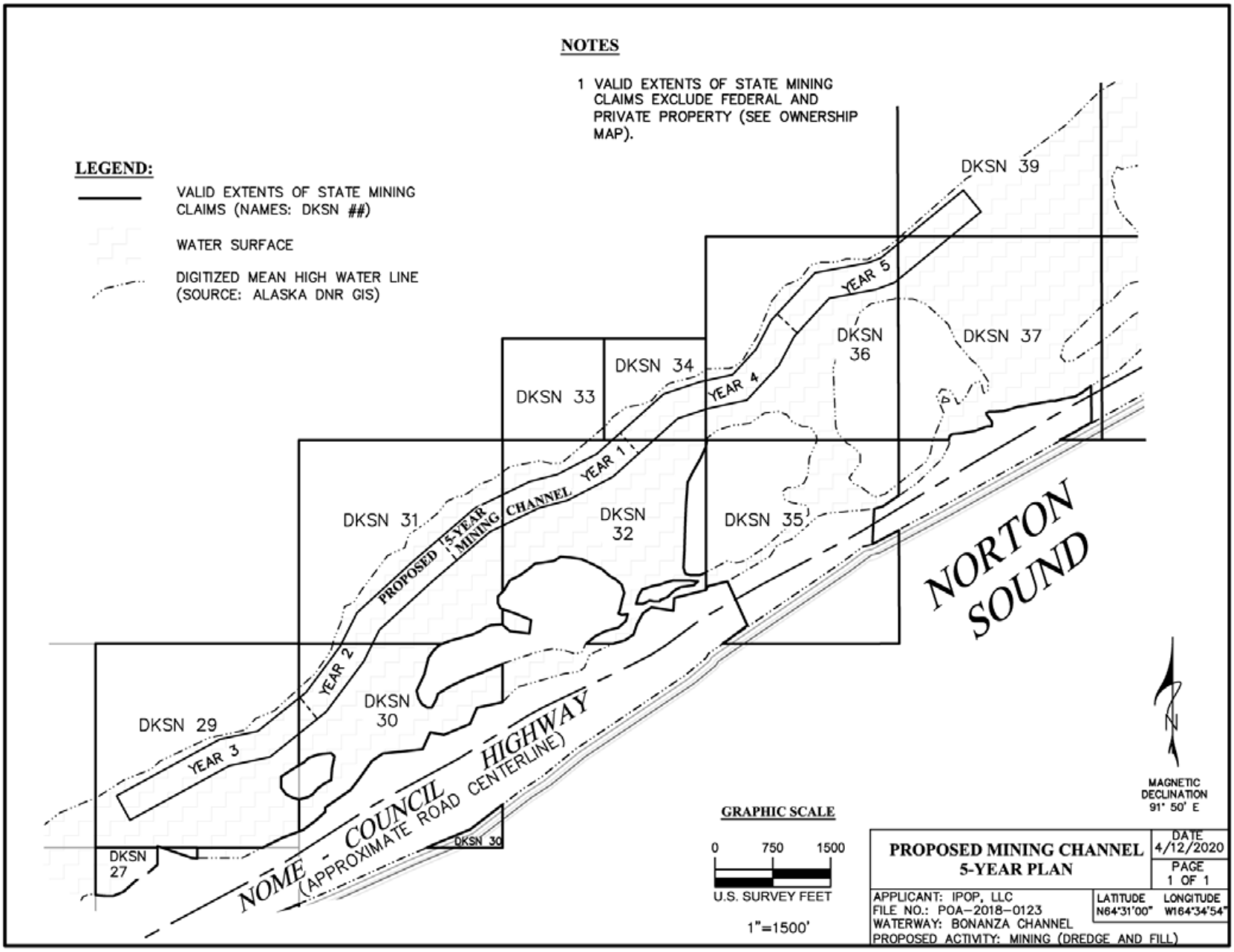


Figure 5-24. Five-year mine layout for IPA (graphic scale is accurate, verbal scale refers to full size printed map)



Applicant had conducted exploratory drilling in 2019 that indicated the presence of economic gold concentrations. The mining channel is continuous/linear to combine all dredge material disposal sites into a single area, and to mine systematically through the gold-enriched sands to a prescribed depth, resulting in a predictable plan, with predictable results, thereby minimizing the environmental impact of the mining operation as compared to other alternatives considered.

5.9.1 Annual Sequence of Dredging Operations

Annual mining will be sequenced as follows:

Year 1-3. The area Applicant has chosen for mining during years 1-3 are those areas represented by the 2019 core drilling. Eight out of thirteen drill holes are within this section of the proposed mining area (See Figure 5-17).

Year 4-5. There is currently no drilling in the area covered by years 4 and 5. Applicant intends on drilling this area prior to mining.

5.9.2 Dredged Material Disposal Sites (Mining Channel)

Dredge Material Disposal Sites (DMDS) are planned as areas for initial deposition of dredged material from the dredge starting hole (described in Section 5.9.3, *Stage 1*), and for storage of excess (or bulked) dredged soils. The operation expects there to be enough storage capacity for these purposes at or BMLLW; however, Applicant may temporarily deposit some material AMLLW in special circumstances (see section 5.9.4). DMDS for the mining are all located on the N side of the mining channel, between the mining channel and the uplands Figure 5-1 and Figure 5-25.

Considering an estimated overall bulking factor of 1.16, and a consolidation of 7.5% of the bulked material with time and self-weight consolidation (reducing the average bulking factor to 1.075), the DMDS are expected to have enough volume to accommodate all bulking expected from this operation. Table 5-7 details the project areas, calculated storage capacities, and estimated dredge and fill volumes within wetland areas for years 1-5.

5.9.3 Stages of Dredging Operations

The typical stages of the dredging operation are shown in Figure 5-26 and 5-27. Corresponding cross sections are shown in Figures 5-28, 5-29 and 5-30. The stages and figures are described in detail below.

Stage 1. As with all the dredge stages, the turbidity curtain is installed before any dredging takes place (see Section 5.10.1). As the dredge is preparing to mine, its computer system is mapping the bottom of the channel, creating a 3D point cloud from sonar and on-board differential GPS. Once the dredge begins to excavate its initial hole at the start of a mining season all excess dredge soil is processed and deposited within the DMDS location starting in the adjacent mining area and extending into the current mining area. The dredge tailings are deposited either off of the processing barge (if the water is deep enough) or by a discharge pumping and pipe system

extending 300 ft. – 600 ft. from the processing barge. All slopes of the dredge trench are assumed to be approximately 3:1 as described above.

Stages 2 and 3. Once the initial dredge hole is established the processing barge begins to backfill the mined-out trench with processed tailings, filling the trench and DMDS in accordance with how much bulking the operation is experiencing, up to MLLW. As shown in the cross section (Figure 5-29, *Cross Section F-F'*) the access channel will be left unfilled.

Stage 4. When necessary, dredging will temporarily shut down, allowing suspended solids and turbidity to settle out, after which the operation will relocate the turbidity curtain down the mining channel and mining will continue as before.

Table 5-7. Estimated dredge and fill volumes and area acreage

Item Description	Acres	Storage Capacity (CY)	Dredged Volume (CY)	Bulked Dredged Volume* (CY)	Fill Type and Volume		Fill Volume Summary		
					Soils				
					Wetlands (CY)	Uplands (CY)	Wetlands (CY)	Uplands (CY)	Total (CY)
Access trench	4.2	0	33,200	35,690					
Year 1	21.7	957,346	900,000	964,404	957,346	0	957,346	-	957,346
Year 2	21.7	957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 3	21.7	957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 4	21.7	957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 5	21.7	957,346	900,000	964,404	941,427	0	941,427	-	941,427
Dredge Disposal Site A	14.6	13,666			13,666	0	13,666	-	13,666
Dredge Disposal Site B	7.1	7,019			7,019	0	7,019	-	7,019
Dredge Disposal Site C	19.7	22,977			22,977	0	22,977	-	22,977
Dredge Disposal Site Yrs 2-5	22.9	143,600			55,304	0	55,304	-	55,304
Totals	176.9	4,973,992	4,500,000	4,822,020	4,822,020	-	4,822,020	-	4,822,020

**Assuming 1.075 bulking factor*

5.9.4 Description of Discharge and Reclamation

No chemicals will be used in the processing of the ore. All of the discharge will be clean tailings from the dredging operation only, re-deposited into the bottom of the estuary in an effort to distribute material evenly at or BMLLW. The operation would like to reserve the right to discharge AMLLW in certain cases where the operation does not have enough adjacent DMDS to accommodate excess material from bulking or from establishing an initial dredge hole (*Stage 1*, Section 5.9.3).

Reclamation will be concurrent with mining. If no bulking occurs, the operation will redeposit the material in an effort to establish the bottom to its pre-mining elevations as the processing barge passes over the excavated mining channel with the exception of the access channel which will be left at its designed depth 10 ft. BMHW (Figure 5-29 *Section F-F')*. The processing barge is moved and positioned by four on-board electric winches w/anchors, located at each corner of the barge. As the processing barge follows the path of the dredge, the push boats will use depth sonar and GPS location mapping, to move it over the excavated site. The excavated area will then be filled in, leaving the bottom as close to where it was originally if there is no significant material bulking.

Figure 5-25. Year 1 development showing DMDS C (graphic scale is accurate, verbal scale refers to full size printed map)

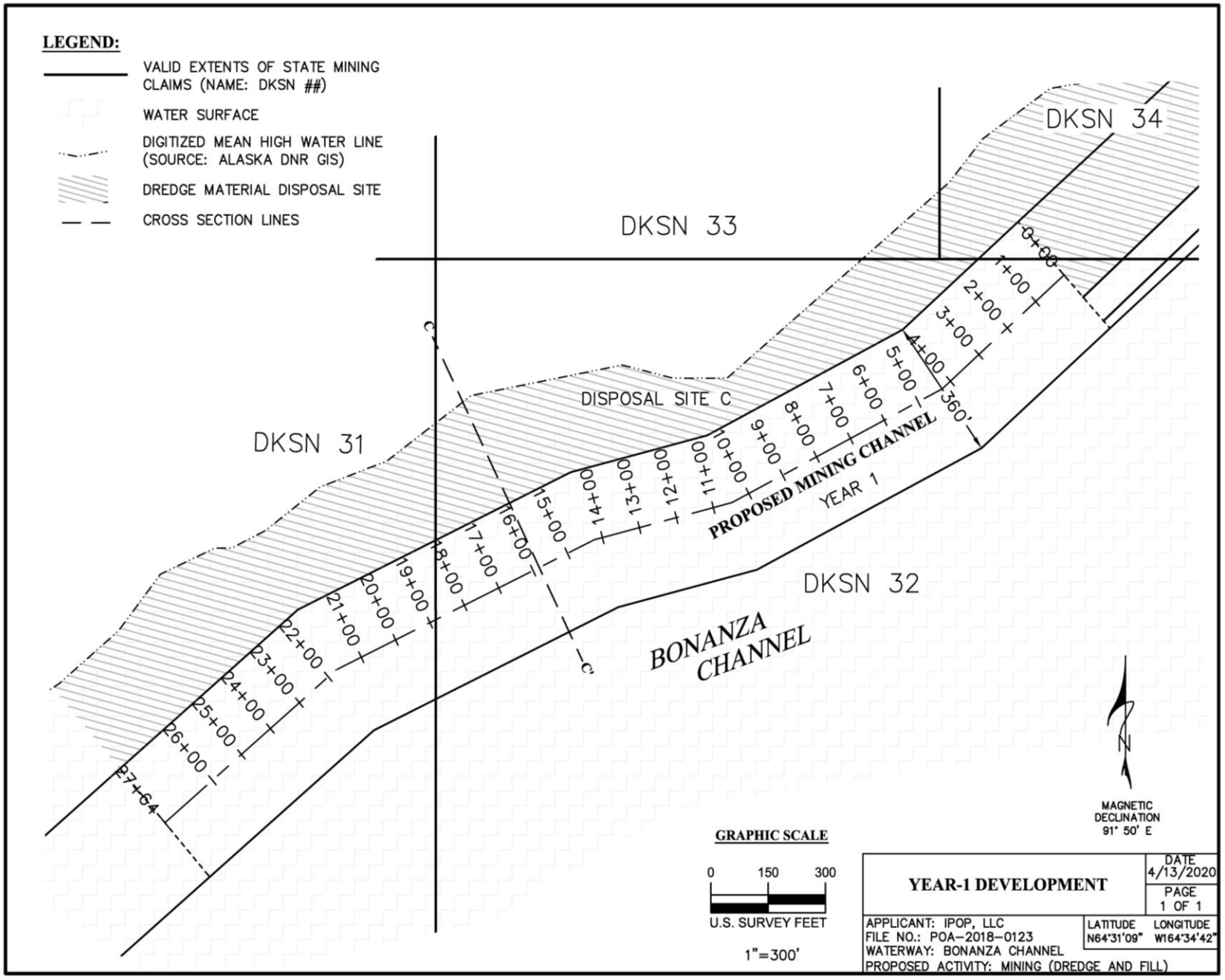


Figure 5-26. Typical dredging and filling stages (part 1) (graphic scale accurate)

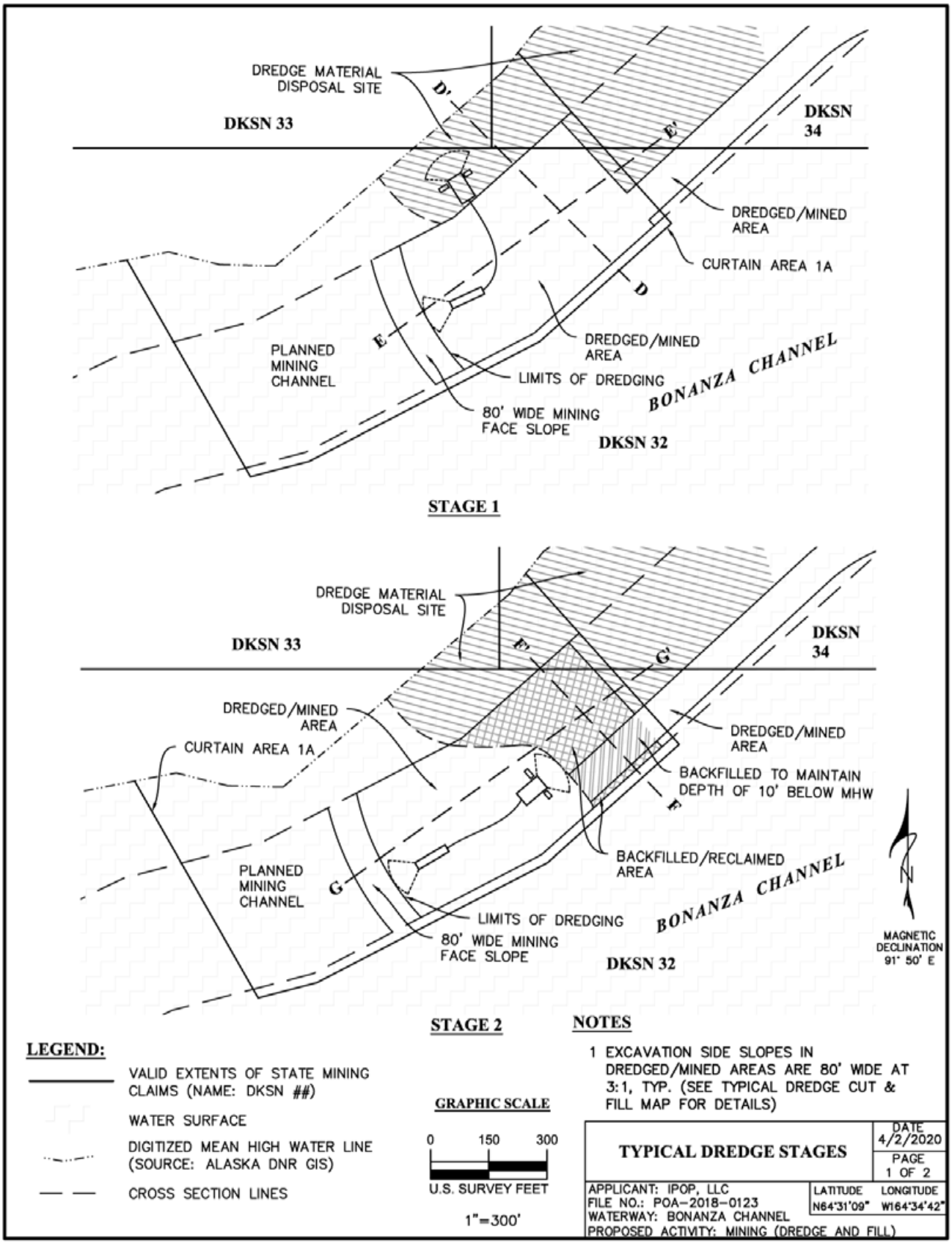


Figure 5-27. Typical dredge and fill stages (part 2) (graphic scale accurate)

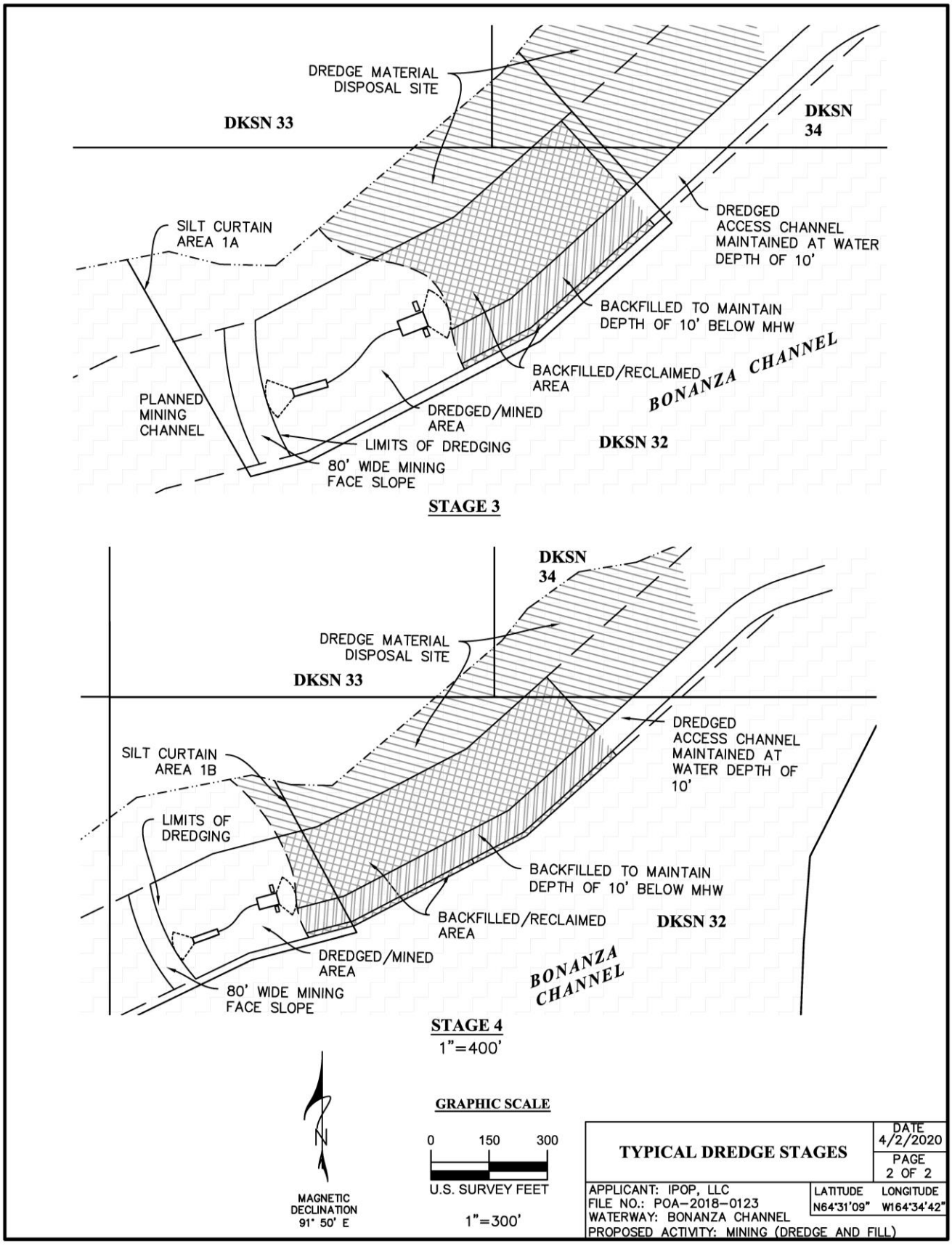


Figure 5-28. Cross sections of typical dredge and fill: C-C' and D-D'

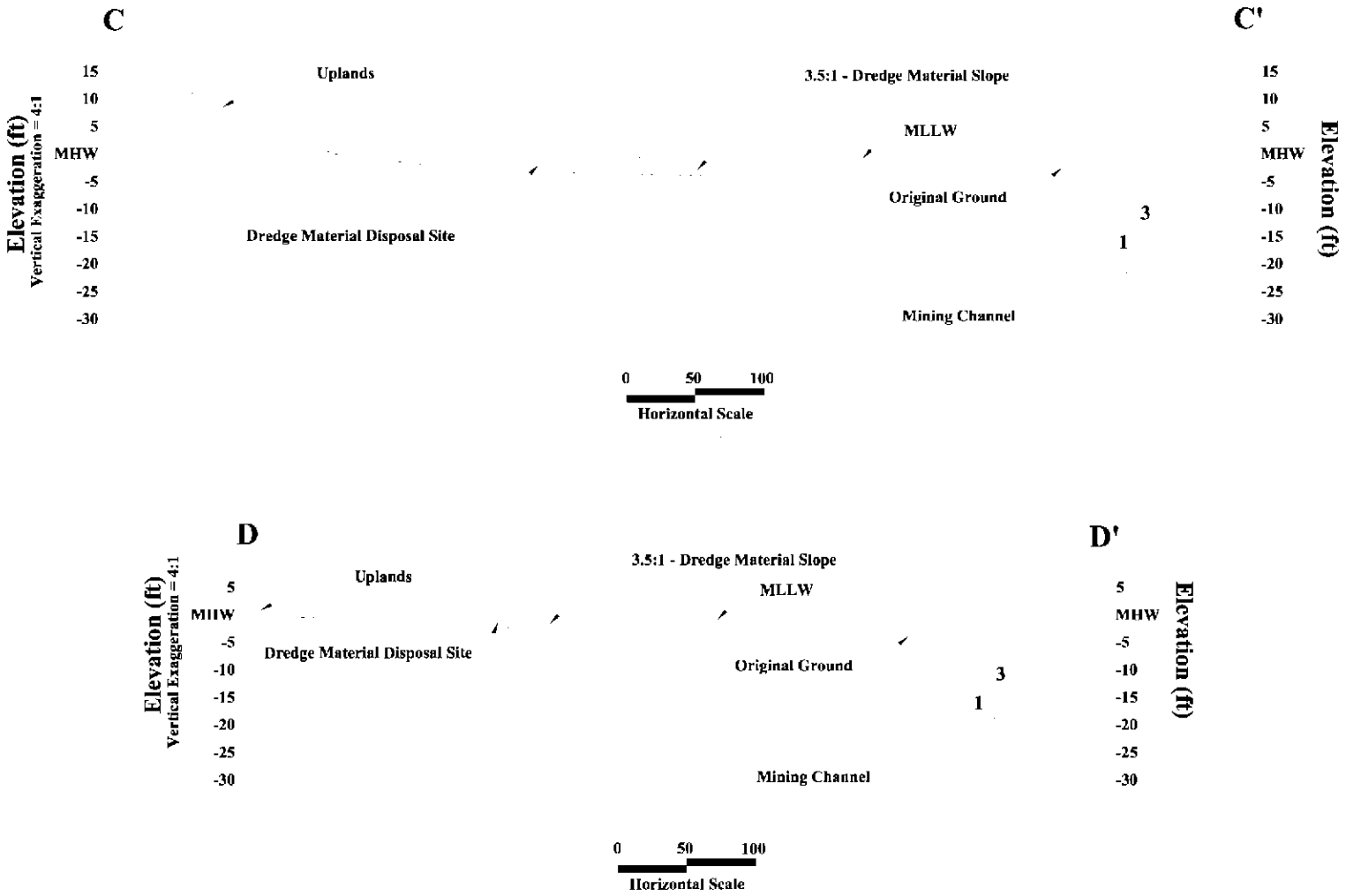
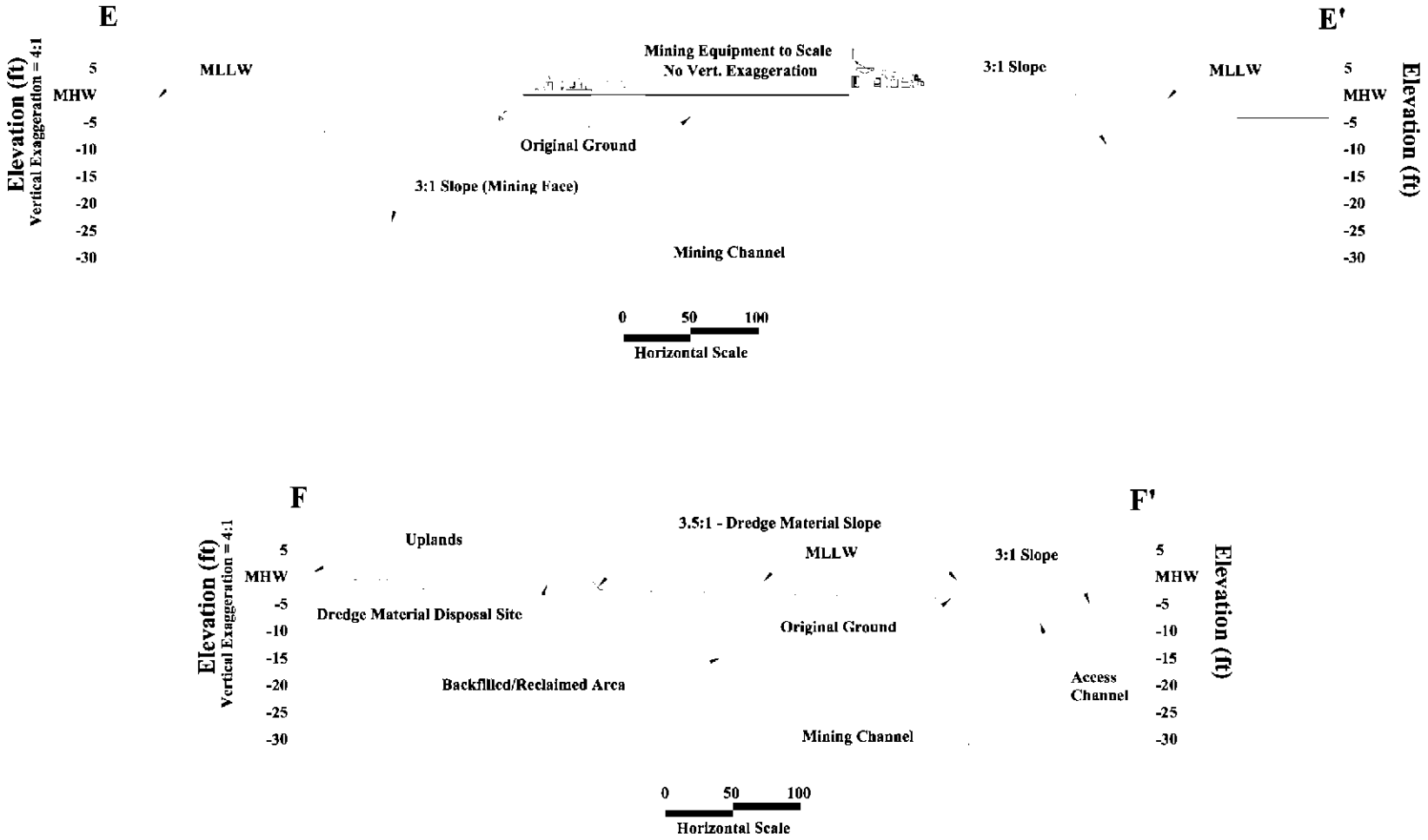


Figure 5-29. Cross sections of typical dredge and fill: E-E' and F-F'



Because of the draft of the processing barge, discharge directly from the processing platform will only be possible in waters deeper than 2' 9". In all shallower areas the discharge will be from a single pipe up to 600 ft. long (transporting a pumped tailings slurry to the shallow areas of the DMDS), or from a combination of processing platform outfalls in deeper waters (*Outfall 1*) and a pumped slurry that concurrently moves sand to the shallow areas of the DMDS.

The filled material will compact back down to its pre-mining state within 2-3 years

5.10 Best Management Practices

Best management practices will be applied where applicable to this operation as follows:

1) Safe fuel handling.
2) Additional pre-season site surveys and photographic inspections for eelgrass.
3) Continuous wildlife and fish monitoring within the mining area.
4) Continuous turbidity, conductivity, current, tidal and weather monitoring within the mining area.
5) Strict adherence to speed limits both with trucks and other vehicles on the local roadways and with boats within the waters of the U.S.
6) All flow of surface water in the Bonanza Channel will essentially be allowed to flow around the operation area unimpeded.
7) No berms or dikes will be constructed for this operation, only the temporary turbidity curtains.
8) No pollutant materials will be added to the process water no statutory pollutants will be discharged from the operation.
9) The operation will be within a secondary containment, described in the following sections. The process water used for the operation will be from its secondary containment only; no new water will be needed as make-up water.
10) The secondary containment will act as a turbidity/suspended solids retention structure. This feature will be maintained to continue its effectiveness as described in section 5.10.3. Additionally, the secondary containment will be monitored and maintained to protect it from unexpected or catastrophic failure.
11) All operations will cease during storm events that threaten to raise the water levels in the mining area or to destabilize the turbidity curtain.

5.10.1 Turbidity Control

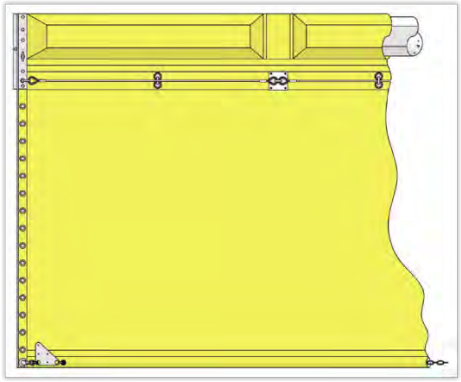
Turbidity is expected from this operation, and turbidity within the curtained area will certainly cause exceedances above extent freshwater quality standards for turbidity. However, most of the material will settle out rapidly All high turbidity areas are contained by the turbidity curtain. Applicant understands that the Alaska Department of Environmental Conservation (ADEC) will allow a mixing zone for the operation which will extend 100 ft. beyond the boundary of the turbidity curtain (Figure 5-23). Applicant determined that in order to meet stringent water quality standards in a non-static environment it will employ best management practices (BMP) to its operation incorporating a full operational containment solution with water quality monitoring equipment outside of the containment within the range of the 100 ft. mixing zone starting at the

boundary of the BMP. Accordingly, Applicant has acquired ELASTEC Type III RuffWater Screen turbidity curtains to control turbidity and other mining impacts on areas outside of the mining operation. Exhibit 10 shows some turbidity curtain case studies.

5.10.2 Background of Ruffwater Screens

The Type III Ruffwater Screen Turbidity Curtain is a heavy-duty premium barrier designed for use in tidal areas or areas where adverse conditions can occur. Floation billets suspend the top of the curtain; the bottom of the curtain is weighted and has anchoring points or additional weight pockets. The curtains are designed to be linked together continuously. Figure 5-30 is a section of the typical curtain. Exhibit 10 shows curtain specifications. This brand of turbidity curtain is designed for use in demanding water conditions. The curtain intercepts debris and slows the movement of rough water, helping to keep marine habitats safe. The conditions that these curtains were developed for are far in excess than those expected to be encountered in the Bonanza Channel.

Figure 5-30. Section of Type III Ruffwater Screen Turbidity Curtain showing floatation and curtain



The RuffWater Screen is designed for sediment and silt control to protect fragile environmental conditions. An example of the successful application of this technology was the California Department of Transportation's (CALTRAN) Crissy Field Drainage Improvement Project; the manufacturer's video concerning installation and use of the of the turbidity curtain may be seen at https://vimeo.com/140186579 and in Figure 5-31 below. Exhibit 10 details a relevant case study.

The RuffWater Screen was installed to mitigate silt and turbid water in the construction zone in a muddy bay. This project has received several environmental awards and recognitions. The following testimonial letter of success was written to Elastec by Eltora Charles, Civil T.E. California Department of Transportation

> *On behalf of Caltrans I would sincerely like to thank you and your crew for our turbidity control curtain. Thank you to the Elastec family for assisting Caltrans in designing a Best Management Practice that has been both cost effective and has exceeded our expectations in performance. Recently I was observing the waves onsite crashing against the shoreline - the winds were so strong they were blowing*

our plastic covers about; however, the turbidity curtain remained intact and during dredging operations there was no visible notice of turbidity outside of the curtain! It performed like a champ!

The curtain installation was conducted by Elastec and monitored by the media, California Department of Transportation (Caltrans) and marine biologists.

Figure 5-31. Type III Ruffwater Screen Turbidity Curtain being deployed in San Francisco Bay, CA.

5.10.3 Turbidity Curtain Configuration

Applicant has in its inventory 2,550 total lineal feet of 18oz turbidity curtain (see Exhibit 10 for specifications). Specifically, Applicant has:

- 20ea 50 ft. Type III Elastec Curtains with filter windows (1,000 linear feet)
- 31ea 50 ft. Type III Elastec Curtains without filter windows (1,350 linear feet)

The curtains incorporate furling lines for easy lifting and repositioning of curtain during the operating season. The curtain will also include a small gate over the access channel that can be opened and closed to allow sufficient access and egress for re-supply and personnel transport into the operational area.

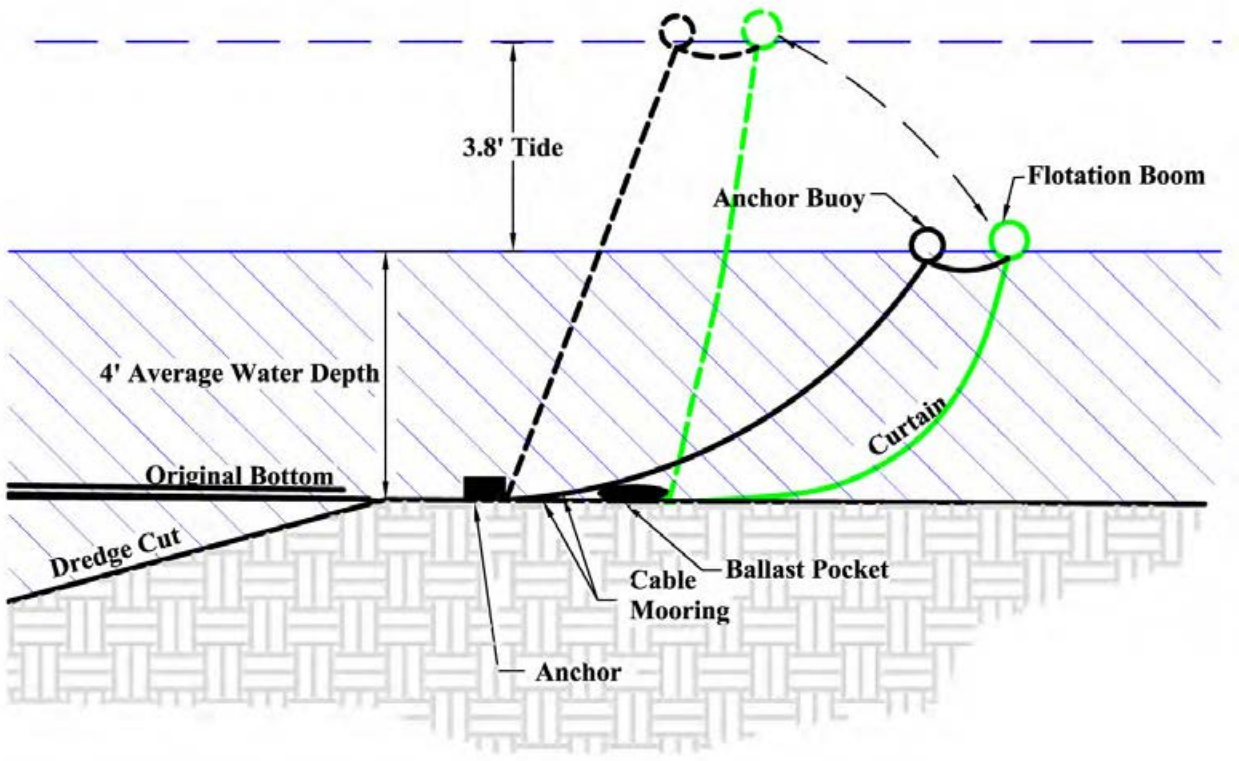
The turbidity curtain configuration differs for the development of the access channel and the mining (generalized configurations are shown in Figure 5-22 and Figure 5-23). In both cases the configuration takes into account the appropriate hydrodynamic conditions (water flow, depth, etc.) such that the environment, safety and navigation is not compromised by the curtain. Typically, the curtain configuration for mining will be more rounded than as depicted in the generalized configuration. The configuration will be a "U" shape, with the shore forming the fourth side of the containment. Each setup will be 10-14 acres in area and contain seven to twelve million gallons of water. To keep the curtain from flaring upward toward the surface due to tidal forces and wind, the curtain is weighted at the bottom and the configuration is designed to bottom mount the curtain with ballast, various sized anchors, soil augers and/or small steel h-piles to provide a protective

seal against the bottom and to provide certainty that it remains in place during operations (Figure 5.32).

Due to the likelihood of the turbidity curtain to deflect in a concave pattern relative to the forces of outside currents and/or the chance of the curtain lifting off of the bottom, filtered window sections are incorporated into the design that let water through yet retains small sediments. If necessary, the project may need to install sections of the curtain as break water barriers to deflect the current around the containment. Alternating the two types of turbidity curtains will maintain consistent pressures and water levels inside of the containment relative to the outside of the containment thereby stabilizing the entire curtain configuration.

Factors that can cause damage to turbidity curtains include high winds/storms, prevailing currents, flooding tides, and floating debris. The configuration of the bottom mounted design, filtered segments, shallow nature of the lagoon 1-6 ft. (nominally 2-4 ft.) and lack of floating debris in the Bonanza Channel will protect the turbidity curtain containment from potential damage.

Figure 5-32. Typical BCPP turbidity curtain bottom mounting configuration illustrating movement with tides and storm surges



5.11 Monitoring Plan

The types of monitoring expected include baseline monitoring and compliance monitoring. The objective of the baseline monitoring is to collect data that documents the current conditions of the estuary. The objective of compliance monitoring is to ensure that Applicant operates and closes each mining season within permit limitations, minimizing impacts to the environment.

5.11.1 Water monitoring

The operation will carry out continuous, real time monitoring of tidal influence, currents, pH, temperature, conductivity, weather patterns, and turbidity during the mining period to help refine future operations and provide useful data to the regulatory agencies regarding both background water and water conditions during operation. The baseline water monitoring program will focus on the areas nearest and up gradient of the dredging operation. Monitoring down gradient of the operation will collect data to monitor and minimize potential impacts from the mining operation. Additionally, monitoring will be conducted inside of the containment area. In addition to water monitoring, these stations may also be set up to monitor weather, correlating storm events, wind speed and direction, to all the other data being collected.

Monitoring will be done with floating monitoring buoys, bottom mounted tripod monitoring stations, and gauge stations along the shores. Proposed is a single background monitoring station up current of the operation, and one or two down current of the operation. The monitoring stations will upload real-time continuous data to the cloud via Wi-Fi telemetry and send alarms/notifications to the dredge operator in the event that the operation goes out of compliance on turbidity. The monitoring devices will include sensors for temperature, conductivity, salinity and turbidity. One of the monitoring stations will include a met sensor that measures wind speed, wind direction, air temperature, barometric pressure and GPS. A real time current meter also with Wi-Fi telemetry and sensors for water level, temperature, and possible bi-directional velocity in multiple cells may also be installed.

Additionally, the project has handheld sampling units with sensors for temperature, conductivity, salinity and turbidity, and a separate handheld unit for measuring water current. The handheld device will be used periodically to monitor turbidity inside of the containment area.

5.11.2 Visual Monitoring

Visual monitoring and inspection of the turbidity curtain will be conducted on a continual basis by the operational staff and noted in daily logs. Operation personnel will be instructed to look for unusual signs such as changes in shape of the containment, or escaping turbidity as well as any unusual watercolor or sheens. The monitor will watch for filter sections that need cleaned, for effectiveness of the turbidity control devices and request additional controls or notify the operation to slow or cease dredging when turbidity rises above acceptable levels. Visual monitoring will also be conducted daily along the access channel from the boat ramp to the mining area, and around the camp site looking for fuel spills, or anything else unusual.

5.11.3 Wildlife Monitoring

The operation will conduct daily monitoring of wildlife. Specific areas that will be monitored on a continuous basis are the dredging containment, shallows constructed by the operation, and the access channel between camp and the dredging area. A log will also be maintained of wildlife sightings in the project area that include bear, moose, caribou, seals, and other furbearers. Operations personnel will not log birds or other smaller wildlife typically observed in the project area.

All of Applicant's employees will be instructed to report unusual wildlife encounters and mortalities of fish, birds or other wildlife to the operations manager. Wildlife mortalities that occur within the general project area will be reported to the Alaska Fish and Wildlife Service (USF&WS), National Marine Fisheries Service (NMFS), ADF&G, ADNR office of Habitat Management Permitting, Fairbanks office, and ADEC. All carcasses can be made available for collection by the USF&WS or ADF&G, if required by the agencies. Any wildlife mortalities due to defense of life and property will be recorded in a log maintained with the operations manager and reported to the ADNR Office of Habitat Management and Permitting, Fairbanks, Alaska and the Alaska Department of Fish and Game (per State reporting requirements).

Applicant will comply with all wildlife reporting requirements as established in the permitting process.

5.11.4 Monitoring Records and Reporting

Field activities pursuant to the monitoring plan will be recorded on field forms that will contain the following information:

- Location, date, time of inspection
- Person(s) performing the inspection or monitoring activity
- Observations and/or measurements
- Calibration and maintenance of instrumentation
- Laboratory performing any analysis
- Chain of custody records for any laboratory analysis
- Laboratory reports; and
- Consultant or engineering report

During the period of operation, closure and reclamation all records associated with the monitoring activities will be retained by Applicant or a representative of Applicant for a period of 3 years.

Monitoring reports will be submitted quarterly to ADEC and ADNR. All quarterly reports will be submitted not more than 60 days after the last day in the quarter, in hard copy and electronic format. In addition, an annual report will be prepared for each year through December 31 and will be submitted to ADEC and ADNR on or before March 1 of the subsequent year in hard copy or electronic format. The electronic reports will be prepared in accordance with requirements set forth by the ADEC and ADNR. Annual reports will summarize all visual geotechnical and water monitoring that has taken place during the year. Quarterly and annual reports will include information necessary to determine data validity, data variation and trends, and any exceedance of limits.

5.12 Seasonal Start-up and Shut-down Procedures

The BCPP is a seasonal operation, operating within the activity window June 1 through October 15. Dredging operations will commence as soon as winter ice is gone any time after June 1. IPOP will transport the camp, containers, barges and other equipment to the access parcel (staging location) and assemble and stage the system in the water as described in section 5.2. Once the

dredge barge and processing barge are floating in the access channel, the flexible hose will connect them and the units will proceed northward between the two islands on a path for the Initial Operational Area.

At the end of the operation activity window (October 15) or when ice begins to form (whichever comes first) the dredge and processing barge will be shut down and partial de-mobilization activities will commence. Before the dredge and processing barges are moved, the turbidity and suspended solids will be allowed settle out and the turbidity curtain and monitoring devices will be pulled from the water. The equipment will return to the staging area. During the winter, the dredges will be winterized, and all fuel will be removed from the equipment. Some equipment will be stored in the staging area/base camp on land for the winter, and the rest will be transported for dry storage in Nome.

5.13 Environmental Impact Summary

The BCPP is a small placer gold dredging operation that will operate seasonally within inland waters of Alaska. The project is well thought out and designed to have negligible long-term impacts on the environment. The deepening of the channel by mining may provide an environmental benefit. Alternatives for every aspect of the project have been considered on the basis of minimizing potential impacts to the environment. The alternatives chosen are the least likely to pose any substantive environmental risk. In summary the operation:

- Operates out of a self-contained mobile man camp
- Does not add chemicals to its process
- Operates at a low sound level and will not disturb birds or wildlife
- Is small in active footprint, thus does not pose much of a visual disturbance
- Will operate within its own containment, thus controlling turbidity before the 100 ft. mixing zone and will also provide a safety net for any accidental fuel spillages.
- The containment will also provide an effective fish barrier to protect fish from the dredging/filling operation.
- Will dredge sands and re-fill the holes it digs with the exception that it will leave a portion of the Bonanza Channel deeper than it is currently with the objective of improving fish passage and habitat in the estuary.

5.14 Reclamation Plan Summary

The BCPP is a dredge and fill mining operation. Reclamation will be concurrent with mining. Reclamation and time will restore the majority of the area impacted back to its pre-mining conditions. Reclamation is designed to improve the fish and shorebird habitat.

6.0 REFERENCES

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Plate 1

Land Ownership Map

AREA MAP

SOURCE: USGS QUADRANGLES, 1950

SCALE: 1"=5 MI.

0 5mi 10mi

GENERAL NOTES

1 CLAIM LINES AND HYDROGRAPHIC LINES WERE EXTRACTED FROM GIS DATA PROVIDED BY THE ALASKA DNR. THE MINING CLAIM BOUNDARY LINES, AS RETRIEVED FROM THE DNR DATABASE, ARE CLIPPED TO EXCLUDE THE APPROXIMATE LOCATIONS OF VALID EXISTING RIGHTS.

2 NO ASSERTION IS HEREBY BEING MADE REGARDING THE ACCURACY OR COMPLETENESS OF THE DEPICTION OF THESE CLAIMS WITH RESPECT TO THE LOCATION OR NATURE OF ANY VALID EXISTING RIGHTS EXCLUDED FROM THE CLAIMS.

3 THIS MAP IS NOT INTENDED TO ACCURATELY PORTRAY ANY LEGAL BOUNDARIES, EITHER SURVEYED OR PROTRACTED.

4 ALL POINTS SHOWN HEREON INDICATE THE APPROXIMATE LOCATIONS OF THE FEATURES WHICH THEY REPRESENT. THESE ARE NOT INTENDED TO BE A SUBSTITUTE FOR A SURVEY OF THESE FEATURES.

5 THE OWNERSHIP INFORMATION CONTAINED HEREON DOES NOT CONSTITUTE A LEGAL RECORD OF OWNERSHIP, BUT IS INCLUDED AS A GENERALIZED INDEX FOR INFORMATIONAL PURPOSES.

6 THE VALID AREA OF STATE MINING CLAIMS IS PRESUMED TO INCLUDE ONLY THOSE AREAS UNDER OWNERSHIP OF THE STATE OF ALASKA. ANY DEPICTION HEREON TO THE CONTRARY IS DUE TO MAPPING ERRORS, OR ERRORS IN – OR AVAILABILITY OF – THE DATA FROM WHICH THIS MAP WAS DEVELOPED.

7 OWNERSHIP OF SUBMERGED LANDS BENEATH NAVIGABLE WATERS IS BY THE STATE OF ALASKA. THIS MAP IS NOT INTENDED TO EITHER SUPPORT NOR DISPUTE THAT CLAIM WITH RESPECT TO THOSE WATERS DEPICTED HEREON.

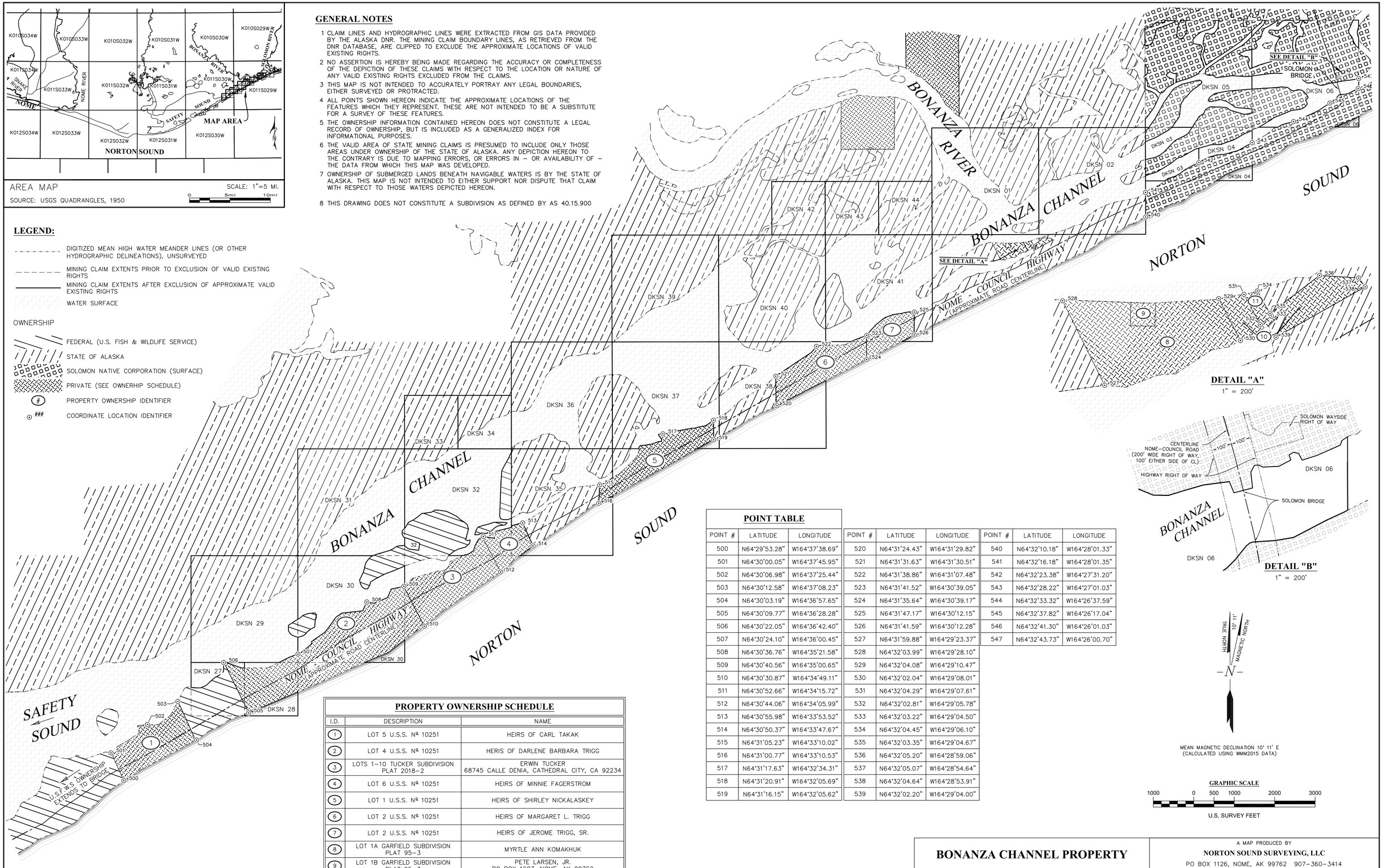
8 THIS DRAWING DOES NOT CONSTITUTE A SUBDIVISION AS DEFINED BY AS 40.15.900

LEGEND:

- DIGITIZED MEAN HIGH WATER MEANDER LINES (OR OTHER HYDROGRAPHIC DELINEATIONS), UNSURVEYED
- MINING CLAIM EXTENTS PRIOR TO EXCLUSION OF VALID EXISTING RIGHTS
- MINING CLAIM EXTENTS AFTER EXCLUSION OF APPROXIMATE VALID EXISTING RIGHTS
- WATER SURFACE

OWNERSHIP

- FEDERAL (U.S. FISH & WILDLIFE SERVICE)
- STATE OF ALASKA
- SOLOMON NATIVE CORPORATION (SURFACE)
- PRIVATE (SEE OWNERHIP SCHEDULE)
- (#) PROPERTY OWNERSHIP IDENTIFIER
- ⊙ ### COORDINATE LOCATION IDENTIFIER



PROPERTY OWNERSHIP SCHEDULE

I.D.	DESCRIPTION	NAME
(1)	LOT 5 U.S.S. Nº 10251	HEIRS OF CARL TAKAK
(2)	LOT 4 U.S.S. Nº 10251	HERIS OF DARLENE BARBARA TRIGG
(3)	LOTS 1–10 TUCKER SUBDIVISION PLAT 2018–2	ERWIN TUCKER 68745 CALLE DENIA, CATHEDRAL CITY, CA 92234
(4)	LOT 6 U.S.S. Nº 10251	HEIRS OF MINNIE FAGERSTROM
(5)	LOT 1 U.S.S. Nº 10251	HEIRS OF SHIRLEY NICKALASKEY
(6)	LOT 2 U.S.S. Nº 10251	HEIRS OF MARGARET L. TRIGG
(7)	LOT 2 U.S.S. Nº 10251	HEIRS OF JEROME TRIGG, SR.
(8)	LOT 1A GARFIELD SUBDIVISION PLAT 95–3	MYRTLE ANN KOMAKHUK
(9)	LOT 1B GARFIELD SUBDIVISION PLAT 95–3	PETE LARSEN, JR. PO BOX 1603, NOME, AK 99762
(10)	LOT 2 U.S.S. Nº 10249	HEIRS OF ESTHER JAMES
(11)	LOT 3 U.S.S. Nº 10249	MYRTLE ANN KOMAKHUK

POINT TABLE

POINT #	LATITUDE	LONGITUDE
500	N64°29'53.28"	W164°37'38.69"
501	N64°30'00.05"	W164°37'45.95"
502	N64°30'06.98"	W164°37'25.44"
503	N64°30'12.58"	W164°37'08.23"
504	N64°30'03.19"	W164°36'57.65"
505	N64°30'09.77"	W164°36'28.28"
506	N64°30'22.05"	W164°36'42.40"
507	N64°30'24.10"	W164°36'00.45"
508	N64°30'36.76"	W164°35'21.58"
509	N64°30'40.56"	W164°35'00.65"
510	N64°30'30.87"	W164°34'49.11"
511	N64°30'52.66"	W164°34'15.72"
512	N64°30'44.06"	W164°34'05.99"
513	N64°30'55.98"	W164°33'53.52"
514	N64°30'50.37"	W164°33'47.67"
515	N64°31'05.23"	W164°33'10.02"
516	N64°31'00.77"	W164°33'10.53"
517	N64°31'17.63"	W164°32'34.31"
518	N64°31'20.91"	W164°32'05.69"
519	N64°31'16.15"	W164°32'05.62"

POINT #	LATITUDE	LONGITUDE
520	N64°31'24.43"	W164°31'29.82"
521	N64°31'31.63"	W164°31'30.51"
522	N64°31'38.86"	W164°31'07.48"
523	N64°31'41.52"	W164°30'39.05"
524	N64°31'35.64"	W164°30'39.17"
525	N64°31'47.17"	W164°30'12.15"
526	N64°31'41.59"	W164°30'12.28"
527	N64°31'59.88"	W164°29'23.37"
528	N64°32'03.99"	W164°29'28.10"
529	N64°32'04.08"	W164°29'10.47"
530	N64°32'02.04"	W164°29'08.01"
531	N64°32'04.29"	W164°29'07.61"
532	N64°32'02.81"	W164°29'05.78"
533	N64°32'03.22"	W164°29'04.50"
534	N64°32'04.45"	W164°29'06.10"
535	N64°32'03.35"	W164°29'04.67"
536	N64°32'05.20"	W164°28'59.06"
537	N64°32'05.07"	W164°28'54.64"
538	N64°32'04.64"	W164°28'53.91"
539	N64°32'02.20"	W164°29'04.00"

POINT #	LATITUDE	LONGITUDE
540	N64°32'10.18"	W164°28'01.33"
541	N64°32'16.18"	W164°28'01.35"
542	N64°32'23.38"	W164°27'31.20"
543	N64°32'28.22"	W164°27'01.03"
544	N64°32'33.32"	W164°26'37.59"
545	N64°32'37.82"	W164°26'17.04"
546	N64°32'41.30"	W164°26'01.03"
547	N64°32'43.73"	W164°26'00.70"

DETAIL "A"
1" = 200'

DETAIL "B"
1" = 200'

MEAN MAGNETIC DECLINATION 10° 11' E
(CALCULATED USING WMM2015 DATA)

GRAPHIC SCALE

1000 0 500 1000 2000 3000

U.S. SURVEY FEET

BONANZA CHANNEL PROPERTY

GENERAL PROPERTY OWNERSHIP MAP

A MAP OF OF PROPERTY OWNERHSHIP ADJACENT TO THE BONANZA CHANNEL, LOCATED IN TOWNSHIP 11S RANGE 29 WEST, AND TOWNSHIP 11 SOUTH, RANGE 30 WEST, KATEEL RIVER MERIDIAN, ALASKA

A MAP PRODUCED BY
NORTON SOUND SURVEYING, LLC
PO BOX 1126, NOME, AK 99762 907–360–3414

DATE: DECEMBER 05, 2018

SCALE: 1"=1000'

DEVELOPED FOR: IPOP, LLC

DRAFTING BY: ENIGMA INDUSTRIES

Designed	---	PAGE
Drawn	EAT	1 OF 1
Checked		

Exhibit 1

Travis/Peterson Environmental Consulting, Inc.

Travis/Peterson
Environmental Consulting, Inc.

Michael D. Travis P.E.
President

3305 Arctic Boulevard, Suite 102
Anchorage, Alaska 99503

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November, 29 2018
1610-02

National Marine Fisheries Service, Alaska Region
Post Office Box 21668
Juneau, Alaska 99802

Attention: **Jon Kurland**
Assistant Regional Administrator for Protected Resources

Dear Mr. Kurland:

The U.S. Army Corps of Engineers, Regulatory Division (USACE) has received and is reviewing a Department of the Army permit application from Mr. Beau Epstein, IPOP LLC to conduct exploratory coring under Nationwide Permit 6, and a test dredge operation, under Nationwide Permits 18 and 19 (USACE File# POA-2018-00123).

The USACE designated Mr. Michael Travis of Travis/Peterson Environmental Consulting, Inc. (TPECI) as the Non-Federal representative to conduct informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) for the proposed project (letter enclosed). We have determined that the proposed activity may affect, but is not likely to adversely affect the bearded seal (*Erignathus barbatus*), spotted seal (*Phoca largha*), and ringed seal (*Phoca hispida*). Our supporting analysis is provided below. We request your written concurrence if you agree with our determinations.

Project Description

The proposed exploratory project consists of two distinct activities. The first involves using a GeoProbe® coring rig to advance exploratory borings for soil sample collection and analysis. Coring will be conducted exclusively in the winter season. The second portion of the exploratory project involves using a small dual-engine, 6-inch diameter suction dredge to evaluate water quality impacts. Dredging will be conducted in the ice-free season. See enclosed equipment photo log for photos of the coring rig and dredge. Both parts of the exploratory project are described below.

Exploratory Coring

A 540MT GeoProbe® will be mounted on a sled pulled behind an all-terrain vehicle. The GeoProbe® uses a percussion hammer to advance probe cylinders into the ground. Core samples will be collected with a 2.25" diameter by 4-foot long sample tube and bagged for onsite logging and possible panning. Samples will then be selected for geochemical analysis and will include metallic screening, multi-element analysis, and free-gold assaying. IPOP intends to advance 13 borings throughout the project area to a maximum depth at 31 feet or refusal.

IPOP anticipates completing two to four borings per day and be finished within 14 days. However, inclement weather conditions could extend this period. The coring program will occur in the winter months.

Exploratory Dredging
A Keene® dual-engine, mini 6-inch dredge (Model #6211M263) will be used to perform the exploratory dredging. IPOP intends to use the mini dredge to dredge five locations within the project area. No more than five cubic yards of material will be removed from any single location. Therefore, total disturbed yardage is not to exceed 25 cubic yards.

Dredging will occur in two phases. The first phase focused on upper sedimentary layers (colloidal silt, clay) and the second phase focused on lower sedimentary layers (sand, gravel). During the dredging process, a powered skiff will trail the dredge within the tailing discharge zone to document surface water turbidity and transparency. Water turbidity and transparency documentation will occur in 100-foot intervals in a semi-circular grid centered on the discharge point. Water column transparency will be documented using a Secchi disc. Water turbidity will be determined at various depths using a Van Dorn-type sampler and handheld optical turbidity meter (Hach® 2100Q, Hanna Instruments® 93703 or similar). IPOP is anticipating a larger turbidity plume from the first phase and a smaller plume from the second and will adjust the grid accordingly.

IPOP anticipates completing exploratory dredging at all five locations within one month. However, inclement weather conditions could extend this period. The dredging program can only occur in open water. The project site is located at Sections 24 and 25, T11S, R30W Kateel River Meridian; 64.513275°N, 164.592773°W near Nome, Alaska.

Description of the Action Area
The action area is defined in the ESA regulations (50 CFR 402.02) as the area within which all direct and indirect effects of the project will occur. The action area is distinct from and larger than the project footprint because some elements of the project may affect listed species some distance from the project footprint. The action area, therefore, extends out to a point where no measurable effects from the project are expected to occur.

For the proposed project, the action area includes the project site located in the Bonanza Channel where the proposed exploratory coring and dredging activities will occur out to a determined in-water radial distance. For this project, the two exploratory activities will occur in opposing seasons and thus have action areas specific to each task. For example, the action area for coring is primarily influenced by the sound generated by the GeoProbe® percussion hammer. The action area also includes waters, which would be impacted by a turbidity plume generated by the dredge. The following paragraphs describe this determination.

Determination of Action Area for Coring
The action area during coring activities is defined as the area where marine mammals could be exposed to underwater noise at 120 decibels (dB) or louder according to the National Oceanic and Atmospheric Administration (NOAA) in-water acoustic threshold guidance (NOAA, 2016). According to GeoProbe®, the operating decibels of the 540MT through air at a frequency of 60 hertz is approximately 120 decibels (dB) at 1m and 80dB at 100m. Decibels cited for air are not equivalent to underwater decibels due to many

variables (i.e., temperature, salinity, density) but primarily because of a difference in reference pressures. However, studies of underwater noise conducted by NOAA's R/V Okeanos Explorer (Nieukirk, 2002) provide a rough conversion between the two decibel scales by adding 26dB when converting decibel levels from air to water. Using this basic conversion, IPOP estimates the GeoProbe® 540MT has an approximate underwater operating decibel level of 146dB at 1 meter and 106dB at 100m. Therefore, the action area radius for coring activities will be conservatively set at 100m. See enclosed Figure 1 for a map of the action area for coring activities.

IPOP also considered the dampening effects of coring within the lagoon. All thirteen soil borings will be advanced within the Bonanza Channel, which is insulated from the waters of Norton Sound by a barrier island. This is significant because underwater sound generated by the coring rig will be mostly confined to the lagoon as the proposed soil boring locations are 3-5 miles from Norton Sound via waters of Safety Sound and the mouth of the Solomon River. Despite this dampening effect, IPOP will maintain a 100m action area.

Coring will occur in the winter season when ice is present. The presence of ice in this area will limit the access of marine mammals into the lagoon since open water necessary for breathing will be either scarce or non-existent. However, ice seal research conducted between 2014-2017 by Alaska Department of Fish and Game (ADF&G) indicated a population of bearded and ringed seals was present in Norton Sound around Nome, Alaska during the winter months. Therefore, bearded and ringed seals are the most anticipated marine mammals to inhabit the project area during coring activities.

Determination of Action Area for Dredging
The Keene® suction dredge does not produce significant sound underwater. Thus, the action area for dredging is not determined by sound but rather by the estimated extent of the generated turbidity plume.

The first phase of the dredging process will involve fine sedimentary layers, while the second phase involves coarser sands and gravels. Therefore, the turbidity plume is expected to reach its maximum extant during the first phase of the dredging process. The purpose of the exploratory dredging process is to determine the extent of the turbidity plume; thus, the action area radius cannot be objectively determined. However, given the small size of the dredge (6-inch intake) and type of sedimentary material being dredged, IPOP does not believe the turbidity plume will exceed 150m (approx. 500ft). Therefore, the action area radius for dredging activities will be set at 150m. See enclosed Figure 2 for a map of the action area for dredging activities.

Dredging will occur in the summer season during a time of year where marine mammals may frequent the Bonanza Channel. The lagoon was surveyed in 2018 and had an average depth of 4-6 feet. Thus, due to their size, whales and porpoises are not anticipated. However, bearded, spotted, and ringed seals have the physiology to access these waters and are therefore the most anticipated marine mammals to inhabit these waters during dredging.

NMFS Listed Species and Critical Habitat in the Action Area

The bearded seal (*Erignathus barbatus*), spotted seal (*Phoca largha*), and ringed seal (*Phoca hispida*) were the only Marine Mammal Protection Act (MMPA)-protected species expected to occur within the action area. The following paragraphs discuss this determination and are organized by species and by the seasons that exploratory activities will occur.

Winter Season - Coring

Exploratory coring will only occur in the winter season when the ice allows rig access to the 13 proposed boring locations. Outside of the bearded seal and ringed seal, no other MMPA-protected species are expected to occur within the 100m winter action area.

Bearded Seal

On December 28, 2012, NMFS listed the bearded seal Beringia distinct population segment (DPS) as threatened under the ESA (77 FR 76740) and depleted under the MMPA. This DPS is the only bearded seal common to Alaska and is thus considered Alaska stock. The ESA listing is a point of contention and has been contested by the Alaska Oil & Gas Association (14-35806,14-35811), but ultimately upheld by the U.S. Court of Appeals for the Ninth Circuit and the U.S. Supreme Court (17-133, 17-118). As such, the bearded seal Beringia DPS remains a threatened species under the ESA. Critical habitat has not been proposed for the bearded seal Beringia DPS.

Given their widespread habitat range, the bearded seal has the potential to be present at the project site. In the winter, bearded seals tend to concentrate around their preferred ice habitat at the ice edge, which allows for hauling out between foraging trips (https://www.fisheries.noaa.gov/species/bearded-seal). The 2014-2017 ADF&G ice seal research confirmed bearded seal presence in the area during winter. However, the probability of encountering a bearded seal within the project area during the estimated 14-day coring timeline is low due to lack of open water within the lagoon during winter. Mitigation measures are discussed in the following section.

Ringed Seal

Like the bearded seal, on December 28, 2012, NMFS listed the Arctic subspecies (the Alaska stock) of the ringed seal as threatened under the ESA (77 FR 76706) and depleted under the MMPA. The listing is also a point of contention for the same reasons as the bearded seal and has likewise been contested in similar cases. However, the ringed seal Arctic subspecies remains a threatened species under the ESA. Critical habitat for the Arctic subspecies of the ringed seal has been proposed and is currently being evaluated. The proposed critical habitat for the Arctic subspecies of ringed seal encompasses much of the Beaufort Sea, Chukchi Sea, and northern Bering Sea, including all of Norton Sound.

Unlike the bearded seal, the ringed seal can occupy areas with 100% ice cover due to their ability to create and maintain their own breathing holes. They also make snow caves (lairs) in snowdrifts that form around the breathing holes. The pups are typically birthed, reared, and weaned in the lairs before the ice melts in the spring (https://www.fisheries.noaa.gov/species/ringed-seal). The 2014-2017 ADF&G ice seal research confirmed ringed seal presence in the area during winter. The probability of encountering a ringed seal within the project area during the 14-day coring timeline is moderate. Mitigation measures are discussed in the following section.

Open Water Season – Dredging

Exploratory dredging will only occur in the open water season when no ice is present at the 5 proposed dredging locations. Outside of the bearded seal and spotted seal, no other MMPA-protected species are expected to occur within the 150m summer action area.

Bearded Seal

Most adult bearded seals migrate north during the summer months to utilize the fragmented ice edge for pup rearing and foraging. The 2014-2017 ADF&G ice seal research showed that migration occurred alongside the sea ice retreat in late-May/early-June months. However, juvenile bearded seals are known to remain near the coast, often in bays, estuaries, and river mouths (https://www.fisheries.noaa.gov/species/bearded-seal). As such, the probability of encountering juvenile bearded seals within the project area during the estimated one-month dredging timeline is high. Mitigation measures are discussed in the following section.

Spotted Seal

Unlike the bearded seal and ringed seal, spotted seals are not ESA-listed and are not listed as depleted under the MMPA. Critical habitat is not considered necessary for the spotted seal.

The spotted seal Bering DPS is the only spotted seal common to Alaska is thus considered Alaska stock. Seals overwinter in the Bering Sea near the sea ice edge and resort to hauling-out in coastal areas throughout the summer. During this time they are primarily foraging (https://www.fisheries.noaa.gov/species/spotted-seal). The probability of encountering spotted seals within the project area during the estimated one-month dredging timeline is high. Mitigation measures are discussed in the following section.

Mitigation Measures

IPOP proposes that the following mitigation measures are implemented to minimize risk to marine mammals within the calculated action area. These basic measures would apply to the proposed coring and dredging activities:

1. Coring and dredging activities will not be initiated until the action area is thoroughly inspected for marine mammal activity by the project manager.

2. A shut-down zone of 100m radius centered around coring activities and 150m radius for dredging activities will be established. All activities will halt if a marine mammal enters the shut-down zone. Activities will resume once the animal has exited the shut-down zone on its own accord.

3. The project manager will continuously monitor the action area throughout coring and dredging activities. This will include scanning the area with binoculars and a range finder.

4. The project manager will maintain an in-depth log book noting the time and date of exploratory activities, environmental conditions (e.g., sea state, weather, visibility (km/mi), lighting conditions and percent ice cover), beginning and end times for all shut-down events, marine mammal species observed, number of marine mammals observed, and marine mammal behaviors (e.g. foraging, hauling-out), and any other miscellaneous observations. Copies of the log book will be provided to the NMFS Protected Resources Division after the exploratory program is completed.

Effects of the Action

There are two potential marine mammal stressors that may result from the exploratory coring and dredging activities. No critical habitat will be affected by the action.

The first stressor involves acoustical disturbance from coring. The coring process is expected to produce underwater noise at 120 dB out to 100m from the coring rig. As mentioned in the previous section, all activities will halt if a marine mammal enters the established 100m shut-down zone. Therefore, IPOP does not anticipate that this project will expose bearded seals or ringed seals to noise levels above 120 dB. However, acoustical noise generated by the coring process will extend beyond this zone and may alter the behavior of marine mammals (e.g., attraction/aGeovoidance of the area). The short duration of coring activities (est. 2-4 borings per day) combined with restricted access to the boring locations due to the presence of thick ice in a shallow channel make it unlikely that any individual seals will encounter acoustic noise generated by the project. IPOP therefore considers any acoustic disturbance from coring to be insignificant or extremely unlikely to occur.

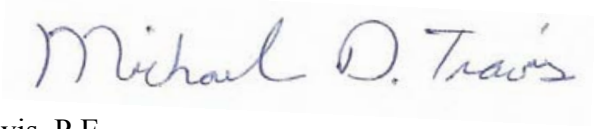
The second stressor involves temporary habitat alteration from the turbidity plume generated during exploratory dredging. The generation of the turbidity plume may temporarily alter movement of fish species that the bearded seal and spotted seal forage. However, the turbidity plume generated during the exploratory dredging process will eventually settle out with little to no significant repercussions to fish habitat. Additionally, moments of high turbidity in the waters of Bonanza Channel is a natural occurrence during storm events. Therefore, IPOP considers any temporary habitat alteration generated from the turbidity plume during dredging activities to be insignificant and discountable.

Conclusions

Based on the analysis that all effects of the proposed project will be insignificant, extremely unlikely, or discountable, IPOP has determined that the proposed project is not likely to adversely affect any listed species or critical habitat under NMFS's jurisdiction. We have used sound logic and the best scientific and commercial data available to complete this analysis. We request your concurrence with this determination.

Please contact me via email at mtravis@tpeci.com, by mail at the address above, or by phone at (907) 522-4337 if you have any questions or concerns.

Sincerely,



Michael Travis, P.E.
Principal

Enclosures: Non-Federal Representative Authorization Letter
Equipment Photo Log
Figure 1 – Coring Action Area Map
Figure 2 – Dredging Action Area Map

CC: Beau Epstein, IPOP LLC
Leslie Tose, United States Army Corps of Engineers: Alaska District

Literature Cited

Alaska Department of Fish and Game (ADF&G), 2017: "2014-2017 Ice Seal Research: Movements and Habitat Use Studies", Accessed on 11/21/2018 via: http://www.adfg.alaska.gov/index.cfm?adfg=marinemammalprogram.icesealmovements

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Stafford, K., The Pew Charitable Trusts: U.S. Arctic Program, 2013: "Anthropogenic Sound and Marine Mammals in the Arctic: Increases in Man-Made Noises Pose New Challenges", Accessed on 11/14/2018.

Exhibit 2

Eelgrass Study

EXHIBIT 2: Eelgrass Survey

IPOP and reviewed and applied the Corps document "Components of a Complete Eelgrass Report Guidelines" (May 27, 2016) provided by the Corps to the extent of conducting a Tier 1 survey, because IPOP has at all relevant times proposed to avoid any work in eelgrass (*Zostera marina*). All survey activities were done at the end of the summer, at the time of maximal growth.

Inasmuch as the Corps guidance reports that survey results are only valid for a period of one year, the critical question for summer 2020 operations is whether or not eelgrass is present in the areas IPOP proposes to mine during that summer as set forth in the Plan of Operations. Fortunately, the drone footage leaves no doubt that these areas have minimal to no vegetation, being extremely shallow. The detailed drone footage of the actual areas to be worked, given the extreme shallows, should give the Corps the confidence of a Tier 2 survey.

Survey Activities

All survey work was conducted by three individuals trained in the identification of *Zostera marina*, a surveyor, Eric Tweet, and two helpers, Ben Arata and Tyler Green. Survey activities initially focused on documenting the presence of eelgrass, *Z. marina*, with a survey conducted on September 25, 2018 with Eric Tweet and Ben Arata. The only *Z. marina* found was floating samples which IPOP believes drifted in from Safety Sound. The Corps has received and reviewed the survey and rejected as inadequate, so IPOP determined to conduct a renewed survey in 2019 using both individuals in boats and comprehensive drone-based footage.

IPOP engaged the firm of Oregon Aerial Solutions, and extensive experiments were conducted with known eelgrass beds in Safety Sound, and a special spectral camera used on drones to assess land-based agricultural activities. This work was conducted from August 14-17, 2018, and from August 28 through September 2, 2019, but the underwater nature of the eelgrass interfered with effective efforts to use a spectral signature to identify the presence of eelgrass.

However, an extensive boat and drone-based survey of *Z. marina* in the eastern portion of Safety Sound did succeed in identifying the nearest patch to the mouth of the Bonanza Channel, which is reflected in this drone photo with the GPS coordinates (64.49794, -164.69353):

IPOP notes that this point is 1.5 miles from the opening of the channel and about three miles from DSKN 30-32. IPOP also utilized an underwater video camera to capture and review the specific appearance of beds of *Z. marina*:

IPOP notes that dense eelgrass beds of appreciable significance to local fish populations in Safety Sound are easily visible even from high level aerial photographs of Safety sound:

IPOP's surveyors found the highest density of eelgrass in the darkened area visible in photo. No such areas appear anywhere within IPOP's thirty-two claims.

As noted in the guidance, aerial photography may be used to determine eelgrass locations for very large sites. With the failure of the drone-based spectral identification method, IPOP commissioned extensive drone-based 4K resolution surveys of all thirty-two claims. Photographs comprising the

western side of the claim block were collected from September 16-21, 2019. During this process, a boat crew followed along near the drone areas, conducting a physical survey.

IPOP's surveyors report that the only vegetation with the appearance of seagrass identified on the claims, and particularly in DSKN 30-32, is a species with much narrower and rounder leaves or stems than *Zostera marina*, believed to be *Phyllospadix scouleri*, though this species is more common in the Alaska panhandle.

The species is present throughout DKSN 30-32 (and elsewhere on the IPOP claims), and is the principal species present, with the second most numerous vegetation being the green moss that is attached to this species, believed to be *Rosenvingiella polyrhiza*. *Ruppia maritima* may also be present. IPOP's surveyors obtained underwater video footage of the two species in multiple locations. This still is taken from a video taken in the shallow channel NNE of the island at the west end of DKSN 30:

The white color is to some extent an artifact of the camera, and the unknown species, and other algae colonizing it, are in fact green. The water is approximately three feet deep in this area.

The DroneDeploy firm was engaged to utilize AI-powered drone data processing to stitch together the tens of thousands individual photographs taken into a single view that may be accessed and viewed much like Google earth.

Here is the 4K drone footage of the portion of the channel where the above underwater photograph was taken, and one can see it is easy to distinguish the beds of the unknown species from the shallower portions where less vegetation is present:

The *P. scouleri* is growing in very thick clumps in the deeper portions of Bonanza Channel. In the latter part of October, IPOP's surveyors removed and photographed one dead clump to show the density:

IPOP speculates that this species may form a significant obstacle to returning adult salmon and other fish in the channel portions of the Bonanza Channel.[1]

Given the total absence of *Z. marina*, and the general absence of high quality habitat, IPOP believes that while further survey work is being completed, the appropriate regulatory response is to use the available drone footage of DSKN 30-32 to concur that mining operations for the summer of 2020 will not cause any adverse effect on essential fish habitat.

The shallow areas appear lighter and are nearly devoid of underwater vegetation, as seen in this closeup of the NE end of the shoal:

[1] IPOP notes that a recent article in the *Anchorage Daily News* shows dead pink salmon in the Shaktoolik River entangled in vegetation strikingly similar to that present in the Bonanza Channel. *See* https://www.adn.com/alaska-news/rural-alaska/2019/07/12/warmer-waters-investigated-as-cause-of-pink-salmon-die-off-in-norton-sound-region/. It is conceivable that the vegetation is in fact an invasive species.

In addition to being nearly devoid of vegetation, the area is extremely shallow and provides no cover for aquatic animals from bird predation.

The drone footage also permits IPOP to assess the path from the camp site to the area identified for summer 2020 operations.

These still pictures do not do justice to the full scale of detail that is visible from the drone footage. The following hyperlink will permit agency access to the stitched-together drone photos, from which closer views can be obtained throughout DSKN 30-32 and the path to the base camp:

https://www.dronedeploy.com/app2/data/5d88f96ae2922d5d6a4afc1e;jwt_token=eyJhbGciOiJIUzUxMiIsInR5cCI6IkpXVCJ9.eyJvdmVybGF5X2ZvbGRlcl9pZCI6IjVkODQ1ODM5Mzg4NWNlMzAzODgyOGE5ZCIsInNjb3BlIjpbIjY2YWZiNmQ0ODBfQkE1NjNBODg3eN09QRU5QSVBFTElORSJdLCJ0eXBlIjoiUmVhZE9ubHlQbGFuIiwiaWQiOiI1ZDg4Zjk2YWUyOTIyZDVkNmE0YWZjMWUiLCJleHAiOjI1MzQwMjMwMDc5OX0.1KSItmwzzTP2rTQiXVRhMbrBYpz3XOPm5TQVhHSjRg_sTPOkskk46V7fllDx2Z5MZDuaZVspqk-yqsVZZGkhLw

IPOP requests that the agencies not use any features to make changes in the database, and requests that the confidentiality of this hyperlink be maintained, as the data within it was assembled at considerable cost and could be damaged by users of the hyperlink.

IPOP believes that its investment in this high-quality footage will permit the agency to confirm minimal adverse impact from proposed operations, and IPOP proposes to conduct further biological examination of the deeper areas of with more vegetative cover during the summer of 2020.

Exhibit 3

Essential Fish Habitat Draft Assessment

DRAFT ESSENTIAL FISH HABITAT ASSESSMENT FOR TEN IPOP, LLC. PLACER MINING CLAIMS NEAR SOLOMON, ALASKA

Prepared for:

IPOP, LLC.
9811 W. Charleston Blvd, #2-444
Las Vegas, NV 89117

Prepared by:

Travis/Peterson Environmental Consulting, Inc.

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April 2018

1610-01

TABLE OF CONTENTS

1.0 INTRODUCTION

This report is a draft assessment of the Essential Fish Habitat (EFH) that overlaps ten IPOP, LLC. (IPOP) placer mining claims near Solomon, Alaska (Figure 1, Appendix A). IPOP intends to suction dredge sediments for gold within these claims. The claims are located within coastal lagoons. IPOP contracted Travis/Peterson Environmental Consulting, Inc. (TPECI) to conduct an EFH draft assessment to identify and determine whether suction dredge mining will adversely impact designated EFH.

Enacted in 1976, the Magnuson-Stevens Fishery and Conservation and Management Act (Magnuson-Stevens Act) governs the United States fisheries management. In 1996, Congress amended the Magnuson-Stevens Act to include sustainable fisheries management procedures and defined EFH as *"those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity"* and is only applicable to species managed under a federal Fishery Management Plan. EFH are reviewed and updated every five years with the 2015-17 EFH being the most recent review. Section 305(b) of the Magnuson-Stevens Act states that federal agencies must consult with the National Marine Fisheries Service (NMFS) if an EFH assessment determines that proposed activities may have an adverse effect on EFH. An adverse effect is essentially any impact that decreases the quality of EFH, specifically "*direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions*", as stated in the Magnuson-Stevens Act.

TPECI did not find that the proposed mining activities for the ten IPOP mining claims would adversely affect EFH. Therefore, TPECI does not believe consultation with the NMFS is required. This assessment discusses the reasoning behind this conclusion in the following format: (1) a project description, (2) a summary of EFH in the project area, and (3) an analysis of the effects on EFH.

1.1 PROJECT LOCATION

IPOP currently holds thirty-two State of Alaska mining claims in Alaska State Waters near Solomon, Alaska on the Seward Peninsula. The current mining operation will attempt to recover gold within ten of the thirty-two mining claims. Below are the ten mining claims, totaling 880 acres, where proposed mining activities are proposed to occur. Consult Figure 2 in Appendix A for a map showing each mining claim location.

1. DKSN 15 – 160 acres
2. DKSN 16 – 160 acres
3. DKSN 17 – 40 acres
4. DKSN 18 – 40 acres
5. DKSN 21 – 40 acres
6. DKSN 22 – 40 acres
7. DKSN 23 – 40 acres
8. DKSN 26 – 40 acres
9. DKSN 31 – 160 acres
10. DKSN 32 – 160 acres

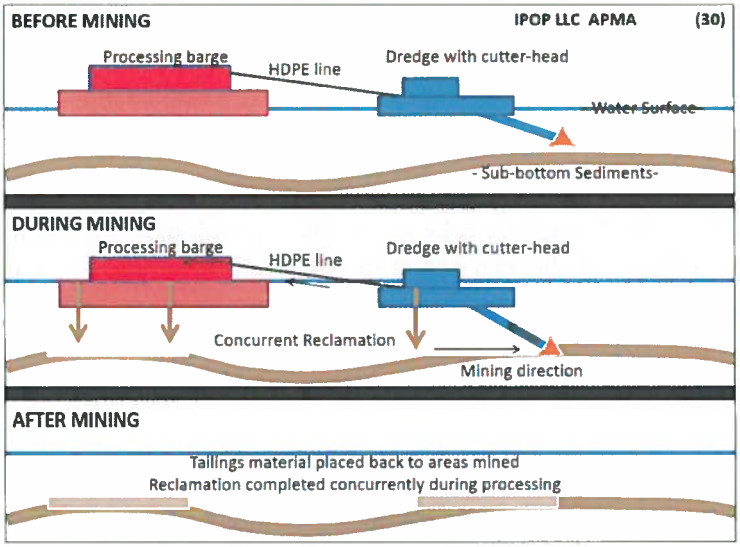
Claims DKSN 15-26 are located in a shallow coastal lagoon approximately 1.5 miles east-northeast of the Solomon River mouth. Claims DKSN 31 and DKSN 32 are located in Bonanza Channel approximately 2.75 miles southwest of the Bonanza River intersection with the Bonanza Channel.

Surrounding landscape is comprised of relatively flat coastal wetlands, grassland, and tidal mudflats. Freshwater hydrology is primarily influenced by the Solomon River and Bonanza River. Smaller freshwater inputs include Pine Creek and Secret Creek. Other nearby freshwater rivers include the Eldorado and Flambeau River systems, which contribute to the waters of Safety Sound. Marine hydrology is solely comprised of the waters from Norton Sound.

1.2 PROJECT DESCRIPTION

The IPOP placer mining operation is comprised of a single-engine, 10-inch diameter intake, suction dredge (20-feet x 73-feet) and processing barge (40-feet x 70-feet). The suction dredge will excavate sediment to a maximum depth of 31 feet below water level. Excavated material will run through a box and screen shaker before the finer material is processed by centrifuges. The excavated area created by the suction dredge will be filled by the trailing processing barge and will be concurrent with the mining process. This will be accomplished using depth sonar and GPS location mapping to distinguish disturbed benthic soils from non-disturbed areas, which will leave the bottom as close to where it was originally dredged. IPOP intends to mine claims at a rate of 100-acres (approximately 484,000 cubic yards) per year.

IPOP has completed the *Application for Permits to Mine in Alaska* (APMA) with the Alaska Department of Natural Resources. The APMA contained detailed descriptions of the proposed mining operation. See the drawing below for a graphic representation of the proposed mining process.



Drawing 1 *The suction dredge pulls material from the bottom of the lagoon and pushes it to the processing barge. The processing barge separates the material using box and screen shakers and centrifuges to access gold. Tailings are deposited from the processing barge into the original dredged area during the mining process. Drawing was created by Alaska Earth Sciences and was included in the APMA as a cross-section sketch.*

To operate, the dredge also requires a discharge permit from the Alaska Department of Environmental Conservation (ADEC). The 2015 *Medium-Size Suction Dredge General Permit (AKG371000)* outlines best management practices for medium-size suction dredge operations and authorizes discharges to fresh waters of the United States (18 AAC 83.990(77)). The permit also allows exceedance of Alaska Water Quality Standards for turbidity within mixing zones up to 500-feet from the discharge point.

2.0 ESSENTIAL FISH HABITAT

TPECI used the NMFS EFH Interactive Mapping Tool to identify EFH in and around the ten IPOP mining claim locations. Five species of salmon (Oncorhynchus family: Chum – *Oncorhynchus keta*, Pink – *Oncorhynchus gorbuscha*, Coho – *Oncorhynchus kisutch*, Sockeye – *Oncorhynchus nerka*, and Chinook –

Oncorhynchus tshawytscha) have EFH at this location. Saffron cod (*Eleginus gracilis*) are also present at this location, but do not have designated EFH in the area. The Red King Crab (*Paralithodes camtschaticus*) EFH is located several miles off the Seward Peninsula coastline, but red king crab are not present in the lagoons where the mining claims are located. No designated Habitat Areas of Particular Concern were identified in this area. TPECI has shared these findings with NMFS Supervisory Fisheries Biologist, Mr. Matthew Eagleton.

The following subsections discuss the EFHs of concern listed above.

2.1 PACIFIC SALMON EFH

The EFHs for five-species of Pacific salmon overlap with all ten IPOP mining claims. See Appendix B for a map showing the EFH for each species of salmon. Of these, Chum and Coho salmon are fished commercially using set gillnets. The Division of Commercial Fisheries of Alaska Department of Fish & Game (ADF&G) manages commercial and subsistence fisheries. According to ADF&G Norton Sound Commercial Fisheries Management Biologist, Jim Menard, there were six permit holders in the Nome Subdistrict 1 (333-10) in 2017.

Historically, commercial fishing has mostly focused on Chum salmon; however there has been recent market interest in Pink salmon. The Nome Subdistrict 1 commercial salmon fishery has a rocky past. In 1984, salmon management shifted focus from commercial to subsistence. This shift resulted in a significant reduction in sport fishing bag limits and a reduction in commercial harvest areas as well as commercial fishing time. Throughout the 1980s-early 2000s, the commercial salmon fishery was nearly eliminated due to low productivity. In 2003, the Alaska Board of Fisheries (board) designated the Chum salmon stock in this subdistrict as a management concern. An Action Plan was created in December 2003 (Menard-Bergstrom, 2003), which outlined steps to reduce chum salmon fishing mortality to meet spawning escapement goals to allow for subsistence harvest. In 2015, the board discontinued the Nome Subdistrict chum salmon stock as a management concern because the majority of escapement goals had been met (Menard-Bergstrom, 2015). The Chum salmon runs of 2013-2015 were some of the highest on record with the largest runs occurring in the Eldorado River.

2.1.1 Pacific Salmon Impact Analysis

TPECI and IPOP recognize agency and local concerns with the proposed suction dredge mining of these claims. Suction dredging by nature causes a localized increase in turbidity within the water column and disturbs benthic soils. Such activities can disturb salmon migration patterns and impede access to anadromous rivers. However, TPECI believes the ten mining claims under consideration can be successfully mined without significant adverse effects to Pacific salmon EFHs.

The IPOP dredge is classified by the ADEC as a "medium-size" suction dredge due to its 10-inch diameter intake. As previously mentioned, the ADEC general permit for medium-size suction dredge operation in marine waters restricts the turbidity mixing zone to a maximum of 500-feet from the dredge. All mining operations must halt if the turbidity exceeds State thresholds. Mining operations may resume when the plume settles. These restrictions are important because at no single location within any of the ten IPOP mining claims could a 500-foot turbidity mixing zone impede pacific salmon from reaching the Bonanza or Solomon River. See Figures 3 and 4 in Appendix A for maps showing permitted mixing zones for each mining claim.

Mr. Menard informed TPECI that most salmon access the Bonanza River from the direction of the Bonanza Bridge and to a lesser extent from Safety Sound. Mining claim DKSN 31 and 32 are in the Bonanza Channel between Safety Sound and the Bonanza River. Therefore, turbidity plums generated by mining activities in this area will not block salmon passage to the Bonanza River and not cause adverse effects to Pacific salmon EFHs.

The remaining eight claims (DKSN 15-26) are in a lagoon fed by Pine Creek and Secret Creek. TPECI used the ADF&G Anadromous Waters Catalog Interactive Mapper to determine that neither creek is classified as anadromous. Therefore, mining activities in this area will not impeded salmon passage or cause adverse effects to Pacific salmon EFHs.

3.1 SAFFRON COD EFH

Saffron cod is not commercially fished in this area; however, it is a popular subsistence fish harvested from the Bonanza Bridge and Bonanza Channel in the fall (September/October) and through the ice. The species is managed under the Arctic Management Area, which encompasses waters of the Chukchi Sea and Beaufort Sea, but does not extend south of the Bering Strait (NPFMC, 2009). The EFH for Saffron cod does not include Norton Sound (Appendix B).

3.1.1 Saffron Cod Impact Analysis

The Saffron cod EFH does not overlap with any IPOP mining claims; therefore, mining activities in this area would not have an adverse impact on EFH. However, TPECI and IPOP recognize there is local concern with the proposed suction dredge mining of these claims, specifically the claims located in the Bonanza Channel (DKSN 31 and DKSN32). However, TPECI believes mining activities at DKSN 31 and DKSN 32 will not affect Saffron cod because the claims are located several miles from the primary subsistence fishing areas in the vicinity of the Bonanza Bridge and mouth of the Bonanza River.

4.1 RED KING CRAB EFH

The Red King Crab EFH does not overlap with any IPOP mining claims. Therefore, mining activities in this area would not have an adverse impact on EFH. The EFH for red king crab is in Norton Sound (Appendix B). TPECI and IPOP recognize there is significant regional concern with the red king crab stock.

4.1.1 Red King Crab Impact Analysis

TPECI and IPOP understand the proximity of the Red King Crab EFH to the mining claims. However, TPECI does not believe mining activity at any of the IPOP claims could have an adverse effect on the Red King Crab EFH because of its significant distance from the area.

5.0 CONCLUSIONS

TPECI has reviewed EFH literature in this area and does not believe suction dredging the ten IPOP mining claims will adversely affect EFH in this area. Mitigation is therefore not applicable.

Five species of salmon have EFH that overlap with the mining claims. However, the ADEC turbidity mixing zone restrictions prevent turbidity plumes generated by placer mining to exceed 500-feet. At no single point

within any of the ten IPOP mining claims could a 500-foot turbidity plume obstruct salmon passage to the Bonanza and Solomon Rivers. Saffron cod does not have EFH in the area. However, it is a popular fish that is locally fished from the Bonanza Channel and Bonanza Bridge in the fall. Mining activities in the Bonanza Channel will be several miles from the subsistence area. The Red King Crab EFH is located several miles offshore in the Norton Sound, but does not overlap with any of the IPOP mining claims.

6.0 REFERENCES

ADEC, Alaska Department of Environmental Conservation, *Authorization to Discharge Under the Alaska Pollutant Discharge Elimination System for Medium-Size Suction Dredge Placer Miners: General Permit Number AKG371000*, Effective: February 1, 2016, Expires: January 31, 2021.

ADF&G, Alaska Department of Fish & Game, Anadromous Waters Interactive Mapper, http://extra.sf.adfg.state.ak.us/FishResourceMonitor/?mode=awc, accessed April 5-10, 2018.

Menard, J., D. J. Bergstrom. *2003 Norton Sound Nome Subdistrict Chum Salmon Stock Status and Action Plan: a report to the Alaska Board of Fisheries*. Alaska Department of Fish and Game, Regional Information Report No. 3A03-35, Anchorage.

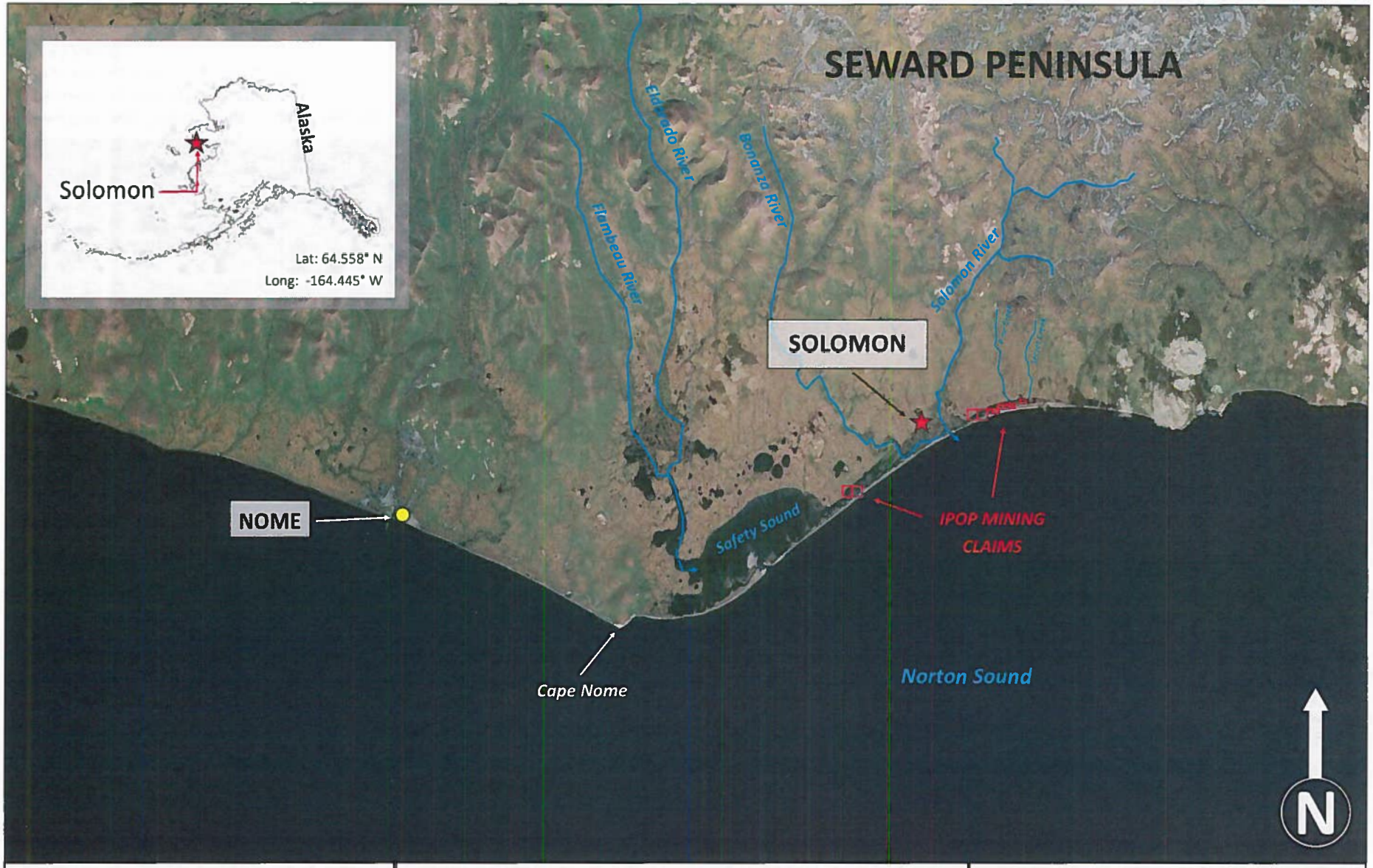
Menard, J., D. J. Bergstrom. *2015. Norton Sound Subdistricts 1-3 chum salmon stock status and action plan, 2016; a report to the Alaska Board of Fisheries.* Alaska Department of Fish and Game, Special Publication No. 15-18, Anchorage.

NMFS, National Marine Fisheries Service, Essential Fish Habitat Interactive Mapping Tool, https://www.habitat.noaa.gov/protection/efh/efhmapper/index.html, accessed April 5-10, 2018.

NPFMC, North Pacific Fishery Management Council, *2009 Fishery Management Plan for Fish Resources of the Arctic Management Area*, August 2009.

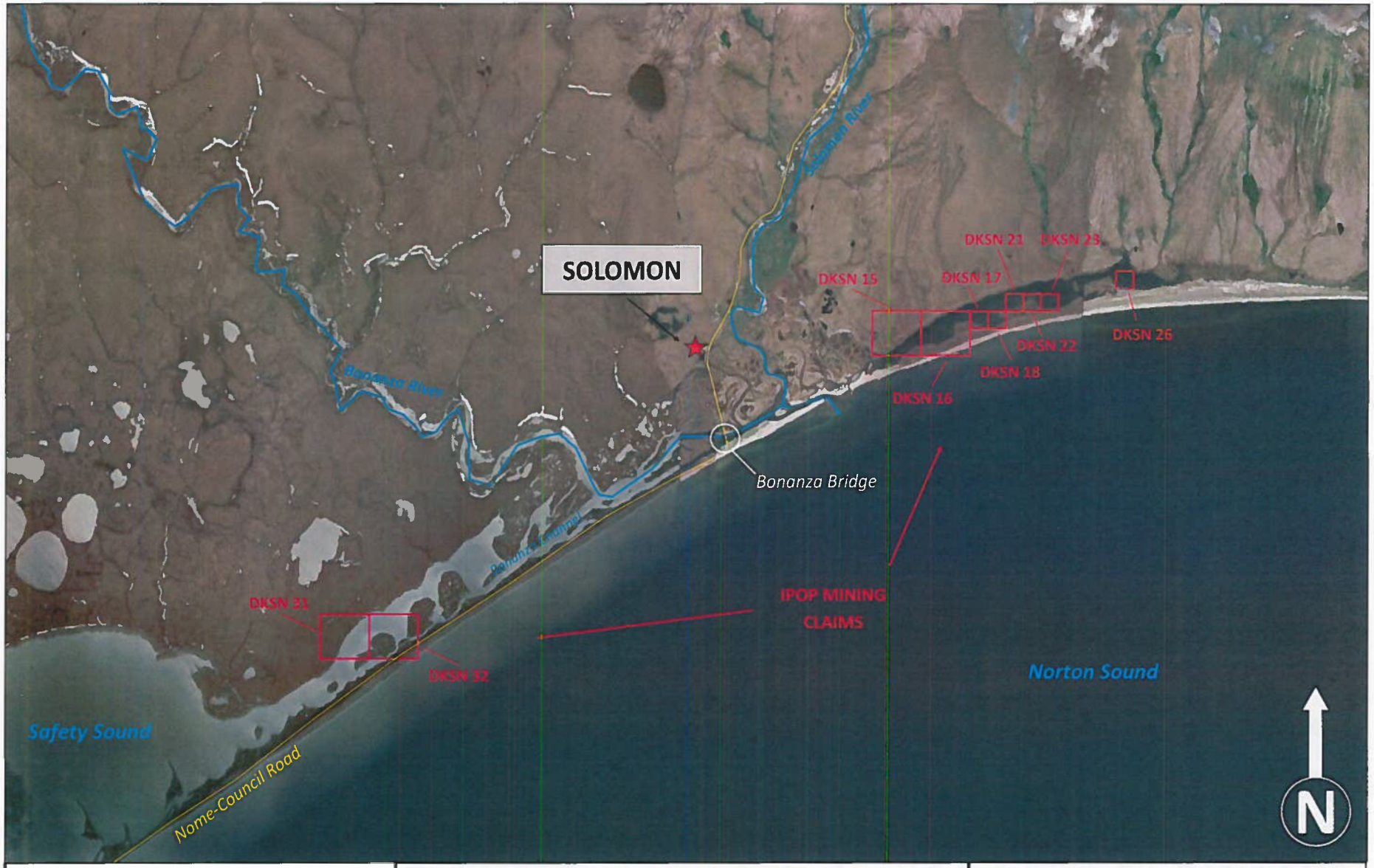
APPENDIX A

Figures



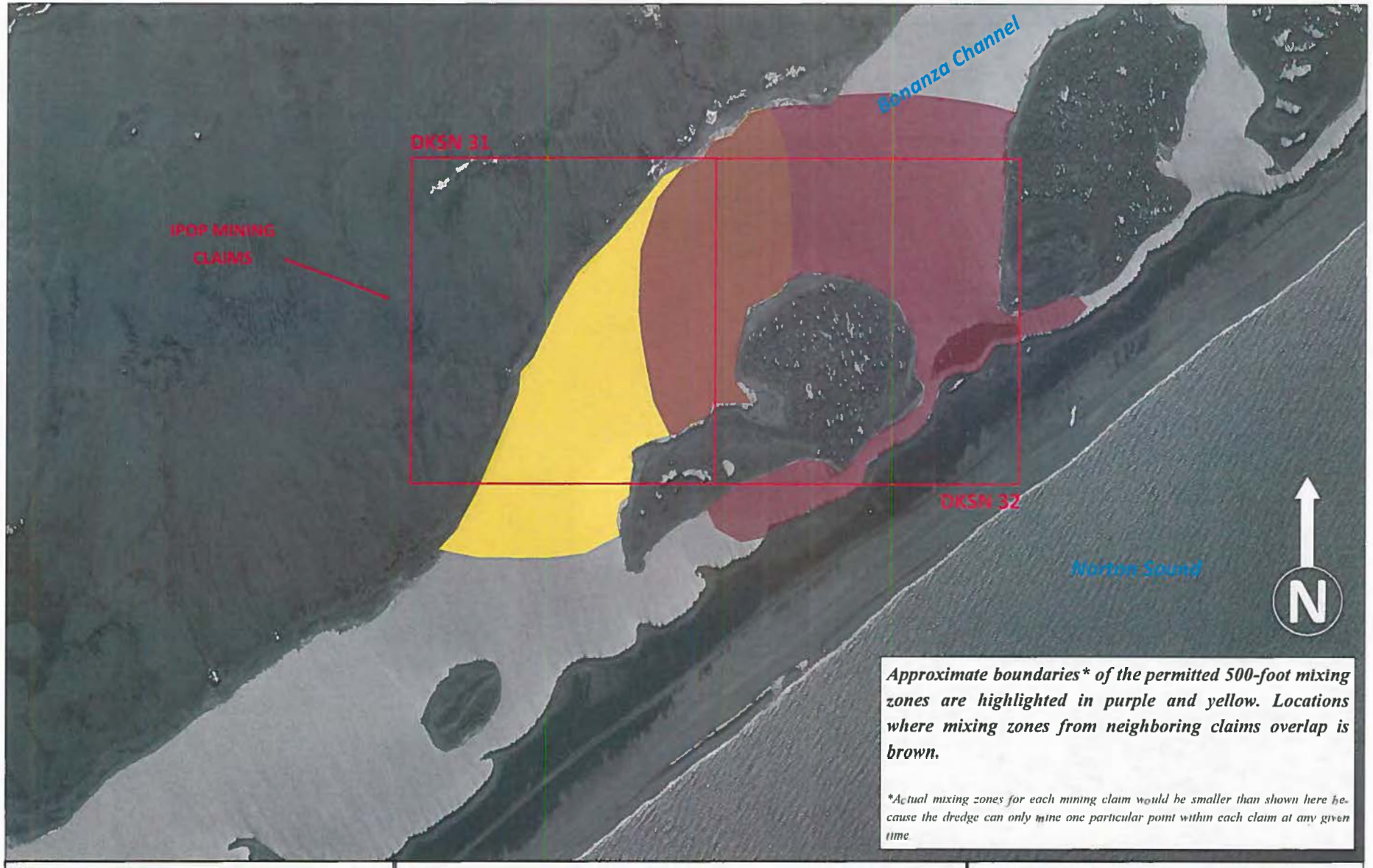
Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	Solomon, Alaska	Figure 1 - Vicinity Map	
Project No: 1610-01	File: Projects/1610/01-Permitting/FIgures	Date: 4/09/18	Scale: 1 inch = 7.25 miles

DNR-A-005389



Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	Solomon, Alaska	Figure 2 - IPOP Mining Claims Map	
Project No: 1610-01	File: Projects/1610/01-Permitting/Figures	Date: 4/09/18	Scale: 1 inch = 1.25 miles

DNR-A-005390



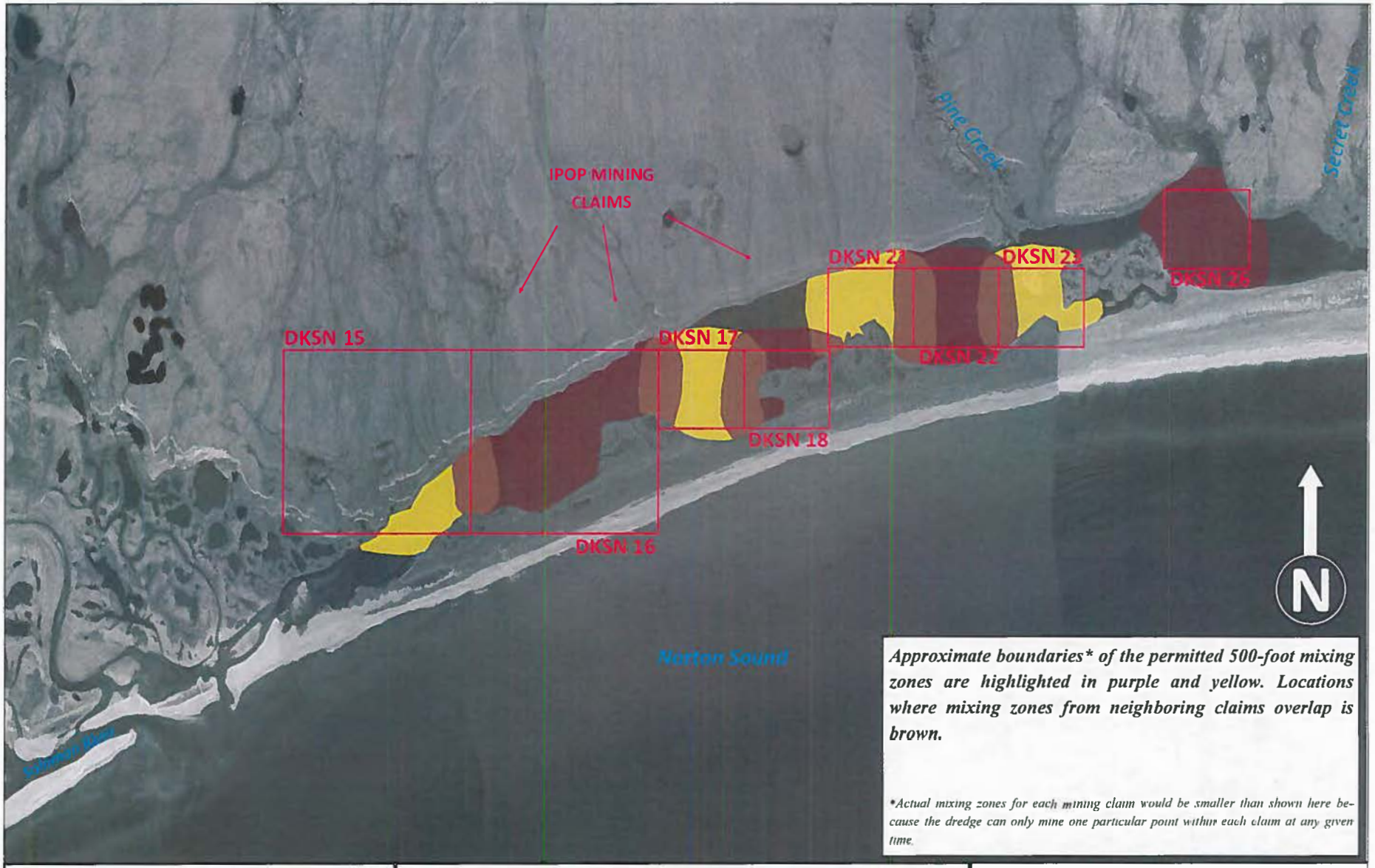
Travis/Peterson Environmental Consulting, Inc.
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Solomon, Alaska

Figure 3 - Mixing Zone Map for DKSN 31-32

Project No: 1610-01	File: Projects/1610/01-Permitting/Figures	Date: 4/11/18	Scale: 1 inch = 1,000-feet

DNR-A-005391



Travis/Peterson Environmental Consulting, Inc.
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Solomon, Alaska

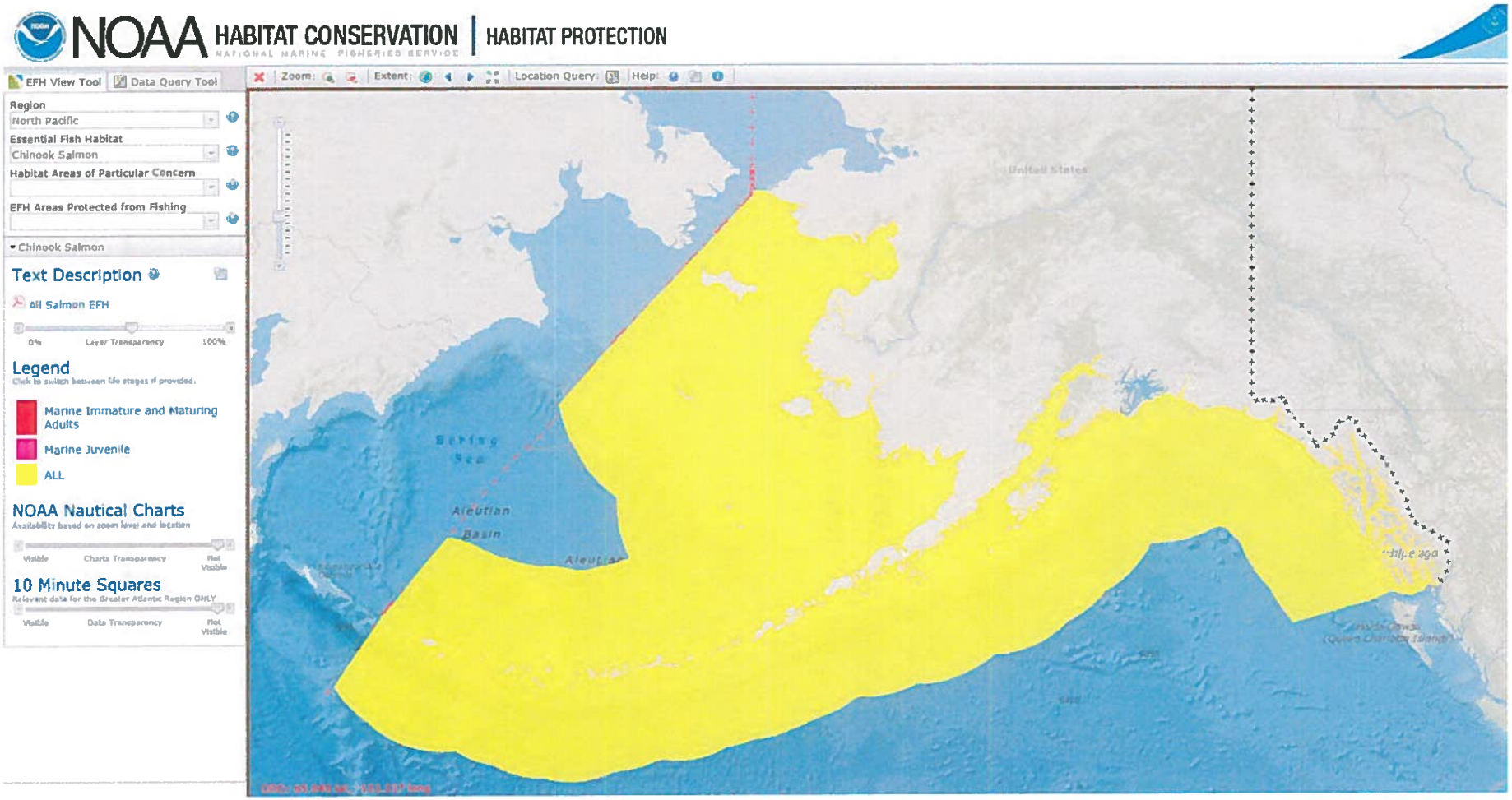
Figure 4 - Mixing Zone Map for DKSN 15-26

Project No: 1610-01	File: Projects/1610/01-Permitting/Figures	Date: 4/11/18	Scale: 1-inch = 2,500-feet

DNR-A-005392

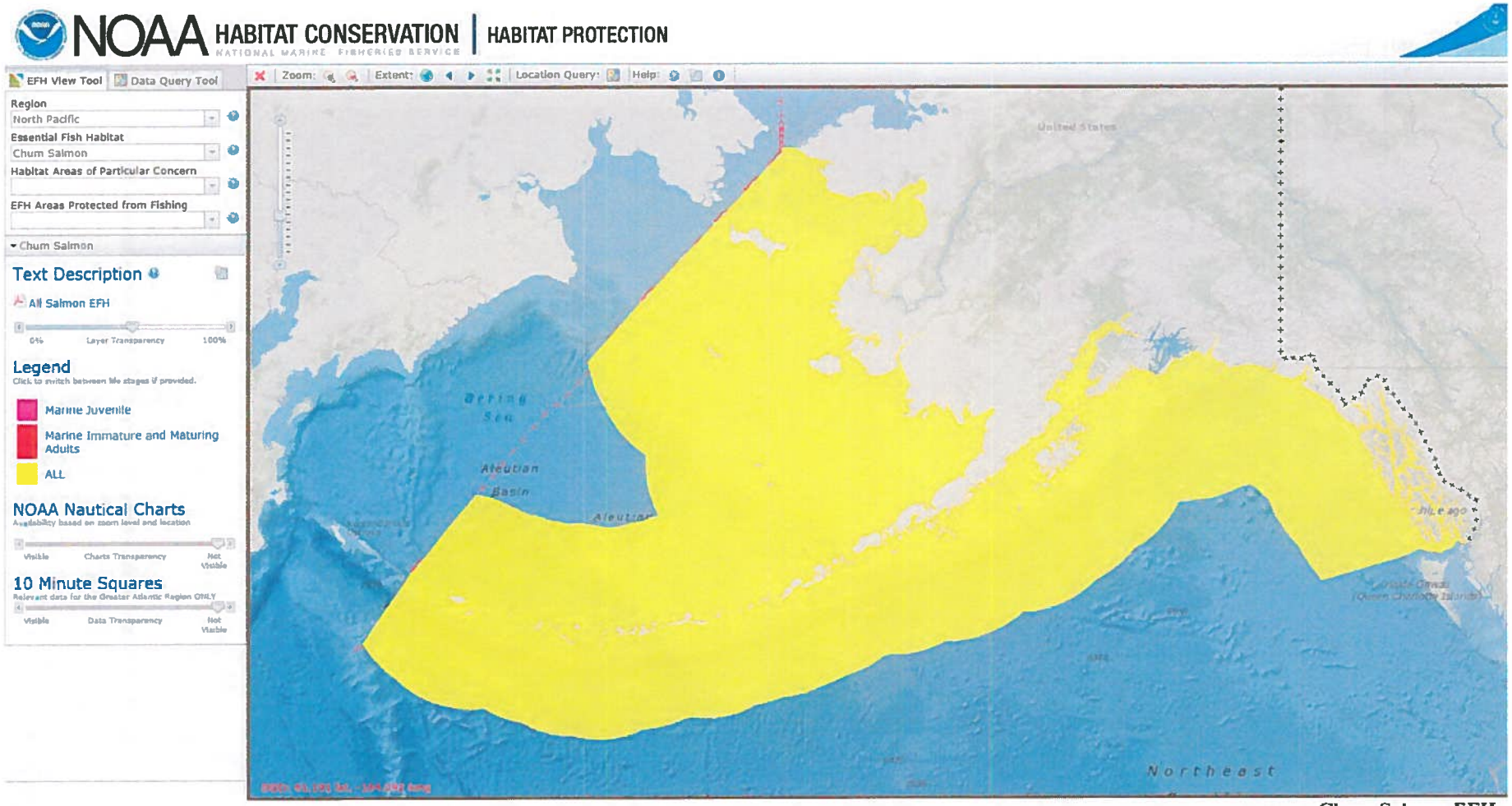
APPENDIX B

NMFS EFH Maps



Chinook Salmon EFH

Accessed April 10, 2018



Chum Salmon EFH

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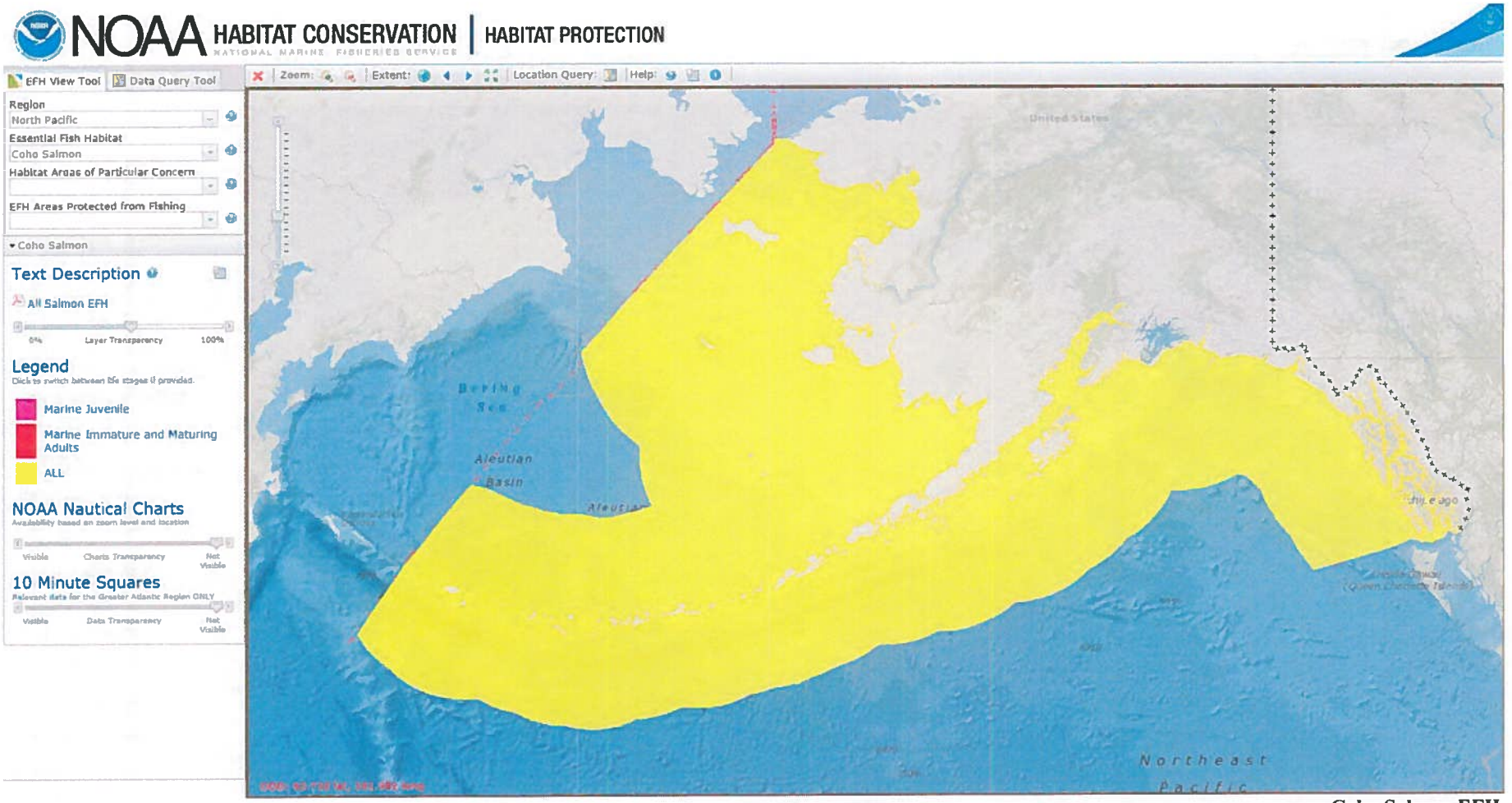
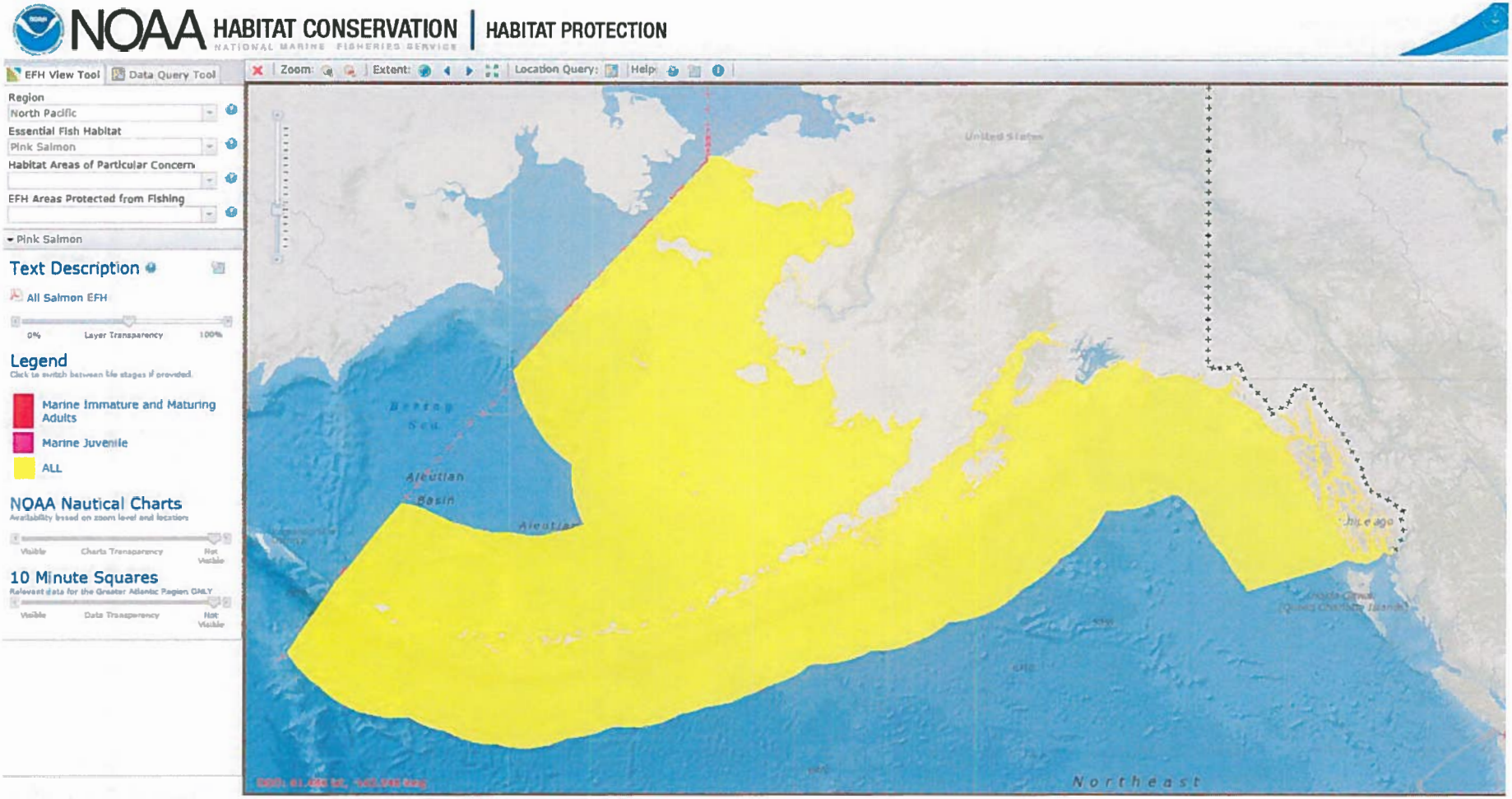


Coho Salmon EFH

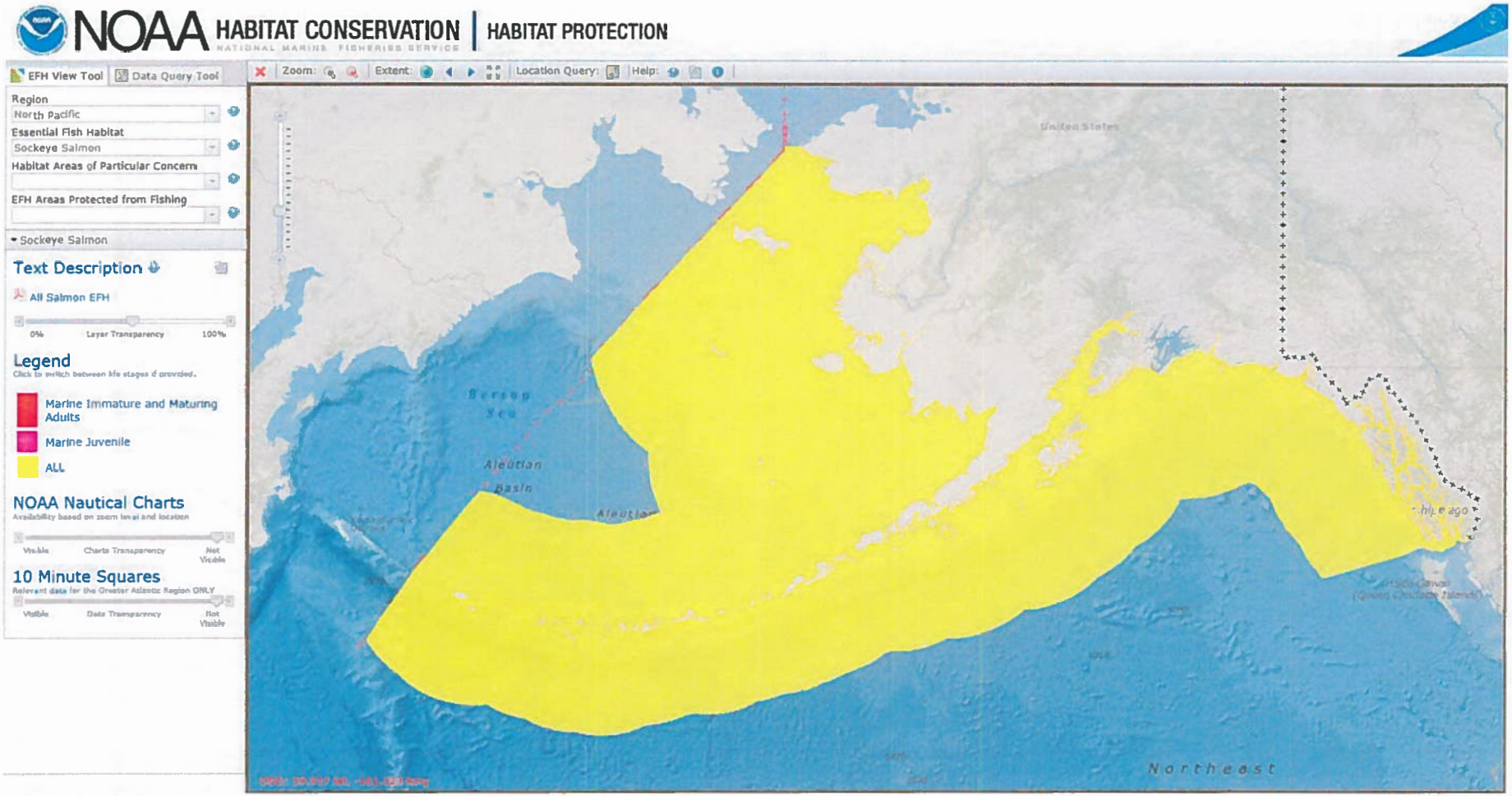
Accessed April 10, 2018



Pink Salmon EFH

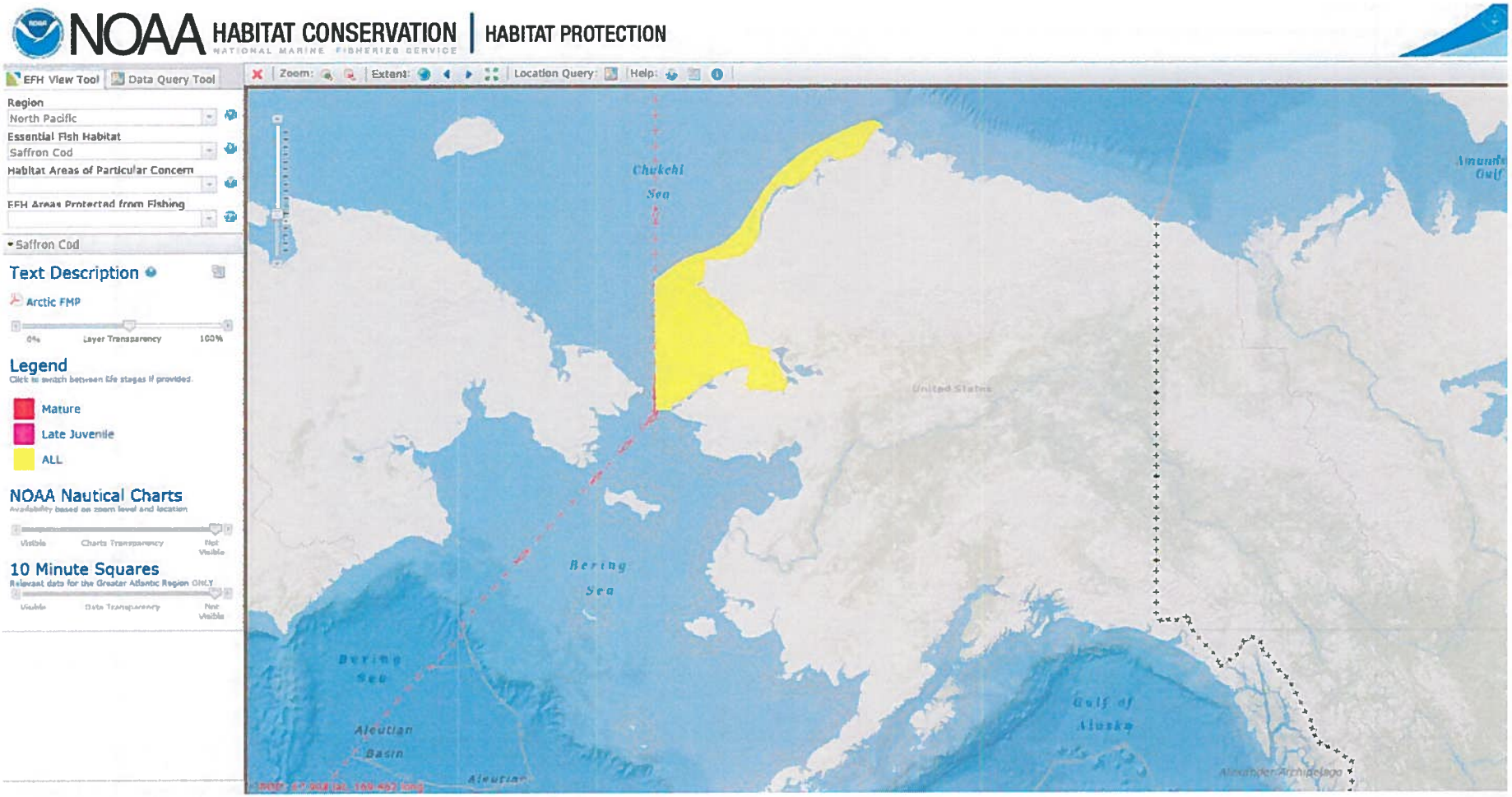
Accessed April 10, 2018

DNR-A-005397



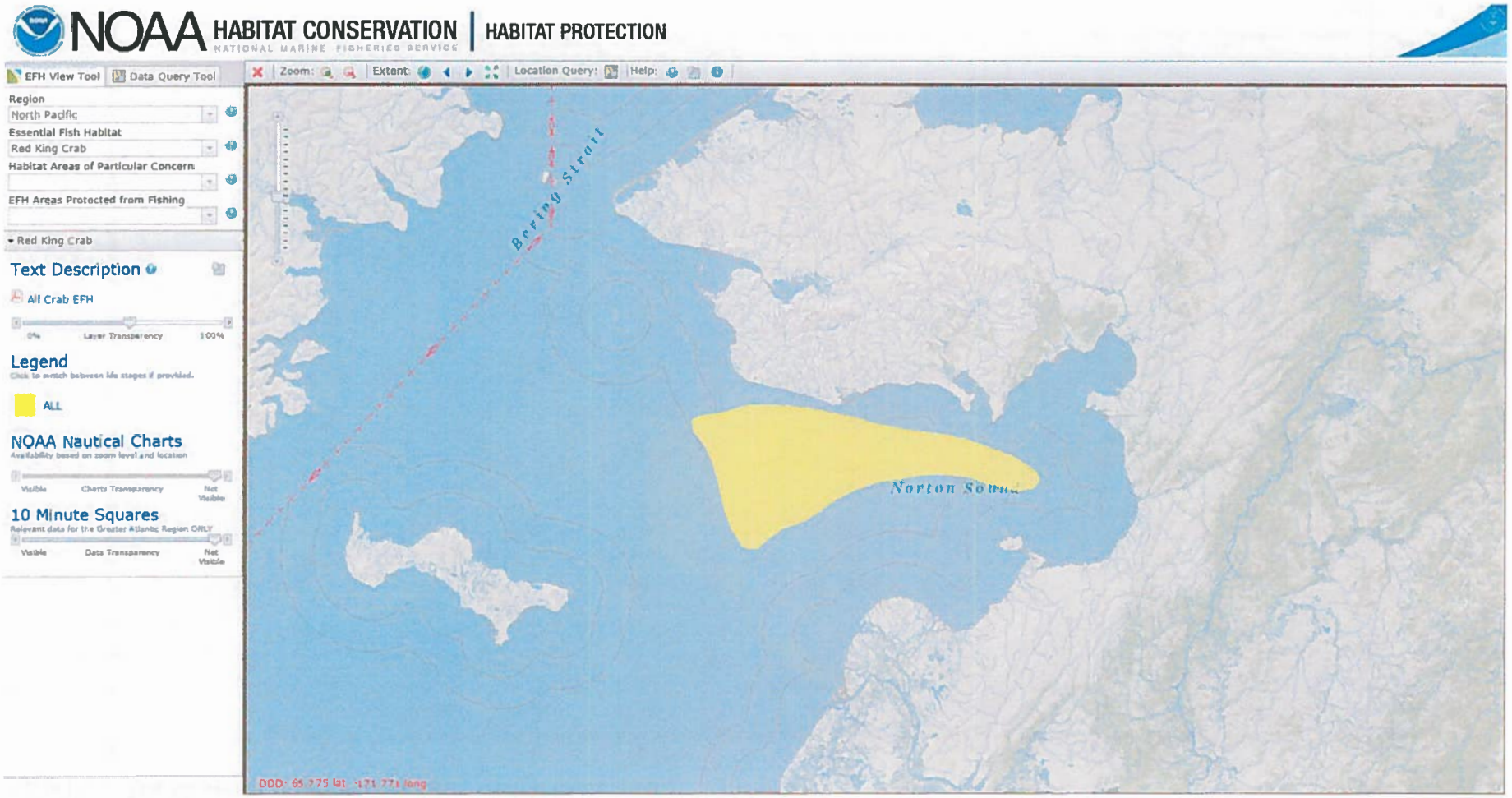
Sockeye Salmon EFH

Accessed April 10, 2018



Saffron Cod EFH

Accessed April 10, 2018



Red King Crab EFH

Accessed April 10, 2018

DNR-A-005400

Exhibit 4

Alternatives Analysis

Project Location and Layout Options

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Location- Bonanza Channel	LOC-001	**Origination-** Applicant Proposed Project **Description**- The proposed project involves the development of a placer gold deposit on state ground, in water, in the Nome region of the Seward Peninsula, Alaska. The Applicant's stated project purpose is: *To economically produce gold from the inland water portion of IPOP's mining claims on the Bonanza Channel and Tidal Lagoon using proven technologies that are specifically designed for shallow water estuary dredging and ultra-fine gold recovery.* **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Location- Nome Offshore	LOC-002	**Origination**- Evaluating alternative mining location options for placer gold during project development **Description**- This option involves an alternative project located on an offshore mining lease. Such lease areas exist in the Nome region of the Seward Peninsula, Alaska, but these areas have been mined before and depleted the gold resources available to mine and these areas and are not within a shallow, calm water body. **Screening**- 1. Purpose and Need Test: Does not meet the project purpose and may not meet the project need. The area may or may not contain economic concentrations of gold. Additionally working in ocean waters vastly decreases the reach of a ladder-type dredge, significantly affecting the economic potential of mining offshore. 2. Reasonable and Practicable Test: This option is not reasonable nor practicable. There is no guarantee that the mining lease has not been mined before, therefore a given parcel may or may not be economic- this is a great unknown. The Applicant's machinery is designed for shallow, calm water, the freeboard is 18 inches, meaning ocean waves would swamp and sink the dredge. Additionally, the Applicant is experienced working in shallow estuarine locations, therefore this location is not reasonable to assume a successful operation to achieve the project purpose. 3. Environmental Impacts Test: No reason to believe that mining in the offshore would cause fewer environmental impacts than mining in shallow, non-productive estuaries. Additionally , there is no potential environmental benefit to mining offshore. ***Why Eliminated:*** This alternative does not meet the Applicant's stated project purpose. These areas are outside of the experience skillset of the company and the equipment designed by the company will not work in the offshore environment, thus it is not reasonable to assume a successful operation that would achieve the Project Need. Additionally mining offshore does not provide an environmental benefit (compared to the potential benefits of mining on the Bonanza Channel of creating essential fish habitat and/or creating shorebird, seabird habitat with dredged material).	Eliminated from Further Analysis

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Location- Nome, Solomon or Surrounding Area, Uplands	LOC-003	**Origination**- Evaluating alternative mining location options for placer gold during project development **Description**- This option explores seeking placer deposits on land, in the Nome and the Council-Solomon Mining Districts. No open State of Alaska lands were available to stake claims and although some claims and land exists to purchase or lease in the Nome region of the Seward Peninsula, Alaska, the land is overpriced, and leases are too expensive. Additionally, the upland area of Nome has been mined extensively and gold resources are diminished. Furthermore, a mine in this area would be a surface mine that would have a negative affect on air quality, and visual impacts. **Screening**- 1. Purpose and Need Test: Does not meet the Applicant's stated project purpose as the project purpose is water and location dependent. This option would meet the project need only if the area contains economic concentrations of gold. 2. Reasonable and Practicable Test: This option is not reasonable. No State of Alaska land was available for staking that had not been mined previously, and any land for sale was overpriced. Additionally because the area had been mined in the past the mining has significantly reduced the amount of mineable placer gold resources and it is unknown if an exploration or mining program would identify any resources remaining in this area. The upland areas are not practicable for this operation either, as IPOP's operation is using a shallow water dredge, and these projects would be on land using heavy equipment. ***Why Eliminated:*** Does not meet the project purpose (stated as location and water dependent). This alternative area is an unreasonable place to find a placer project area because there was no ground available to stake mineral claims, and what was available was uneconomical. Additionally exploration records were inconsistent and could not be relied upon and the area had already been well picked over and mined historically. Also this option required a surface mining operation with the associated negative environmental impacts such as noise, disturbance, carbon footprint and negative visual impacts. The Applicant's equipment is designed for use in a shallow water sitting.	Eliminated from Further Analysis

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Location- Nome, Solomon or Surrounding Area, Productive Placer Rivers or Streams	LOC-004	**Origination**- Evaluating alternative mining location options for placer gold during project development **Description**- This option is to seek placer properties in water (streams and rivers) within either the Nome or the Council-Solomon mining district. There are no open State of Alaska lands available to stake claims. Although some claims and land exists to purchase or lease in the Nome region of the Seward Peninsula, Alaska, the land is overpriced, and leases are too expensive. Additionally, all productive streams and rivers of Nome and Solomon and surrounding areas have been mined extensively for 120 years and have significantly reduced the amount of mineable placer gold resources. **Screening**- 1. Purpose and Need Test: Does not meet the Applicant's stated Project Purpose. Meets the project need. 2. Reasonable and Practicable Test: This option is not reasonable as no State of Alaska land was available for staking that had not been mined previously, and any land for sale was overpriced and previous mining had depleted any remaining, mineable gold resources in these areas. Additionally because the area had been mined in the past, it is unknown if an exploration or mining program would identify any resources remaining in these areas. This option is not practicable as the Applicant's equipment is designed for mining sands, not gravels down to bedrock as would be required in the stream setting. ***Why Eliminated:*** This alternative area does not meet the Applicant's stated project purpose. Also, this area is not a good place for the Applicant to find a placer gold project area because there was no ground available to stake mineral claims, and what was available was uneconomical. Additionally exploration records were inconsistent and could not be relied upon, and the area had already been mined for a very long time. Also this option requires a dredge or a surface mining set up that can remove and screen large rocks and gravels down to bedrock. The Applicant's equipment is not designed for this stream-dredging or mining application.	Eliminated from Further Analysis
Location- Other Areas of Alaska	LOC-005	**Origination**- Evaluating alternative mining location options for placer gold during project development **Description**- This option requires finding and staking or acquisition of a placer gold project elsewhere in Alaska **Screening**- 1. Purpose and Need Test: Does not meet IPOPs stated project purpose nor does it meet the project need to provide socio-economic benefits to the rural and remote community of Nome and surrounding communities. 2. Reasonable and Practicable Test: No State of Alaska land was available for staking that had known large placer gold resources and had not been mined previously. Land for sale in high producing placer camps has been worked over and no reliable resource estimates are available. Exploration and discovery of new placer deposits is expensive and time consuming and would not be economic. The cost per ounce of gold purchased is more expensive in areas previously mined with depleted resources. ***Why Eliminated:*** 1) this location did not meet the purpose and need test because it would not result in producing gold from the water of the Applicants Claims or providing socio-economic benefits to Nome and surrounding communities. 2) Considering placer gold ground in other areas of Alaska would not work for this project because there was no ground available to stake mineral claims, and what was available would involve a surface mining operation that would likely be uneconomical. Additionally exploration records for placer deposits are often unreliable and inconsistent so the process of location, evaluation, and feasibility would be very time consuming and expensive.	Eliminated from Further Analysis

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Location- Other areas outside of Alaska	LOC-006	**Origination**- Evaluating alternative mining location options for placer gold during project development **Description**- This option requires finding and staking or acquisition of a placer gold project outside of Alaska **Screening**- 1. Purpose and Need Test: Does not meet IPOPs project purpose and need to a) produce gold from the water body on IPOP's claims, b) provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, c) provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments, and d) develop and operate a gold mining project in Alaska in order to meet current and future demand for the metal ***Why Eliminated:*** Does not meet the Purpose and Need Test. The Applicants stated project need is to produce gold commodity from Alaska to provide an economic revenue generator for the State of Alaska and to develop an Alaskan Mine to meet current and future demand constrains the location alternatives; therefore this option does not meet the overall purpose of the project.	Eliminated from Further Analysis
Layout- Proposed Layout: One Continuous Mining Areas (Mining Channel)	LAY-001	**Origination-** Applicant Proposed Project **Description**- This layout is based on locating the mining area in a single continuous "mining channel" located by capturing areas where the applicant had conducted exploratory drilling that indicated the presence of economic gold concentrations. The mining channel is continuous to combine all dredge material disposal sites into a single area, and to mine systematically through the gold-enriched sands to a prescribed depth, resulting in a predictable plan, with predictable results, thereby minimizing the environmental impact of the mining operation as compared to other alternatives considered. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Layout- No Defined Mining Areas	LAY-002	**Origination**- This mine layout option was the first option envisioned by the Applicant. **Description**- This option involves "indicative" mining, whereby the location of gold by mining directs the mining rather than mining being directed by drilling results. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This layout was originally part of the Applicant's proposed project, and on that basis, is assumed by the applicant to be reasonable and practicable. 3. Environmental Impacts Test: This option could conceivably result in a larger seasonal footprint (or acreage of estuarine disturbance), if the gold distribution is erratic and varies with respect to depth. Does not meet minimization requirements and does not pass this test. ***Why Eliminated:*** This option would not provide an environmental benefit and would not meet minimization criteria for the operation.	Eliminated from Further Analysis

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Layout- Five Individual Separate Annual Mining Areas	LAY-003	**Origination**- This mine layout option was proposed in November, 2019 draft application. **Description**- This layout is based on locating mining areas to avoid vegitated shallows in and around an area that had been sparsely drilled. The reason for the mining area layout was considered to minimize the distruption of vegitated shallows, even though the vegitation was not the eelgrass beds of concern. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This layout was originally part of the Applicant's proposed project, and on that basis, is assumed by the Applicant to be reasonable and practicable at the time. 3. Environmental Impacts Test: The random placement of the seasonal mining areas results in random dredge material disposal site locations, potentially increasing the seasonal disturbance footprint not only annually, but overall. ***Why Eliminated:*** This method and layout results in scattered dredge material disposal sites and islands of un-mined material between the seasonal mining areas that may or do have economic gold concentration and could eventually be mined at some point in the future. Because the mining sequence is not systematic, and because this layout would potentially increase environmental disturbance, this layout does not meet minimization criteria for the operation.	Eliminated from Further Analysis
Layout- Restricted Mining Size	LAY-004	**Origination**- This mine layout is a hypothetical layout in the event of strict regulation restricting the areas the Applicant can mine. **Description**- A small restricted size of the mining area, restricting it to a claim, portion of a claim, or limiting the claims that can be mined. **Screening**- 1. Purpose and Need Test: Does not pass this test. A small restricted layout would conflict with the project need to a) provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments, by significantly reducing the life of mine, and potentially shutting down an operation by reducing or eliminating its internal rate of return. ***Why Eliminated:*** Restricting the area open to mining would have a detrimental economoic effect to the operation.	Eliminated from Further Analysis
Layout- Restricted Mining Depth	LAY-005	**Origination**- This mine layout is hypothetical layout in the event of strict regulation. **Description**- Restricting the operation with respect to depth of dredging. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This layout passes this test. 3. Environmental Impacts Test: There is no environmental benefit to shallow dredging as compared to deep trench dredging. Deep dredging results in less overal acres of disturbance and a smaller annual operational footprint. ***Why Eliminated:*** This method and layout results in larger estuarine disturbance over deep dredging and as a result was eliminated.	Eliminated from Further Analysis

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Layout- Larger Mine/Dredge Area to Develop More of the Placer Gold Deposit Annually.	LAY-006	**Origination**- This option considers the evaluation to maximize the potential economic benefits of developing the deposit by mining the larger extent of the gold resource over time, resulting in a longer life-of-mine, as the Applicant anticipates after having claimed such a large area. **Description**- This option would increase the mine site and dredging extents over time, extending the duration of the operation to develop more of the known and inferred mineral potential in the estuary. **Screening**- 1. Purpose and Need Test: Meets the purpose and increases the liklihood that the project would meet the Applicant's stated project need 2. Reasonable and Practicable Test: This layout was originally part of the Applicant's proposed project, and on that basis, is assumed by the Applicant to be reasonable and practicable at the time. Shareholders of the company have been told that expanded development is an option. 3. Environmental Impacts Test: This option would slightly increase the environmental impacts, however temporarily by increasing the overall mining footprint. Though because of the well thought out reclamation and dredge material disposal plan, reclamation and natural re-vegitation would conceal this disturbance year to year, with a net environmental effect similar to a one or two year operation. Deepening of the Bonanza Channel to create fish passage over the entire lenght of the Bonanza Channel would be a tremendous environmental benefit to the dying estuary. ***Discussion:*** This option is not eliminated, but considered as a reasonable foreseeable future action because it provides potential environmental benefits, it was not found to be reasonable or practicable at the current time.	Is considered to be a Reasonable Foreseeable Future Action with potential unknown cumulative environmental effects, but also a significant environmental benefit
Dredge Material Disposal Sites- Proposed Layout: Dredge material disposal sites underwater adjacent to the dredge mining channel	DDS-001	**Origination-** Applicant Proposed Project **Description**- This dredge material disposal site layout is based on depositing/locating the dredge material adjacent to the access channel and mining channel at a level right at or below the MLLW (Mean Lower Low Water) level. The mining channel is continuous to combine all dredge material disposal sites into a single area between the mining channel and the N shore of Bonanza Channel thereby minimizing the environmental impact of the mining operation as compared to other alternatives considered. Dredge material disposal sites are locations for temporary storage of material/soils from access trenches, and excess dredged soils (bulk, or swell) that may occur during normal mining operations. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Dredge Material Disposal Sites- Dredge material disposal sites above water adjacent to the dredge mining channel	DDS-002	**Origination**- This DDS option is considered in the event that more swelling/bulking of soil occurs beyond what is expected. **Description**- This dredge material disposal site layout is based on depositing/locating the dredge material adjacent to the access channel and mining channel above the MLLW (Mean Lower Low Water) level in the event that extra storage space is needed should bulking of material exceed what is calculated and expected for this project. The mining channel is continuous to combine all dredge material disposal sites into a single area, and to mine systematically resulting in a predictable plan, with predictable results, thereby minimizing the environmental impact of the mining operation as compared to other alternatives considered. Dredge material disposal sites are locations for temporary storage of material/soils from access trenches, and excess dredged soils (bulk, or swell) that may occur during normal mining operations. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This layout is part of the Applicant's proposed project contingency and mitigation plan, and on that basis, is assumed by the applicant to be reasonable and practicable. 3. Environmental Impacts Test: This option could be a benefit to the environment by creating shallows and mudlfats that may provide habitiat and feeding areas for seabirds, shorebirds and waterbirds.	Included in Action Alternative 2

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Dredge Material Disposal Sites-Uplands	DDS-003	**Origination**- This option considers the evaluation of depositing excess dredge spoil on uplands. **Description**- This option would increase the project footprint, but would allow deepening of the Bonanza Channel for fish habitat. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This option is not practicable with the equipment as it is not designed to pump solids after processing, and though the equipment can be added, the potential benefit does not outweigh the costs to the Applicant. 3. Environmental Impacts Test: This option would slightly increase the environmental impacts in the short-term by temporarily by increasing the overall mining footprint. The benefit to the environment may be that natural re-vegitation would conceal this disturbance year to year with grass growth, providing critical upland nesting habitiat for various species of birds and waterfowl. Deposition of dredged material outside of the Bonanza Channel would allow deepening of the Bonanza Channel to create fish passage over the entire lenght of the Bonanza Channel and would be a tremendous environmental benefit to the dying estuary. ***Discussion:*** This option exceeds the scope of the proposed 5 year project. Because expansion is a possible future action, it is not considered an alternative option to the proposed project.	Is considered to be a Reasonable Foreseeable Future Action with potential significant environmental benefits
Dredge Material Disposal Sites-Ocean Beach, Supratidal Deposition	DDS-004	**Origination-** This option considers the evaluation of depositing a percentage of dredge spoil along the shore of Norton Sound in the supratidal zone **Description**- This alternative considers pumping a percentage of the dredge spoil/soil across the Nome-Council Highway to the beach and deposit in the supratidal zone for beach renourishment. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This option is not practicable with the equipment as it is not designed to pump solids after processing and heavy equipment would be needed on the barrier island to distribute the sand along the beach. Though the equipment can be added, the potential benefit does not outweigh the costs to the Applicant at this time. 3. Environmental Impacts Test: This option would provide a net benefit to the environment providing beach nourshment for the barrier island that is constantly washing away due to longshore currents. The deposition of sediment in the supritidal zone would potentially create a food source for various species of shorebirds, seabirds and waterbirds. Deposition of dredged material outside of the Bonanza Channel would allow deepening of the Bonanza Channel to create fish passage over the entire lenght of the Bonanza Channel and would be a tremendous environmental benefit to the dying estuary. ***Why Eliminated:*** This option is not practicable for cost reasons, and may not be a reasonable alternative as it would alter the shorelines of adjacent private property.	Eliminated from Further Analysis

Project Location and Layout Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Dredge Material Disposal Sites-Ocean Beach, Intratidal Deposition	DDS-005	**Origination-** This option considers the evaluation of depositing a percentage of dredge spoil along the shore of Norton Sound in the intratidal zone **Description**- This alternative considers pumping a percentage of the dredge spoil/soil across the Nome-Council Highway to the beach and deposit in the intratidal zone for beach renourishment. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This option is not practicable with the equipment as it is not designed to pump solids after processing, but because the material would be deposited in the intratidal zone wave action and longshore currents would re-distribute the sand along the beach naturally. Though this pumping capacity can be added to the project, the potential benefit does not outweigh the costs to the Applicant at this time. 3. Environmental Impacts Test: This option would provide a net benefit to the environment providing beach nourshment for the barrier island that is constantly washing away due to longshore currents. Deposition of dredged material outside of the Bonanza Channel would allow deepening of the Bonanza Channel to create fish passage over the entire lenght of the Bonanza Channel and would be a tremendous environmental benefit to the dying estuary. ***Why Eliminated:*** This option is not practicable for cost reasons at this time.	Is considered to be a Reasonable Foreseeable Future Action with potential significant environmental benefits

Mining Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Mining Type- Cutterhead Dredge Mining	MIN-001	**Origination-** Applicant Proposed Project **Description**- This option is central to the ideas, planning and economics of the proposed project which consists of using a cutterhead dredge to mine the gold-rich sands in the shallow estuary. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Mining Type- Bucket Line Dredge Mining	MIN-002	**Origination**- Historically much of the Seward Peninsula was mined using bucket-line dredges. **Description**- This option involves mining using a series of buckets on a chain that are constantly digging, requiring no pumps to move material up to the processing plant. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This method is out of date, old technology, and is too slow and maintenance-intensive to be considered a practicable means for mining in this location, more suited to rocky stream and river beds, or large stretches of historical beach area like around the Nome Uplands. ***Why Eliminated:*** This alternative is slow compared to MIN-001, this coupled with the high maintenance costs make this method un-economic.	Eliminated from Further Analysis
Mining Type- Tailing Suction Dredge Mining	MIN-003	**Origination**- An alternative to cutterhead dredging. **Description**- This option involves using a larger self-propelled vessel that moves along the waterbody whilst dragging one or two trailing suction heads with hard-faced teeth. A combination of water sprays and the dragging and suction remove channels of material, essentially vacuuming sediment as it travels. Of all dredging methods this method is said to be one of the most effective at collecting a majority of the heavy mineral component of the material being dredged. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This alternative does not pass this test because this method requires a large vessel, generally designed for deepening ship passages, it would be unable to float in the shallow 2-4ft waters of Bonanza Channel. ***Why Eliminated:*** This alternative will not work in shallow waters.	Eliminated from Further Analysis
Mining Type- Standard Suction Dredge Mining	MIN-004	**Origination**- An alternative to cutterhead dredging. **Description**- This option involves using a single or a series of smaller 8-10 inch floating suction dredges operated by divers. **Screening**- 1. Purpose and Need Test: Because this method has a reduced throughput compared to the Applicant's proposes MIN-001 this mining method would result in reduced gold production compared to MIN-01, thus would not pass this test for project need with regards to a) would not provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) woudl not provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments. ***Why Eliminated:*** This alternative does not meet the project purpose and need requirement.	Eliminated from Further Analysis

Mining Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Mining Type- Backhoe or Dipper Dredge	MIN-005	**Origination**- An alternative to cutterhead dredging. **Description**- This option involves using a dredge outfitted with an excavotor, or a clamshell style dipper that is lowered into the water either on a hydraulic arm (backhoe) or a cable (dipper). The dipper or bucket picks up material and is retrieved to the surface and dumped in a hopper. **Screening**- 1. Purpose and Need Test: Because this method has a reduced throughput compared to the Applicant's proposes MIN-001 this mining method would result in reduced gold production compared to MIN-01, thus would not pass this test for project need with regards to a) would not provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) woudl not provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments. ***Why Eliminated:*** This alternative does not meet the project purpose and need requirement.	Eliminated from Further Analysis
Mining Type- Dragline Dredge	MIN-006	**Origination**- An alternative to cutterhead dredging. **Description**- This option involves using a dredge outfitted with a dragline bucket that is winched between a fixed location ahead of the dredge and the dredge itself. The bucket scoops up material and is retrieved to the surface of the water and dumped in a hopper. **Screening**- 1. Purpose and Need Test: Because this method has a reduced throughput compared to the Applicant's proposes MIN-001 this mining method would result in reduced gold production compared to MIN-01, thus would not pass this test for meeting the project need with regards to a) would not provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) woudl not provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments ***Why Eliminated:*** This alternative does not meet the project purpose and need requirement.	Eliminated from Further Analysis
Mining Type- Wash Plant, Sluces and Fine Gold Jigs	MIN-007	**Origination**- An alternative to cutterhead dredging. **Description**- This option involves moving sediment with excavators or loaders, hauling with a truck to a washplant where the material is screened and processed through a series of sluce boxes and gravity circuit equipment to recover various size fractions of gold. **Screening**- 1. Purpose and Need Test: Because this method has a reduced throughput compared to the Applicant's proposes MIN-001 this mining method would result in reduced gold production compared to MIN-01, thus would not pass this test for project need with regards to a) would not provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) would not provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments 2. Reasonable and Practicable Test: This alternative does not pass this test because this method is not reasonable for mining fine sand from under water in an estuary. ***Why Eliminated:*** This alternative does not meet the project purpose and need requirement.	Eliminated from Further Analysis

Processing Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Facility Location & Process Type- On-site Gold Concentrate Production	PRO-001	**Origination-** Applicant Proposed Project **Description**- This alternative is part of the proposed project in which the material dredged from the operation will be processed on-site on a processing barge that follows the dredge. Material is transported to the processing barge with a long flexible pipe. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Facility Location & Process Type- Alternate-site Ore Processing	PRO-002	**Origination**- The Applicant evaluated the option of "off-site" or "alternate-site" processing when designing the project. In this case off-site meant processing material "outside of the estuary". **Description**- This option involves dredging ore, or sediment, and piping it to an alternate location for processing. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This method does not pass this test as pumping costs would make this option less reasonable than the alternative PRO-001. Additionally, this option is less practicable than PRO-001 as it requires either access across lands to the coastal processing location, or a very long pipe that would need to be semi-permanent and would need to be constantly lengthened. 3. Environmental Impacts Test: Increased environmental impacts will result on land. ***Why Eliminated:*** This alternative is not Reasonable or Practicable compared to PRO-001.	Eliminated from Further Analysis

Mining Rate Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Mining Rate- 267 Yd/Hr	YPH-001	**Origination-** Applicant Proposed Project **Description**- This alternative is part of the proposed project in which the material is dredged at a design rate of 267 cubic yards per hour. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Mining Rate- Reduced Mining Rate	YPH-002	**Origination**- The Applicant evaluated the option of smaller dredge throughputs. **Description**- This option involves dredging ore at a throughput less than YPH-001 **Screening**- 1. Purpose and Need Test: Because project economics for fine grained low grade placer gold are sensitive to gold price, recovery and throughput (production) this option does not pass this test becuase it has the potential to not a) provide socio-economic benefits to the rural and remote community of Nome and other surrounding communities, b) provide a significant economic revenue generator for the State of Alaska in terms of rental and royalty payments ***Why Eliminated:*** This alternative does not pass the Purpose and Needs Test.	Eliminated from Further Analysis
Mining Rate- Expanded Mining Rate	YPH-003	**Origination**- This option considers the evaluation to maximize the potential economic benefits of developing the deposit by mining at a much faster rate resulting in a shorter life-of-mine, but a more profitable operation. **Description**- This option would increase the dredge throughput (production) consequently increasing the daily, monthly and annual gold production. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This layout was originally part of the Applicant's proposed project, and on that basis, is assumed by the Applicant to be reasonable and practicable at the time. Shareholders of the company have been told that increased dredge throughput is an option. 3. Environmental Impacts Test: This option would slightly increase the environmental impacts by increased turbidity and larger overall seasonal mining footprint. Though because of the well thought out reclamation and dredge material disposal plan, reclamation and natural re-vegitation would conceal this disturbance year to year, with a net environmental effect similar to a one or two year operation. ***Dsicussion:*** This option exceeds the scope of the proposed 5 year project. Because throughput modifications are a possible future action, it is not considered an alternative option to the proposed project.	Is considered to be a Reasonable Foreseeable Future Action for meeting the stated project need

Gold Recovery Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Gold Recovery-Gravity	AUR-001	**Origination**- Applicant proposed project. This option considers the evaluation to maximize the potential economic benefits of the project by processing the sands using strictly gravity separation. **Description**- This option would use nugget boxes followed a centrifuge technology coupled with spirals specifially designed to recover very fine gold out of the sands, clays and silts to recover the maximum percentage of gold. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Gold Recovery-Cyanide	AUR-002	**Origination**- This option considers the evaluation to maximize the potential economic benefits of the project by processing the concentrates using a small cyanide CIL processing unit. **Description**- This option would use cyanide to dissolve gold out of the concentrate and tailings to recover any gold too fine for the gravity circuit. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This method does not pass this test as the costs associated with this method would make this option less reasonable than the alternative PRO-001. Additionally, this option is less practicable than PRO-001 as it requires the use of a chemical solvent and creates a potential environmental liability. 3. Environmental Impacts Test: Cyanide is toxic to aquatic organisms, wildlife and humans. This option does not pass this test as it would increase the risk to the environment and not provide an environmental benefit. ***Why Eliminated:*** This option is not reasonable nor practicable and increases the potential risk to adverse environmental impacts form the transportation, storage and use of cyanide.	Eliminated from Further Analysis
Gold Recovery-Mercury	AUR-003	**Origination**- This option considers the evaluation to maximize the potential economic benefits of the project by processing the concentrates using mercury. **Description**- This option would use mercury to recover gold from the concentrate too fine for the gravity circuit. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This method does not pass this test as the costs associated with this method would make this option less reasonable than the alternative PRO-001. Additionally, this option is less practicable than PRO-001 as it requires the use of a toxic element creates a potential environmental liability. 3. Environmental Impacts Test: Mercury is toxic to aquatic organisms, wildlife and humans. This option does not pass this test as it would increase the risk to the environment and not provide an environmental benefit. ***Why Eliminated:*** This option is not reasonable nor practicable and increases the potential risk to adverse environmental impacts form the transportation, storage and use of mercury.	Eliminated from Further Analysis

Access Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Project Access-DOT ROW Nome-Council Hwy	PAC-001	**Origination-** Applicant Proposed Project **Description**- This option considers accessing the project via the Nome-Council Highway, State of Alaska public Right-of-Way (ROW). **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Project Access-Other Alternatives	PAC-002	**Origination-** This option considers other options to accessing the mining claims. **Description**- This option considers accessing the project via alternative routes, other than the Nome-Council Highway. **Screening**- The only other access options are by ocean or by air, both are neither practicable or reasonable for an area accessed by a public ROW.	Eliminated from Further Analysis
Mining Access-State of Alaska Land	MAC-001	**Origination-** Applicant Proposed Project **Description**- This option considers accessing the mining area through State of Alaska land on State of Alaska Mineral Claims held by the Applicant. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Mining Access-Private Land	MAC-002	**Origination**- This option considers accessing the mining area from private land. **Description**- This option considers accessing the mining area through private land along the Nome-Council Highway. This access route would require the Applicant to either 1) Lease land from a private landowner whose land borders the Appliant's State of Alaska Mineral Claims, or 2) Purchase land bordering the State of Alaska Mineral Claims from a private landowner to use as access to the mining area. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This access is both Reasonable and Practicable for accessing some of the mining claims. 3. Environmental Impacts Test: This access does not pose any environmental risks or benefits.	Included as Action Alternative 2
Mining Access-Federal Land	MAC-003	**Origination**- This option considers accessing the mining area from Federal Land. **Description**- This option considers accessing the mining area through Federal land on the southwest side of the claim block. **Screening**- 1. Purpose and Need Test: Meets the purpose and need 2. Reasonable and Practicable Test: This method does not pass this test as the applicant does not have Federal Mineral Claims. ***Why Eliminated:*** This option is not reasonable nor practicable.	Eliminated from Further Analysis
Dredge Access-Access Channel - State of Alaska Mining Claims	DAC-001	**Origination-** Applicant Proposed Project **Description**- This option considers constructing and maintaining an access channel to the proposed seasonal dredging areas on State of Alaska Mining Claims. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1

Access Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Dredge Access-Access Channel - Solomon Bridge Boat Ramp	DAC-002	**Origination**- Evaluation of accessing the dredging area from the boat ramp, near Solomon bridge, that is with the State of Alaska, DOT, public easement and ROW. **Description**- This dredge access route option was evaluated by the Applicant when developing the project plans to use this location for accessing claims near and to the East of the Solomon Bridge. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This access is both Reasonable and Practicable for accessing some of the mining claims. 3. Environmental Impacts Test: This access does not pose any environmental risks or benefits.	Included as Action Alternative 2
Dredge Access-Access Channel - Safety Sound	DAC-003	**Origination**- Evaluation of accessing the dredging area from Safety Sound **Description**- This dredge access route option was evaluated by the Applicant when developing the project plans to use this location for accessing the western-most claims nearest Safety Sound. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This access is not reasonable, as it would require a longer access channel to be dredged and maintained to the mining area. 3. Environmental Impacts Test: This access could have an environmental benefit of deepening the channel for the passage of fish. ***Why Eliminated:*** This option is not reasonable as it would require a longer access channel that would need to be dredged/deepend, and maintained. This longer access channel also stands a greater chance of affecting wildlife as it would create more hours of boat traffic in Bonanza Channel.	Eliminated from Further Analysis

Camp and Power Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Camp Location-DOT ROW Nome-Council Hwy, State Mineral Claim DKSN 35	CMP-001	**Origination-** Applicant Proposed Project **Description**- This option considers a camp location on mineral claims held by the Applicant adjacent to the Nome Council Highway **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Camp Location-Private Land	CMP-002	**Origination**- Evaluation of locating camp on private land near the mining area **Description**- This camp option considers leasing or purchasing private land from nearby landowners for a camp location. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option is Practicable for placing a camp near the mining claims, but not reasonable considering private ground is held by various people, who may or may not rent or sell, and who may or may not be close to the mining area, and who may or may not charge a reasonable rate for using their land. 3. Environmental Impacts Test: This camp option may mean a longer access channel to the dredging area, suseqently larger dredge material disposal sites, and more phyiscal disturbance of the estuary.	Included as Action Alternative 2
Camp Location-No Camp	CMP-003	**Origination**- Evaluation of no camp near mining area **Description**- This camp option considers no camp for the operations, and workers commuting daily from Nome to the work site **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option does not pass the Reasonable and Practicable test. It is not reasonable to operate the project without a camp as it is >28 miles from Nome on a rough, washboard gravel road because of the wear and tear on vehicles, and workers working 12 hour shifts, driving nearly an hour before and after work. This option is not practicable either, as the costs of housing a crew in Nome and the annual cost of fuel, tires and vehicle maintenance and liability far outweigh the costs of supplying a man-camp for the operation. 3. Environmental Impacts Test: This camp option is not a benefit to the environment, as it would substantially increase the daily traffic on the Nome-Council gravel highway, creating dust and noise that could affect the birds along the Bonanza Channel. Additionally a camp with a satellite internet system is preferable for uploading real-time environmental monitoring data. ***Why Eliminated:*** This option is not reasonable or practicable because of costs and liability. The option of not having a camp increases road traffic, which in turn creates more dust, more disruption to the birds in the area, and increases the project's carbon footprint.	Eliminated from Further Analysis
Project Power-On Site Power Generation-Diesel Generator	POW-001	**Origination-** Applicant Proposed Project **Description**- This option considers a dual diesel powered 55kWe stationary power source (generators) located on mineral claims held by the Applicant adjacent to the Nome Council Highway. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1

Camp and Power Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Project Power-On Site Power Generation-Natura Gas Generator	POW-002	**Origination**- Evaluation of a cleaner burning natural gas generator for a power source **Description**- This camp option considers using natural gas-fired generators as opposed to diesel. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option is Practicable because there is no natural gas supply source in this area. ***Why Eliminated:*** This option is not practicable as natural gas is not readily avaiable in the area of the project.	Eliminated from Further Analysis

Environmental BMP and Reclamation Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Turbidity Control- Silt Curtain - 100% Operation Containment	TUR-001	**Origination-** Applicant Proposed Project **Description**- This option considers a bottom-mounted silt curtain surrounding the entire dredging operation, 10-12 acres at a time, to create a 100% turbidity containment and fish barrier. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1
Turbidity Control- Silt curtain surrounding processing barge only	TUR-002	**Origination**- Evaluation of surrounding only the processing barge with a silt curtain, original proposed plan **Description**- This option considers surrounding only the processing barge with a silt curtain that hangs above the bottom of the mining channel. This option was envisioned to control turbitity by allowing fines to flocculate naturally within the curtain and stay out of the waterway. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option was believed to be practicable, but the applicant determined it was not reasonable to assume that this method would allow them to meet the 100ft mixing zone from an outfall as required by the ADEC. 3. Environmental Impacts Test: This alternative posed a risk of non-compliance to ADEC turbidity limits outside of the 100ft mixing zone. Additionally, this method did not create a fish barrier to keep fish out of the mining/dredging area. ***Why Eliminated:*** This option poses a risk of non-compliance to ADEC turbidity limits outside of the 100ft mixing zone. Additionally, this method did not create a fish barrier to keep fish out of the mining/dredging area.	Eliminated from Further Analysis
Turbidity Control- No Turbidity Control	TUR-003	**Origination**- Evaluation of using no turbidity control for the dredging operation in conjunction with DDS-005. **Description**- This option was considered with DDS-005 (pumping dredge spoils/soil) to the intratidal zone of Norton Sound if 100% of the dredge material was disposed in the ocean. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option is not practicable with the equipment as it is not designed to pump solids after processing, and is not reasonable to assume that there would be zero turbidity from the mining operation and be able to meet the 100ft mixing zone requirements imposed by ADEC. ***Why Eliminated:*** This option poses a risk of non-compliance to ADEC turbidity limits outside of the 100ft mixing zone. Additionally, this method did not create a fish barrier to keep fish out of the mining/dredging area.	Eliminated from Further Analysis
Turbidity Monitoring- Real Time Buoys or Tripods	MON-001	**Origination-** Applicant Proposed Project **Description**- This option considers either a floating or a bottom-mounted tripod monitoring station both up- and down-current of the mining operation that would capture, record and upload real-time turbidity, conductivity, water temperature, weather, flow velocity data and send turbidity exceedance alarms to the dredge operator for quick response in the case of a failed turbidity BMP. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review	Included in Action Alternative 1

Environmental BMP and Reclamation Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Turbidity Monitoring-Physical	MON-002	**Origination**- Evaluation of monitoring turbidity physically with the use of a Secchi disk and a hand-held portable turbidity multi-probe that measures pH, ORP, conductivity, turbidity and temperature. **Description**- This option considers periodic physical measurements of mixing zone conditions by a environmental technician. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option was believed to be practicable and reasonable using the hand-held multiprobe instead of the Secchi disk in low light conditions. 3. Environmental Impacts Test: This alternative benefits the environment by measuring and comparing background, up-current conditions with down-current mixing zone conditions. Because this system is human-dependent, it relies upon diligence and training of the technician and requires constant record-keeping. Because this system is not real-time, response/correction to a turbidity release will be slower than MON-001. Thus this option represents trade-offs and is carried forth for detailed consideration.	Included in Action Alternative 2
Turbidity Monitoring-None	MON-003	**Origination**- The option of no continuous turbidity modeling was briefly contemplated by the applicant **Description**- This option considers no monitoring of turbidity. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This alternative is not reasonable given the stakeholder and agency concern over turbidity levels from this operation. 3. Environmental Impacts Test: This alternative does not create any environmental benefit and provides no method of understanding or documenting either ever-changing background or mining/dredging turbidity levels. ***Why Eliminated:*** This option was not reasonable from the perspective of the ADEC who would require monitoring as a stipulation of the permit.	Eliminated from Further Analysis
Reclamation-Concurrent Partial Re-establishment of Natural Bottom Profile	REC-001	**Origination-** Applicant Proposed Project **Description**- This option considers reclamation concurrent with mining. The process involves: 1) Measuring and modeling pre-mining depth with sonar and GPS, 2) Dredging and processing soils, 2) Depositing soils bulk/swell (if present) into the shallows of the dredge material disposal sites creating shallows for critical water/shore/sea bird habitat, 3) Deposition of remaining soil in a sweeping pattern over the dredged out bottom until the prior mining depth is attained in the mining trench, or until MLLW elevation is reached (as indicated by sonar and GPS on the processing platform) while leaving the access channel at a newly established depth of 10' BMHW. The benefit to leaving the access channel to the new depth of 10' BMHW is to improve navigability and/or depth required for fish passage and possible establishment of eel grass beds. **Screening**- Because this option is included in the proposed project, it meets the three screening criteria for purposes of detailed environmental review, specifically the benefit to the environment to restoring the channel to its pre-mining condition.	Included in Action Alternative 1

Environmental BMP and Reclamation Alternatives			
Option	**Option #**	**Option Details and Screening** **Option Details:** Origination and Description **Screening Criteria:** 1. Purpose and Need Test; 2. Reasonable and Practicable Test; 3. Environmental Impact Test **Reason Eliminated from Further Analysis** (if applicable)	**Outcome**
Reclamation-Concurrent 100% Re-establishment of Natural Bottom Profile	REC-002	**Origination**- Evaluation of reclaiming the bottom of the entire Bonanza Channel to pre-mining depth profiles as proposed in previous preliminary project descriptions. **Description**- This option considers concurrent mining/reclamation. The process involves: 1) Dredging and processing soils, 2) Depositing soils in a sweeping pattern over the dredged out bottom unilt the prior mining depth is reached. This method assumes a bulking factor of 0, meaning the material will not swell or expand after it is dredged up and processed. **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option is a practicable alternative because the dredge and processing equipment has Trimble GPS location mapping coupled with sonar and sophisitcated software that develops a point-cloud bottom profile before mining, and lets the operators know when reclamation/re-deposition of dredged material is restored to the pre-mining depth. However, it is not reasonable to assume a bulking factor of 0, and the Applicant expects some material bulking through this mining process. ***Why Eliminated:*** This option is not reasonable because the probability of the dredged material not bulking (swelling or expanding) is very low.	Eliminated from Further Analysis
Reclamation-Dredging and Deepening/ Improvement of Bonanza Channel - No Reclamation	REC-003	**Origination**- Evaluation of the option of improving fish habitat by deepening the Bonanza Channel. **Description**- This option was considered with DDS-005 (pumping dredge spoils/soil) to the intratidal zone of Norton Sound whereby 100% of the dredge material was disposed in the ocean. In this scenario, the bottom depth of the channel would be left at 30-31 feet below MHW (Mean High Water). **Screening**- 1. Purpose and Need Test: Meets the project purpose and need 2. Reasonable and Practicable Test: This option is not practicable with the equipment as it is not designed to pump solids after processing. 3. Environmental Impacts Test: This option provides the best environmental benefit to the future of Bonanza Channel because: 1) Increasing the water depth would allow natural establishment of eel grass beds (that need deep water to exist), 2) The new eelgrass habitiat would be beneficial to the Salmon population, 3) The deep channel would provide safe salmon rearing and possibly improve the productivity of the Bonanza and Solomon River fisheries. ***Why Eliminated:*** This option is not practicable because of the designed equipment configuration, and adding this capability would be expensive. Additionally, there is a lack of stakeholder commitment to the improvement of the estuary.	Is considered to be a Reasonably Foreseeable Future Action with potential significant environmental benefits. (*See DDS-005)*

Exhibit 5

Fuel Tank Specifications

SPECIFICATION DATA SHEET I MODEL : 30TCG

TRANS CUBE

Extend the run times of your diesel powered equipment with the **TRANS**CUBE™ 30TCG. *Increased Efficiency + Decreased Expenses = Maximized Revenue*.

- **Transportable.** Full load lifting eyes, forklift pockets and internal baffles designed to allow handling of the tank full of fuel.
- **Stackable.** Easily stackable (2)-high full of fuel and (3)-high empty to reduce storage space requirements.
- **Accessible.** Access manway for maintenance and inspection of inner tank. Removable inner tank for servicing and cleaning.
- **Efficient.** Lockable equipment cabinet locks and secures equipment and fuel ports to run up to 3 pieces of diesel-powered equipment.
- **Environmentally Safe.** Double-walled, 110% containment eliminates the need for spill pans, UL 142 approved.

SPECIFICATIONS*	
STANDARD FITTINGS: High accuracy contents gauge; 3"Fill Point; 2" fusible link fill port; 1" pump feed with flexible dip pipe, strainer & non-return valve; (1) engine feed and return port set; pressure/vacuum vent; breather vent. OPTIONAL FITTINGS: Complete transfer pump kits; water & particulate filter kits; fuel up to (2) feed & return blocks; fuel hose & quick couplers.	
Capacity (Brim-Fill) Litres: 3000	**Dimension Height (mm/in):** 1315 mm/51.77"
Capacity (Brim-Fill) Imperial Gallons: 660	**Weight Empty (lbs/kg):** 2234 lbs (1013kg)
Capacity (Brim-Fill) US Gallons: 793	**Weight Full (lbs/kg):** 8855 lbs (4016kg)
Dimension Length (mm/in): 2298 mm/90.45"	**Approvals:** UL142, ULC S-601-07, SUN IBC Type 31A,
Dimension Width (mm/in): 1548 mm/60.94"	UN DOT, NFPA, Transport Canada, Vlarem, Kiwa

*Model specifications may slightly differ based on stock availability in your area. Please contact your local representative to confirm tank specifications.

SPECIFICATION DATA SHEET I MODEL : 40TCG

TRANS CUBE

The **TRANS**CUBE™ 40TCG is a versatile fuel deployment solution for larger diesel-powered equipment. With 1,000 gallons of back-up fuel, your need for fuel truck visits is decreased, which in turn helps you to lower your carbon footprint and your expenses!

- **Transportable.** Full load lifting eyes, forklift pockets and internal baffles designed to allow handling of the tank full of fuel.
- **Stackable.** Easily stackable (2)-high full of fuel and (3)-high empty to reduce storage space requirements.
- **Accessible.** Access manway for maintenance and inspection of inner tank. Removable inner tank for servicing and cleaning.
- **Efficient.** Lockable equipment cabinet locks and secures equipment and fuel ports to run up to 3 pieces of diesel-powered equipment.
- **Environmentally Safe.** Double-walled, 110% containment eliminates the need for spill pans, UL 142 approved.

SPECIFICATIONS	
STANDARD FITTINGS: High accuracy contents gauge; 3"Fill Point; 2" fusible link fill port; 1" pump feed with flexible dip pipe, strainer & non-return valve; (1) engine feed and return port set; pressure/vacuum vent; breather vent. OPTIONAL FITTINGS: Complete transfer pump kits; water & particulate filter kits; fuel up to (2) feed & return blocks; fuel hose & quick couplers.	
Capacity (Brim-Fill) Litres: 3785	**Bund Material Thickness (in):** 1/8"
Capacity (Brim-Fill) Imperial Gallons: 833	**Inner Tank Material Thickness (in):** 1/8"
Capacity (Brim-Fill) US Gallons: 1000	**Weight Empty (lbs/kg):** 2724 lbs (1235kg)
Dimension Length (mm/in): 2312 mm/91"	**Weight Full (lbs/kg):** 9370 lbs (4251kg)
Dimension Width (mm/in): 2200 mm/87"	**Approvals:** UL142, ULC S-601-07, NFPA,
Dimension Height (mm/in): 1220 mm/48"	Transport Canada, Vlarem, Kiwa
Dimension Cabinet Opening (mm/in): 850.9 mm x 355.6 mm/ 33.5" x 14"	

P12

- 3,124 US GAL
  11,834 LITRES
  2,603 IMP GAL
- 118 x 96 x 114 IN
  2,997 x 2,438 x 2,896 MM
- 8,816 LBS
  3,999 KG

Exhibit 6

System Pump Curve

SYSTEM CURVE AND PUMP EVALUATION

FOR: ROG Dredge Dredge

Pipe Description: 12SDR11

					Mark one Only
Input Data:					
Discharge Side of the Pump:	10		Material:	6	
Line Length*	300	Ft.			1
Inside Diameter	10.3	Inches			2
Allowance for Ball Joints, Etc.	5	Ft of Hd			3
Elevation of Discharge above Water	30	Ft			4
Plastic(P) or Steel(S)	p	0.02			5
					6
Suction Side:					7
Line Length	35				8
Inside Diameter	12	inches			9
Digging Depth	25	Ft			10
Height of Pump above digging depth	25	Ft			11
Impeller					
Impeller Size:	25		*Additional Discharge Input:		
RPM	647		Line Length	0	
Pulley/Transmission Ration (X:1)	2.65		I.D.	11	
Pumping and Slurry Conditions:			Plastic(P) or Steel(S)	p	
Percent Solids by Weight	25	Percent		0.02	
Quantity	5000	GPM	} One must be zero		
Dry Solids	0	Tons/Hr	} One must be zero		
Specific Gravity of the Liquid	1				
Pumping Efficency	0.65				

Calculations:					
Percent Solids by Volume	11.2		2.65	Sp. Gr. of Solids	
Specific Gravity of the Mix	1.184		1.28		
Tons per Hour of dry Solids	371		267.3	CuYds/Hr (approx)	
PPSI Minimum Suggested Velocity	12.3	Ft/Sec	MTI-Vcrit	10.13	Ft/Sec
Quantity	5,000	GPM			
Discharge Line velocity	19.3	Ft/Sec	Pipe Area	0.58	ft.^2
Suction Line Velocity	14.2	Ft/Sec	Pipe Area	0.79	ft.^2
Target Velocity	14.7	Ft/sec			
Head Required					
Discharge Pipe Friction	31	Ft.	1.85	Exponent	
Suction Pipe Friction	2.09	Ft.			
Entrance Losses	4	Ft.	Discharge Pressure Required:		
Sp. Gr. / D.D	5	Ft.	2		
Acceleration	6	Ft.			
Elevation	36	Ft.	Incoming Pressure:		
Other (Input)	5	Ft.	0		
Total Pump He	93	Ft.	PSI:	47	
Horse Power Required	213		Est. Fuel Req'd	8.9	Gals/Hr
Engine RPM	1714		Discharge Pressure	47	
Impeller Tip Speed (FPM)	4,233		Recommend < 6600		

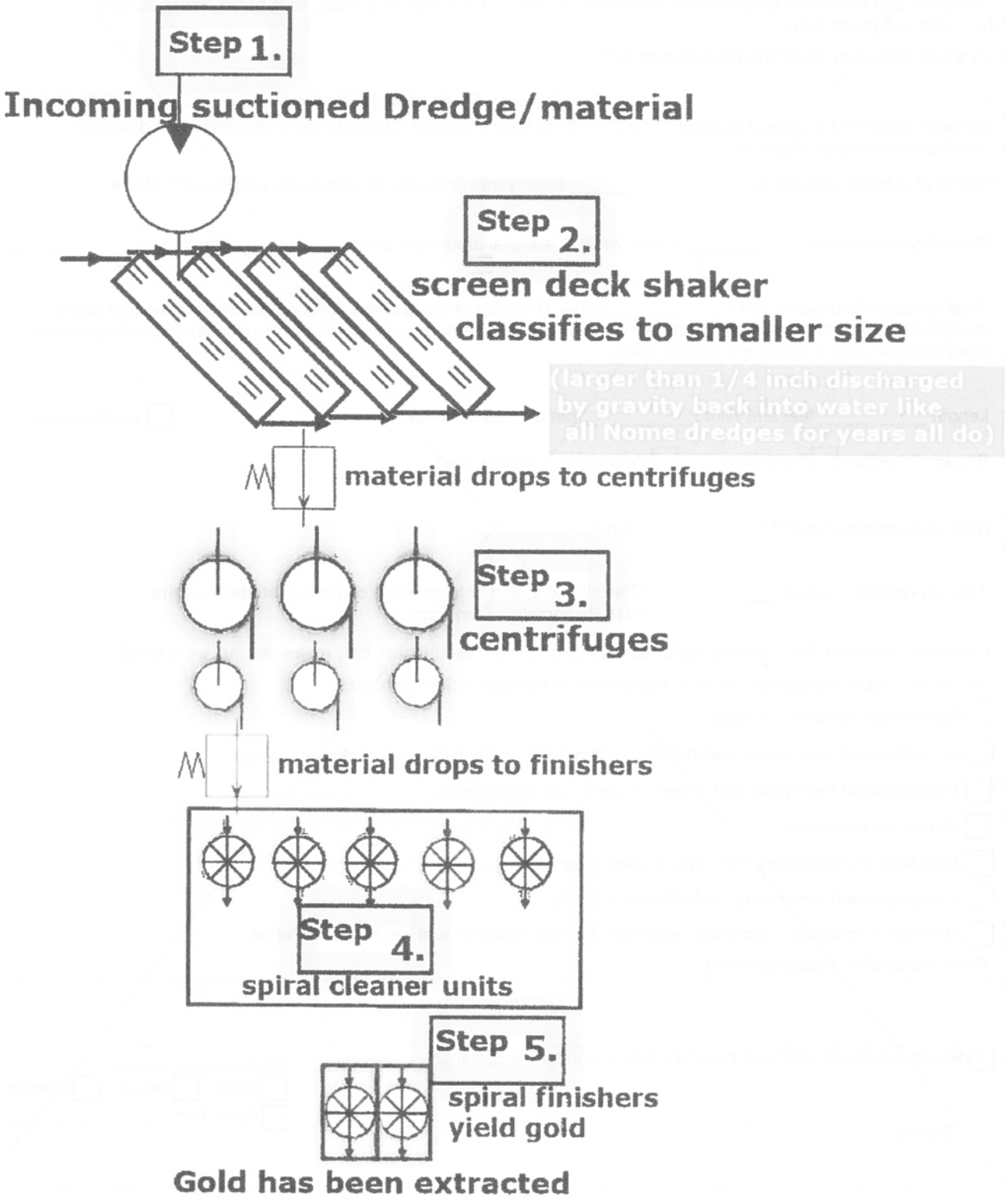
System Curve Table: Degree of Detail required 500

Pressure (PSI)	Pump Head Feet	GPM	Pump HP Required	Head at pump Suction	Discharge Line Velocity	TPH dry solids Production	PUMP RPM
33	65	3000	90	-5.42	11.6	222.3	543
36	71	3500	114	-5.69	13.5	259.3	565
39	77	4000	142	-5.99	15.4	296.4	590
43	84	4500	175	-6.33	17.3	333.4	617
47	93	5000	213	-6.70	19.3	370.5	647
52	102	5500	258	-7.10	21.2	407.5	679
58	113	6000	311	-7.53	23.1	444.6	713
64	124	6500	372	-8.00	25.0	481.6	749
70	137	7000	443	-8.50	27.0	518.7	787

Exhibit 7

Generalized Process Flow Diagram

FLOW THROUGH DIAGRAM OF DREDGED MATERIAL



DEC-002525

Exhibit 8

2018 Sediment Sampling and Drilling Results, Chains of Custody, Oro Industries Processing Results

Exhibit 9- Assay Results

IPOP retrieved an initial, hand-dug sample from the northwest corner of the underwater portion of DSKN 31 on May 7, 2018, and had it analyzed by American Assay Laboratories of Sparks, NV. The results are attached hereto as Exhibit 8A. This test confirmed what IPOP had been told by state regulators: that there was no appreciable mercury present in the area, and enabled IPOP to focus further laboratory work on mineralization tests of commercial interest.

IPOP has heretofore delayed releasing detailed results from its exploration sampling because the of desire to seek out additional potential claims without setting off a "gold rush". IPOP sampled the cores in precisely the locations proposed, as set forth in the map previously provided:

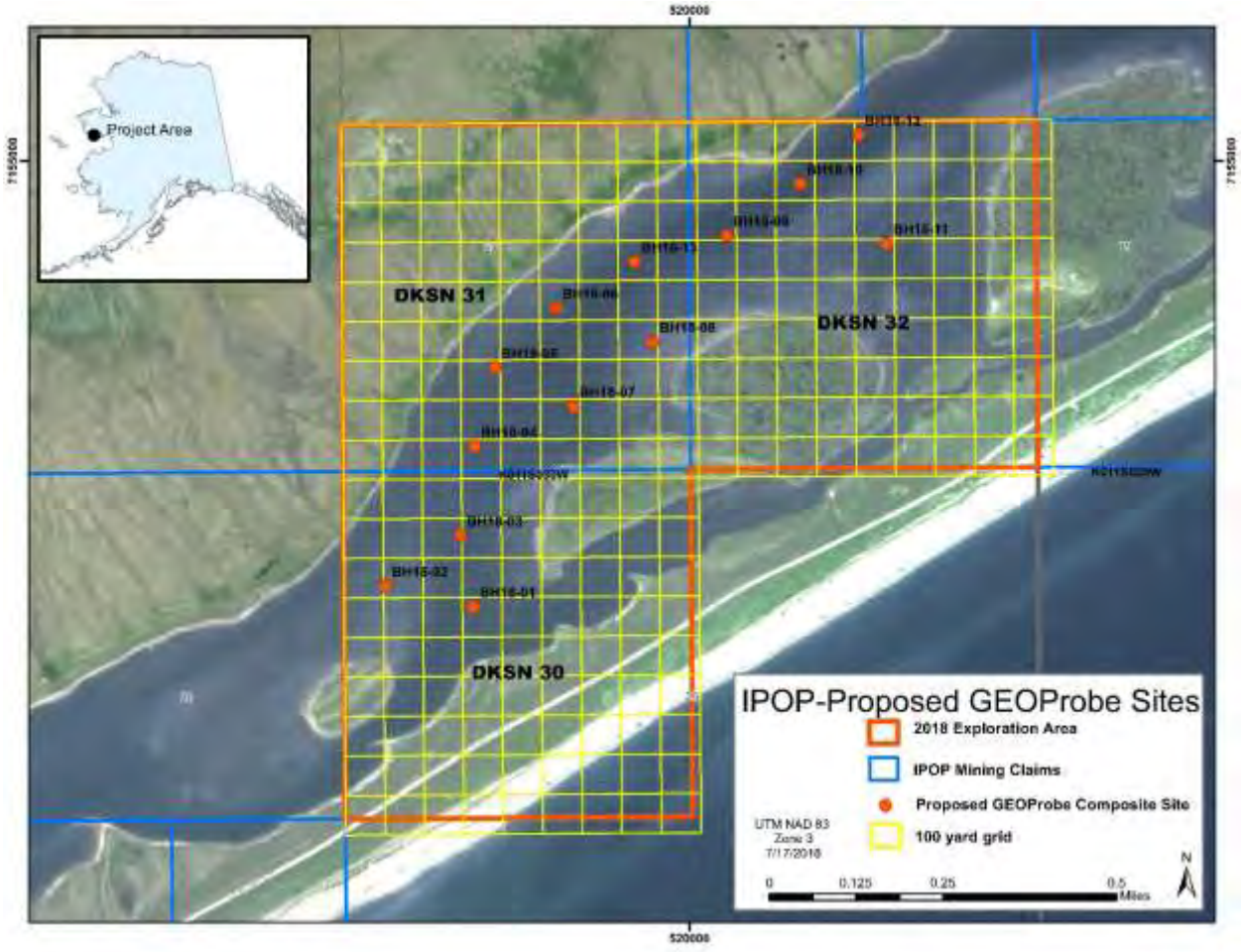


Exhibit 8B shows the date and time thirteen samples were collected, with sample codes, and identifies the person who collected them and sent them to American Assay Laboratories, of Sparks, NV.

Attached as Exhibit 8C is Final Report from American Assay Laboratories. They received the core samples and produced detailed information concerning both the mineral content of thirteen core samples (BH18-01 through -13), and the proportion of sand, silt and clay.[1]

[1] American Assay labs defines "clay" as having particle size less than two microns, "sand" as particle size greater than 63 microns, and "silt" as particle size two to sixty-three microns.

Because the core samples consisted of unconsolidated materials, unlike hard rock core samples, and were also relatively homogeneous, no detailed analysis of the composition by depth layer was conducted. The geologic lessons from the historically-rich Nome beaches demonstrate that the fine gold is widely distributed—no exercise like attempting to identify the location of lode formation is required in this context. What was more important was to confirm the congruence of the mineral composition results with the depositional layers of the gold rich beaches in Nome. More specifically, in Nome the best predictor of gold in the beach sands is the quartz percentage, and the core samples showed a very high percentage of quartz.

IPOP did not ask American Assay Laboratories to prepare detailed information concerning the precise portions of gold within the samples for two reasons. First, gold was obvious and pervasive in the cored samples, to the extent it could be seen through the cored clear plastic liner immediately when the cores were brought back to Nome:

Again, the obvious presence of gold like this comes as no surprise to IPOP, which extensively researched the history and geology of the area. Miners up the nearby rivers produced millions of ounces of gold, and the sediment in the Bonanza Channel comes out of these rivers and other upland gold deposits.

More importantly, IPOP's primary concern, given the generally small size of the gold particles, was utilize the 323 lbs. of cored material in a batch test of IPOP's concentrating equipment, equipment which must be engineered to match the type of placer gold actually encountered.

Accordingly, after the testing by American Assay Laboratories, the samples were transferred under a strict chain of custody to Oro Industries of Placerville, California, who engineered the processing equipment. Ms. Claudia Wise picked up the core samples from the shipper at the American Assay Lab on June 4, 2019, and drove them to Oro Industries, arriving on June 5, 2019. Mr. Paul Clift of Oro Industries signed for the packages and they were unloaded. See Exhibits 8D (receipts) & 8E (photographs)

At this point, the samples were to be put through a large centrifuge; Mr. Clift could not wait to see the results, and began to hand-pan the material. (Exhibit 8F). Some tests to see how quickly the material would settle were run, and the centrifuged concentrate was then fed into the spiral concentrator. Everyone was pleased with the results, which showed significant gold.

The net result was that the concentrators produced a total of seven grams of gold from the 323 lbs. of core samples. (Exhibit 8G.) This is just over 43 grams of gold per ton, and far lower concentrations than this are commercially viable.

EXHIBIT 8A

SP0122408
FINAL REPORT

Multi Element Package

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV USA 89431-5902
Ph.(775) 356-0606
Fax.(775) 356-1413
EMAIL: info@aallabs.com

IPOP LLC

COPIES TO :	Edwin Epstein	CLIENT REFERENCE No:	#1-#2	RECEIVED :	14-May-2018
:		No. SAMPLES :	2	REPORTED :	18-May-2018
:		MAIN SAMPLE TYPE :	ROCK		
:					

COMPANY DISCLAIMER :-
When small samples are submitted, AAL may process the sample at smaller then specified weights to retain some pulp for quality control reassay.
When Values exceed upper limits, AAL will run an Over Range analysis, to establish an accurate value. Additional cost will apply.
Due to USDA Soil Quarantine programs - all foreign and some domestic soil material must be decontaminated by drying @ 125c for 48 hours, which will result in loss of Mercury (Hg).

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project. Nevada State Law NRS 519.130.

ANALYSIS	Wt	Au	150 Wt	150 Au	150 Wt	Au(1)	Au(2)	u Calc	Ag	Al	As	Au	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe
METHOD	BRPP2KG	30-ICP	PB30SF	PB30SF	PB30SF	PB30SF	PB30SF	PB30SF	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT
UNIT	kg	ppm	grams	ppm	grams	ppm	gram	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LOWER LIMIT	0.01	0.003	0.01	0.003	1	0.003	0.003	0.003	0.005	10	0.1	0.001	0.1	0.01	0.005	10	0.01	0.01	0.1	0.01	0.01	0.1	0.01	0.01	0.01	10

ANALYSIS	Ga	Gd	Ge	Hf	Hg	Ho	In	K	La	Li	Lu	Mg	Mn	Mo	Na	Nb	Nd	Ni	P	Pb	Pr	Rb	Re	S	Sb	Sc
METHOD	ICP-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT
UNIT	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LOWER LIMIT	0.02	0.01	0.01	0.01	0.005	0.01	0.01	10	0.1	0.2	0.01	10	0.2	0.02	10	0.005	0.01	0.1	10	1	0.01	0.02	0.005	10	0.02	0.01

ANALYSIS	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Al2O3	BaO	CaO	Cr2O3	Fe2O3	K2O	MgO	MnO
METHOD	ICP-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	-5A-UT	XRF-WR	XRF-WR	XRF-WR	XRF-WR	XRF-WR	XRF-WR	XRF-WR	XRF-WR
UNIT	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	pct	pct	pct	pct	pct	pct	pct	pct
LOWER LIMIT	0.1	0.01	0.02	0.1	0.01	0.01	0.02	0.005	10	0.003	0.01	0.01	0.1	0.01	0.01	0.01	0.2	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

ANALYSIS	Na2O	P2O5	SiO2	SrO	TiO2	V2O5	LOI
METHOD	XRF-WR	XRF-WR	XRF-WR	XRF-WR	XRF-WR	XRF-WR	LOI
UNIT	pct	pct	pct	pct	pct	pct	pct
LOWER LIMIT	0.01	0.01	0.01	0.01	0.01	0.01	0.01

SIGNATORY

ANALYSIS
Au
ICP
XRF

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV USA 89431-5902
Ph.(775) 356-0606
Fax.(775) 356-1413
EMAIL: AALLABS@NVBELL.NET

	Abbreviation	Definition
Preparation	DIP	Sample Destroyed in Preparation
	DIS	Sample Destroyed in Shipment
	ISS	Insufficient Sample Submitted
	SDI	Sample Diesel Impregnated
	SHI	Sample Hydraulic Impregnated
	SNR	Sample Not Received
Analysis	STD - ??	International Reference Material Standard
	STD - AAL##	AAL generated standard material
	BLANK	AAL Laboratory Silica Blank
	DTF	Data to Follow
	DL	Detection Limit of Method
	< or -	Less Than Lower Detection Limit of Method
	>	Greater than Upper Limit of Method
	N/A	Not Analyzed
	NR	Not Reported
	(R) column	Laboratory repeat weigh, digestion, analysis from original pulp or reject resplit
	D or -D after Sample ID	Client submitted duplicate rig split sample
	-R after Sample ID	Repeat analysis from original pulp reweigh, digestion and analysis
	-X after Sample ID	Repeat analysis from reject resplit, preparation, weigh, digestion and analysis
	ppb	Parts per Billion 0.001 ppm = 1 ppb
	ppm	Parts per Million 1 ppm = 1 mg/Kg
	OPT	Troy Ounces per Short Ton(2,000 lbs)(1 ppm= 0.02917 OPT
	Oz	Troy Ounce = 31.103 grams
	%	Percent 1%=10,000 ppm
	g	Grams 1g=0.001 kilogram
	mg	Milligrams 1mg=0.001gram
	Kg	Kilograms 1Kg=1000grams
	lbs	Pounds 1lb=0.454kilogram
Method	FA-PB##	Fire Assay Lead Collection - ## sample weight in gram
	GRAV	Gravimetric (Weighed) finish
	SF	Screen Fire Assay reporting a plus, 2 minus fractions and a head Ca
	+ ###	Plus Fraction (Retained on top of Mesh) ###Screen Size
	- ###	Minus Fraction (Passed through Mesh) ###Screen Size
	CN	Cyanide Extraction
	ORE GRADE	2g sample made to 1000ml volumetric for results > upper limit of method
	Ox-H2SO4 or -HCl	Dilute acid leach for oxide fraction in copper or molybdenum analysis
	QLA	Dilute 10%H2SO4/0.5%Fe2(SO4)3 30C leach for acid soluble copper
	QLT	Dilute 15%H2SO4 30C leach for acid soluble copper
	SAP	Dilute 5%H2SO4/0.5%Fe2(SO4)3 85C leach for acid soluble & chalcocite copper
	D#A	Digestion #=2,3 or 4 Acids
		2A=HCl/HNO3 3A=HCl/HNO3/HClO4 4A=HCl/HNO3/HF/HClO
	HCl	Hydrochloric Acid(37%w/v) Boiling Point 109
	HF	Hydrofluoric Acid(48%w/v) Boiling Point 108C Extreme Health Hazar
	HClO4	Perchloric Acid(69%w/v) Boiling Point 203C Extreme Fire/Explosion Hazar
	HNO3	Nitric Acid(69%w/v) Boiling Point 121
	H2SO4	Sulfuric Acid(98% w/v) Boiling Point 338
	ICP-xB or -xZ	ICP-AES and/or ICP-MS analysis using x=2, 3 or 4 acid digestion
	LiBO2-C	Lithium Metaborate fusion in Carbon crucible
	Na2O2-C	Sodium Peroxide fusion in Carbon crucible
	Na2O2-Zr	Sodium Peroxide fusion in Zirconium crucible
Technique	AAS	Atomic Absorption Spectroscopy
	ICP-AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
	ICP-MS	Inductively Coupled Plasma Mass Spectroscopy
	RG	Research Grade (Low detection limit ICP-AES
	UT	Ultra Trace (ICP-AES+ICP-MS analyses
	XRF-ED or -WD	X-Ray Flourescence (-ED = Energy Dispersive) (-WD = Wavelength Dispersive
	XRD	X-Ray Diffraction
	ELTRA-I	Carbon & Sulfur infrared detection analyzer inductive heating
	ELTRA-R	Carbon, Hydrogen & Sulfur infrared detection analyzer resistance furnace
	LECO-I	Nitrogen & Oxygen infra red detection analyzer inductive heating
	MW	Microwave Digestion (-PT is at 1500psig and 300C
	SG-WD or -HP	Specific Gravity-WD=Water Displacement -HP=Helium Pycnometer 1g/cm3=62.4lbs/f

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

	Wt	Au	+150 Wt	+150 Au	-150 Wt	-150 Au(1)	-150 Au(2)	Au Calc	Ag	Al	As	Au	Ba
	BRPP2KG	FA-PB30-ICP	FA-PB30SF	FA-PB30SF	FA-PB30SF	FA-PB30SF	FA-PB30SF	FA-PB30SF	ICP-5A-UT	ICP-5A-UT	ICP-5A-UT	ICP-5A-UT	ICP-5A-UT
	0.01	0.003	0.01	0.003	1	0.003	0.003	0.003	0.005	10	0.1	0.001	0.1
SAMPLES	kg	ppm	grams	ppm	grams	ppm	gram	ppm	ppm	ppm	ppm	ppm	ppm
#1	6.50	0.003	23.06	0.018	771	0.004	0.003	0.004	0.105	41550	4.4	-0.001	240.5
#2	6.20	0.003	24.06	-0.003	705	0.004	0.004	0.004	0.143	42589	6.5	-0.001	278.7
#2-X		0.003	39.39	0.005	783	-0.003	-0.003	-0.003	0.072	40387	8.2	-0.001	249.7
BLANK		-0.003							-0.005	2131	3.1	-0.001	9.5
STD - OxA131		0.065											
STD - CDN-ME-1205									26.663	60658	533.7	0.883	807.6
STD - AAL2010													
STD - OREAS 905									0.536	76466	30.6	0.404	>2000

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

SAMPLES	Be ICP-5A-UT 0.01 ppm	Bi ICP-5A-UT 0.005 ppm	Ca ICP-5A-UT 10 ppm	Cd ICP-5A-UT 0.01 ppm	Ce ICP-5A-UT 0.01 ppm	Co ICP-5A-UT 0.1 ppm	Cr ICP-5A-UT 0.01 ppm	Cs ICP-5A-UT 0.01 ppm	Cu ICP-5A-UT 0.1 ppm	Dy ICP-5A-UT 0.01 ppm	Er ICP-5A-UT 0.01 ppm	Eu ICP-5A-UT 0.01 ppm	Fe ICP-5A-UT 10 ppm
#1	0.71	0.079	8921	0.02	20.54	13.7	57.97	0.24	20.9	2.59	2.26	0.84	36647
#2	0.80	0.069	9215	0.03	27.15	14.2	76.56	0.26	33.5	2.85	2.31	1.05	47494
#2-X	0.72	0.054	8943	-0.01	23.39	12.8	57.58	0.27	23.5	2.63	2.06	1.02	37985
BLANK	0.04	0.014	96	-0.01	8.76	0.1	2.70	0.02	1.1	0.35	0.35	0.24	330
STD - OxA131													
STD - CDN-ME-1205	0.87	9.167	28061	22.72	33.10	25.6	79.30	0.62	2232.7	3.18	1.96	0.87	64543
STD - AAL2010													
STD - OREAS 905	2.86	6.041	5935	0.30	95.93	16.0	20.25	6.36	1585.9	3.48	1.25	1.34	41754

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

SAMPLES	Ga ICP-5A-UT 0.02 ppm	Gd ICP-5A-UT 0.01 ppm	Ge ICP-5A-UT 0.01 ppm	Hf ICP-5A-UT 0.01 ppm	Hg ICP-5A-UT 0.005 ppm	Ho ICP-5A-UT 0.01 ppm	In ICP-5A-UT 0.01 ppm	K ICP-5A-UT 10 ppm	La ICP-5A-UT 0.1 ppm	Li ICP-5A-UT 0.2 ppm	Lu ICP-5A-UT 0.01 ppm	Mg ICP-5A-UT 10 ppm	Mn ICP-5A-UT 0.2 ppm
#1	6.85	3.74	-0.01	0.54	0.023	0.27	-0.01	6377	13.4	18.7	0.07	8620	463.3
#2	6.84	4.58	-0.01	1.02	0.021	0.31	0.01	7434	14.3	21.7	0.09	8868	568.1
#2-X	6.30	3.91	-0.01	2.62	0.022	0.32	0.01	6493	13.5	18.5	0.09	8048	474.6
BLANK	1.54	0.20	-0.01	2.14	0.006	0.02	-0.01	1137	3.1	1.3	-0.01	110	1.7
STD - OxA131													
STD - CDN-ME-1205	11.56	5.67	0.02	1.91	0.773	0.47	1.48	12298	18.7	22.2	0.14	12767	839.1
STD - AAL2010													
STD - OREAS 905	25.65	6.89	0.02	7.24	0.038	0.44	0.53	29093	44.9	22.5	0.06	2803	386.7

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

SAMPLES	Mo ICP-5A-UT 0.02 ppm	Na ICP-5A-UT 10 ppm	Nb ICP-5A-UT 0.005 ppm	Nd ICP-5A-UT 0.01 ppm	Ni ICP-5A-UT 0.1 ppm	P ICP-5A-UT 10 ppm	Pb ICP-5A-UT 1 ppm	Pr ICP-5A-UT 0.01 ppm	Rb ICP-5A-UT 0.02 ppm	Re ICP-5A-UT 0.005 ppm	S ICP-5A-UT 10 ppm	Sb ICP-5A-UT 0.02 ppm	Sc ICP-5A-UT 0.01 ppm
#1	2.17	15472	7.188	12.68	25.0	412	7	8.99	19.72	-0.005	2654	0.32	6.97
#2	3.53	15828	6.933	14.11	41.0	515	5	8.95	12.26	-0.005	4138	0.36	7.69
#2-X	2.40	15033	6.526	12.56	24.1	495	6	8.05	21.31	-0.005	3594	0.35	7.06
BLANK	0.27	99	-0.005	2.51	-0.1	-10	-1	2.70	1.35	-0.005	88	0.05	0.22
STD - OxA131													
STD - CDN-ME-1205	74.68	17699	15.647	16.51	172.7	719	1291	2.52	28.24	0.013	15153	23.87	11.16
STD - AAL2010													
STD - OREAS 905	3.50	22418	16.913	36.89	8.4	283	28	11.51	141.56	-0.005	698	1.11	4.81

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

SAMPLES	Se ICP-5A-UT 0.1 ppm	Sm ICP-5A-UT 0.01 ppm	Sn ICP-5A-UT 0.02 ppm	Sr ICP-5A-UT 0.1 ppm	Ta ICP-5A-UT 0.01 ppm	Tb ICP-5A-UT 0.01 ppm	Te ICP-5A-UT 0.02 ppm	Th ICP-5A-UT 0.005 ppm	Ti ICP-5A-UT 10 ppm	Tl ICP-5A-UT 0.003 ppm	Tm ICP-5A-UT 0.01 ppm	U ICP-5A-UT 0.01 ppm	V ICP-5A-UT 0.1 ppm
#1	-0.1	3.40	1.29	109.1	0.90	3.12	-0.02	2.609	3938	0.056	0.06	0.48	54.4
#2	-0.1	3.01	2.31	114.1	1.24	3.07	-0.02	2.869	3908	0.068	0.08	0.56	54.3
#2-X	-0.1	3.38	1.97	106.7	1.18	3.14	-0.02	3.032	3818	0.072	0.08	0.60	51.6
BLANK	1.1	1.33	0.63	4.3	-0.01	-0.01	-0.02	0.297	121	0.005	-0.01	0.05	1.5
STD - OxA131													
STD - CDN-ME-1205	2.2	4.48	26.51	334.4	1.67	2.34	0.54	4.609	3197	1.808	0.11	1.19	83.0
STD - AAL2010													
STD - OREAS 905	1.4	6.75	4.10	163.2	1.84	0.60	0.07	13.204	1275	0.685	0.07	4.48	-0.1

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

SAMPLES	W ICP-5A-UT 0.01 ppm	Y ICP-5A-UT 0.01 ppm	Yb ICP-5A-UT 0.01 ppm	Zn ICP-5A-UT 0.2 ppm	Zr ICP-5A-UT 0.1 ppm	Al2O3 XRF-WR 0.01 pct	BaO XRF-WR 0.01 pct	CaO XRF-WR 0.01 pct	Cr2O3 XRF-WR 0.01 pct	Fe2O3 XRF-WR 0.01 pct	K2O XRF-WR 0.01 pct	MgO XRF-WR 0.01 pct	MnO XRF-WR 0.01 pct	Na2O XRF-WR 0.01 pct	P2O5 XRF-WR 0.01 pct	SiO2 XRF-WR 0.01 pct	SrO XRF-WR 0.01 pct
#1	0.74	12.89	1.22	49.5	24.0	7.44	0.04	1.38	0.01	5.25	0.72	1.41	0.06	1.79	0.08	77.04	0.02
#2	1.71	13.68	1.31	48.9	28.8	7.85	0.05	1.43	-0.01	6.69	0.86	1.48	0.07	1.78	0.09	74.00	0.01
#2-X	0.86	13.01	1.23	53.1	25.9	7.35	0.05	1.40	-0.01	5.45	0.75	1.34	0.08	1.70	0.09	75.19	0.01
BLANK	0.02	0.50	0.05	4.5	4.1	0.40	-0.01	0.03	-0.01	0.05	0.11	-0.01	-0.01	-0.01	-0.01	96.37	-0.01
STD - OxA131																	
STD - CDN-ME-1205	19.70	13.35	1.33	3411.8	61.4												
STD - AAL2010						10.20	0.26	6.92	0.03	6.37	3.19	2.99	0.09	0.53	0.23	60.49	0.03
STD - OREAS 905	2.62	15.48	0.68	132.6	242.3												

SP0122408

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Rivers of Gold
REFERENCE : #1-#2
REPORTED : 18-May-2018

SAMPLES	TiO2 XRF-WR 0.01 pct	V2O5 XRF-WR 0.01 pct	LOI LOI 0.01 pct
#1	0.83	0.01	1.96
#2	0.87	0.02	2.03
#2-X	0.85	0.02	2.21
BLANK	0.04	-0.01	0.35
STD - OxA131			
STD - CDN-ME-1205			
STD - AAL2010	0.46	0.04	8.26
STD - OREAS 905			

EXHIBIT 8B

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 West Chadston Blvd, Las Vegas	Address	

				Notes:	Known Hazards			
Client:	IRDP	Location Name:	Borehole 18-01	N/A	Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-01 0-4	SD	4/13/19	1334				
2	BH18-01 4-10.5	SD	4/13/19					
3	BH18-01 10.5-14.5	SD	4/13/19					
4	BH18-01 14.5-18	SD	4/13/19					
5	BH18-01 18-22	SD	4/13/19					
6	BH18-01 22-26.5	SD	4/13/19					
7	BH18-01 26.5-31.5	SD	4/13/19	1623				
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt
1	Jeffrey Rezin	4/20/19 5:00 pm			Y	N	Y	N	Temperature:
2					Y	N	Y	N	
3	Yvette AAL	6/4 3:48pm	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	
X 4		10:17AM							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IPOP	Location Name:	BH18-02		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rizin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment Sample ID, Description	Matrix	Collection Actual Collection Date	Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-02 0-6	SD	4/17/19	1632				
2	BH18-02 6-10	SD	4/17/19					
3	BH18-02 10-14	SD	4/17/19					
4	BH18-02 14-17	SD	4/17/19					
5	BH18-02 17-20	SD	4/17/19					
6	BH18-02 20-23.5	SD	4/17/19	1900				
7								
8								

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt
1	Jeffrey Rizin	4/20/19			Y	N	Y	N	Temperature:
2		5:00pm			Y	N	Y	N	
3	Yvette AAL	6/4 3:48	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	
4	[signature]	10:12 AM 6/5							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9891 West Charleston Blvd #2-444	Address	

				Notes:	Known Hazards			
Client:	IPOP	Location Name:	BH18-03	Las Vegas, NV	Flammable		Poison	
Profile:	Sedimat Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30,31,32	Event Desc:	Core Drilling					

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-03 0-4'	SD	4/14/19	1115				
2	BH18-03 4-10'	SD	"	"				
3	BH18-03 10-14'	SD						
4	BH18-03 14-19'	SD						
5	BH18-03 19-23'	SD						
6	BH18-03 23-26'	SD	↓	1342				
7								
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt: Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00pm			Y	N	Y	N	
3	Yvette AAL	6/4 3:48	Claudia Wise &	6/4/19 3:50pm	Y	N	Y	N	
4		6/5 10:13							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 West Charleston Blvd #2-444	Address	

				Notes:	Known Hazards	
Client:	IPOP	Location Name:	BH18-04	Las Vegas, NV	Flammable	Poison
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological	Other
Location Code:	Claim 30,31,32	Event Desc:	Core Drilling			

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-04 0-8.5	SD	4/14/19	1401				
2	BH18-04 8.5-12.5	SD	4/14/19	"				
3	BH18-04 12.5-17	SD	4/14/19	"				
4	BH18-04 17-20.5	SD	4/14/19	"				
5	BH18-04 20.5-23.5	SD	4/14/19	1722				
6								
7								
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact	
1	Jeffrey Rezin	4/20/19			Y	N	Y	N
2		5:00pm			Y	N	Y	N
3	Yvette AAL	6/4 3:48	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N
4	[illegible]	6/5 10:12am						

Receipt Temperature:

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444, Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IROP	Location Name:	BH18-05		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment Sample ID, Description	Matrix	Collection Actual Collection Date	Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-05 0-5.5'	SD	4/14/19	1744				
2	BH18-05 5.5-9.5'							
3	BH18-05 9.5-15.5'							
4	BH18-05 15.5-19.5'							
5	BH 18-05 19.5-23.5'							
6	BH 18-05 23.5-28'							
7	BH18-05 28-33.5'			2057				
8								

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition Received on Ice		Sample Condition Samples Intact		Receipt Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00 pm			Y	N	Y	N	
3	Yvette AAL	6/4 3:49	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	
4	[signature]	6/5 10:12am							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IFOP	Location Name:	BH18-06		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment Sample ID, Description	Matrix	Collection Actual Collection Date	Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-06 0-5.5'	SD	4/17/19	1337				
2	BH18-06 5.5-9.5'	SD	"					
3	BH18-06 9.5-13.5'	SD	"					
4	BH18-06 13.5-15.5'	SD	"					
5	BH18-06 15.5-21.5'	SD	"	1603				
6								
7								
8								

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition Received on Ice		Sample Condition Samples Intact		Receipt Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00pm			Y	N	Y	N	
3			Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	

4 [signature] 6/5 10:17 6/5

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IPOP	Location Name:	BH18-07		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-07 0-7'	SD	4/15/19	1032				
2	BH18-07 7-11'	SD	"					
3	BH18-07 11-15'	SD	"					
4	BH18-07 15-19'	SD	"					
5	BH18-07 19-22.5	SD	"	1301				
6								
7								
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt: Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00pm			Y	N	Y	N	
3	Yvette AML	6/4 3:49	ClaudiaWise	6/4/19 3:50pm	Y	N	Y	N	
4	[signature]	6/5 10:19am							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards	
Client:	IDOP	Location Name:	BH18-08		Flammable	Poison
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological	Other
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling			

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-08 0-6'	SD	4/15	1331				
2	BH18-08 6-10'	SD						
3	BH18-08 10-14'	SD						
4	BH18-08 14-18'	SD						
5	BH18-08 18-21.5'	SD						
6	BH18-08 21.5-24.5'	SD		1559				
7								
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact	
1	Jeffrey Rezin	4/20/19			Y	N	Y	N
2		5:00 pm			Y	N	Y	N
3	Yvette	6/4 3:49	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N
4	[signature]	6/5 10:12am						

Receipt
Temperature:

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IPOP	Location Name:	BH 18-09		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment Sample ID, Description	Matrix	Collection Actual Collection Date	Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH 18-09 0-6'	SD	4/17/19	1031				
2	BH 18-09 6-10'	SD	"	"				
3	BH 18-09 10-14'	SD	"	"				
4	BH 18-09 14-18.5'	SD	"	"				
5	BH 18-09 18.5-21.5'	SD	"	"				
6	BH 18-09 21.5-25.5'	SD	↓	1307				
7								
8								

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition Received on Ice		Sample Condition Samples Intact		Receipt Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00pm			Y	N	Y	N	
3	[illegible] AAL	6/4 3:49	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	
4	[illegible]	6/5 10:19							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IDDP	Location Name:	BH18-10		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-10 0-4	SD	4/15/19	1630				
2	BH18-10 4-8	SD	"	"				
3	BH18-10 8-12	SD	"	"				
4	BH18-10 12-16	SD	"	"				
5	BH18-10 16-20	SD	"	"				
6	BH18-10 20-28	SD	"	A27				
7								
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt: Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00 pm			Y	N	Y	N	
3	[illegible] AAL	6/4 3:41	ClaudiaWise	6/4/19 3:50pm	Y	N	Y	N	
4	[illegible]	6/5 10:1[illegible]							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Lab	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	TPOP	Location Name:	BH18-11		Flammable		Poison	
Profile:	Sediment Lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment Sample ID, Description	Matrix	Collection Actual Collection Date	Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-11 0-4	SD	4/16/19	0952				
2	BH18-11 4-8	SD						
3	BH18-11 8-12	SD						
4	BH18-11 12-16	SD						
5	BH18-11 16-19	SD						
6	BH18-11 19-22	SD						
7	BH18-11 Slough	SD	↓	1245				
8								

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition Received on Ice		Samples Intact		Receipt
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	Temperature:
2		5:00pm			Y	N	Y	N	
3	Ynette AAL	6/4 3:49	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	

6/5 10:17am

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas NV	Address	

Client:	IPOP	Location Name:	BH18-12	Notes:	Known Hazards
Profile:	Sediment Lithology 4	Collector:	Jeffrey Rezin		Flammable / Poison
Location Code:	Claim 30, 31, 38	Event Desc:	Core Drilling		Radiological / Other

#	Sample ID, Description	Matrix	Collection: Actual Collection Date	Collection: Actual Collection Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-12 0-5.5'	SD	4/16/20	1322				
2	BH18-12 5.5-8'	SD						
3	BH18-12 8-13.5'	SD						
4	BH18-12 13.5-15.5'	SD						
5	BH18-12 15.5-19.5'	SD						
6	BH18-12 19.5-24.5'	SD		1621				
7								
8								

Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt: Temperature:
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	
2		5:00 pm			Y	N	Y	N	
3	[illegible] AAL	6/4 3:49	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	
4	[illegible]	6/5 10:17							

Environmental Chain of Custody Form

Additional Report Recipients			
To	American Assay Labs	To	
Address	9811 W Charleston Blvd #2-444 Las Vegas, NV	Address	

				Notes:	Known Hazards			
Client:	IPOP	Location Name:	BH18-13		Flammable		Poison	
Profile:	Sediment lithology	Collector:	Jeffrey Rezin		Radiological		Other	
Location Code:	Claim 30, 31, 32	Event Desc:	Core Drilling					

#	Matrix Codes: DW=Drinking Water W=Water WW=Waste Water SO=Soil SL=Solid SD=Sediment Sample ID, Description	Matrix	Collection Actual Collection Date	Time	Sample Comments	Analyses	Total number of containers	Field Test Results
1	BH18-13 0-5.5'	SD	4/16/19	1702				
2	BH18-13 5.5-9.5'	SD	"					
3	BH18-13 9.5-13.5'	SD	"					
4	BH18-13 13.5-17.5'	SD	"					
5	BH18-13 17.5-21.5'	SD	"	1900				
6								
7								
8								

Transfers	Released By	Date/Time	Received By	Date/Time	Sample Condition: Received on Ice		Samples Intact		Receipt
1	Jeffrey Rezin	4/20/19			Y	N	Y	N	Temperature:
2		5:00pm			Y	N	Y	N	
3	Yvette AAL	6/4 3:50	Claudia Wise	6/4/19 3:50pm	Y	N	Y	N	
4	[illegible]	6/5 10:17am							

EXHIBIT 8C

SP0126278
FINAL REPORT

Multi Element Package

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV USA 89431-5902
Ph.(775) 356-0606
Fax.(775) 356-1413
EMAIL: info@aallabs.com

IPOP LLC

COPIES TO :	Edwin Epstein	CLIENT REFERENCE No:	BH18-01 to BH18-13 COMP	RECEIVED :	29-Apr-2019
:		No. SAMPLES :	13	REPORTED :	15-May-2019
:		MAIN SAMPLE TYPE :	COMPOSITES		
:					

COMPANY DISCLAIMER :-
When small samples are submitted, AAL may process the sample at smaller then specified weights to retain some pulp for quality control reassay.
When Values exceed upper limits, AAL will run an Over Range analysis, to establish an accurate value. Additional cost will apply.
Due to USDA Soil Quarantine programs - all foreign and some domestic soil material must be decontaminated by drying @ 125c for 48 hours, which will result in loss of Mercury (Hg).

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project. Nevada State Law NRS 519.130.

ANALYSIS	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In	K	La	Li	Mg	Mn	Mo	Na	Nb
METHOD	ICP-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48
UNIT	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LOWER LIMIT	0.05	100	0.1	5	0.01	0.01	100	0.02	0.1	0.1	0.1	0.1	0.1	100	0.02	0.01	0.01	0.01	100	0.01	0.2	100	5	0.1	100	0.02

ANALYSIS	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr	Al2O3	BaO	CaO	Cr2O3
METHOD	ICP-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	-5AM48	FeOre	FeOre	FeOre	FeOre
UNIT	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	pct	pct	pct	pct
LOWER LIMIT	0.1	10	3	1	0.002	100	0.05	0.01	0.2	0.1	1	0.02	0.01	0.1	10	0.002	0.1	1	0.1	0.1	2	0.1	0.01	0.01	0.01	0.01

ANALYSIS	Fe2O3	K2O	MgO	MnO	Na2O	P2O5	SO3	SiO2	SrO	TiO2	V2O5	C	S	LOI	Quartz	ldspar	chlore	covite	alcite	hibole	Sand	Silt	Clay
METHOD	XRF-FUSION	FeOre	FeOre	FeOre	FeOre	FeOre	FeOre	FeOre	FeOre	FeOre	FeOre	TRA-CS	TRA-CS	LOI	nt XRD	nt XRD	nt XRD	nt XRD	nt XRD	nt XRD	action	action	action
UNIT		pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct	PCT	PCT	PCT
LOWER LIMIT	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.003	0.003	0.01	1	1	1	1	1	1	0.01	0.01	0.01

SIGNATORY

ANALYSIS
Au
XRD

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV USA 89431-5902
Ph.(775) 356-0606
Fax.(775) 356-1413
EMAIL: AALLABS@NVBELL.NET

	Abbreviation	Definition
Preparation	DIP	Sample Destroyed in Preparation
	DIS	Sample Destroyed in Shipment
	ISS	Insufficient Sample Submitted
	SDI	Sample Diesel Impregnated
	SHI	Sample Hydraulic Impregnated
	SNR	Sample Not Received
Analysis	STD - ??	International Reference Material Standar
	STD - AAL##	AAL generated standard material
	BLANK	AAL Laboratory Silica Blank
	DTF	Data to Follow
	DL	Detection Limit of Method
	< or -	Less Than Lower Detection Limit of Metho
	>	Greater than Upper Limit of Method
	N/A	Not Analyzed
	NR	Not Reported
	(R) column	Laboratory repeat weigh, digestion, analysis from original pulp or reject respl
	D or -D after Sample ID	Client submitted duplicate rig split sampl
	-R after Sample ID	Repeat analysis from original pulp reweigh, digestion and analysi
	-X after Sample ID	Repeat analysis from reject resplit, preparation, weigh, digestion and analys
	ppb	Parts per Billion 0.001 ppm = 1 pp
	ppm	Parts per Million 1 ppm = 1 mg/K
	OPT	Troy Ounces per Short Ton(2,000 lbs)(1 ppm= 0.02917 OPT
	Oz	Troy Ounce = 31.103 grams
	%	Percent 1%=10,000 pp
	g	Grams 1g=0.001 kilogra
	mg	Milligrams 1mg=0.001gram
	Kg	Kilograms 1Kg=1000gram
	lbs	Pounds 1lb=0.454kilogra
Method	FA-PB##	Fire Assay Lead Collection - ## sample weight in gram
	GRAV	Gravimetric (Weighed) finish
	SF	Screen Fire Assay reporting a plus, 2 minus fractions and a head Ca
	+ ###	Plus Fraction (Retained on top of Mesh) ###Screen Siz
	- ###	Minus Fraction (Passed through Mesh) ###Screen Siz
	CN	Cyanide Extraction
	ORE GRADE	2g sample made to 1000ml volumetric for results > upper limit of meth
	Ox-H2SO4 or -HCl	Dilute acid leach for oxide fraction in copper or molybdenum analys
	QLA	Dilute 10%H2SO4/0.5%Fe2(SO4)3 30C leach for acid soluble copper
	QLT	Dilute 15%H2SO4 30C leach for acid soluble copper
	SAP	Dilute 5%H2SO4/0.5%Fe2(SO4)3 85C leach for acid soluble & chalcocite coppe
	D#A	Digestion #=2,3 or 4 Acids
		2A=HCl/HNO3 3A=HCl/HNO3/HClO4 4A=HCl/HNO3/HF/HClO
	HCl	Hydrochloric Acid(37%w/v) Boiling Point 109
	HF	Hydrofluoric Acid(48%w/v) Boiling Point 108C Extreme Health Hazar
	HClO4	Perchloric Acid(69%w/v) Boiling Point 203C Extreme Fire/Explosion Haza
	HNO3	Nitric Acid(69%w/v) Boiling Point 121
	H2SO4	Sulfuric Acid(98% w/v) Boiling Point 338
	ICP-xB or -xZ	ICP-AES and/or ICP-MS analysis using x=2, 3 or 4 acid digestion
	LiBO2-C	Lithium Metaborate fusion in Carbon crucibl
	Na2O2-C	Sodium Peroxide fusion in Carbon crucibl
	Na2O2-Zr	Sodium Peroxide fusion in Zirconium crucibl
Technique	AAS	Atomic Absorption Spectroscopy
	ICP-AES	Inductively Coupled Plasma Atomic Emission Spectroscop
	ICP-MS	Inductively Coupled Plasma Mass Spectroscop
	RG	Research Grade (Low detection limit ICP-AES
	UT	Ultra Trace (ICP-AES+ICP-MS analyses
	XRF-ED or -WD	X-Ray Flourescence (-ED = Energy Dispersive) (-WD = Wavelength Dispersive
	XRD	X-Ray Diffraction
	ELTRA-I	Carbon & Sulfur infrared detection analyzer inductive heatir
	ELTRA-R	Carbon, Hydrogen & Sulfur infrared detection analyzer resistance furna
	LECO-I	Nitrogen & Oxygen infra red detection analyzer inductive heatir
	MW	Microwave Digestion (-PT is at 1500psig and 300C
	SG-WD or -HP	Specific Gravity-WD=Water Displacement -HP=Helium Pycnometer 1g/cm3=62.4lbs/f

SP0126278

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel coring
REFERENCE : BH18-01 to BH18-13 COMP
REPORTED : 15-May-2019

SAMPLES	Ag ICP-5AM48 0.05 ppm	Al ICP-5AM48 100 ppm	As ICP-5AM48 0.1 ppm	Ba ICP-5AM48 5 ppm	Be ICP-5AM48 0.01 ppm	Bi ICP-5AM48 0.01 ppm	Ca ICP-5AM48 100 ppm	Cd ICP-5AM48 0.02 ppm	Ce ICP-5AM48 0.1 ppm	Co ICP-5AM48 0.1 ppm	Cr ICP-5AM48 0.1 ppm	Cs ICP-5AM48 0.1 ppm	Cu ICP-5AM48 0.1 ppm
BH18-01 COMP	0.06	45757	7.5	319	0.83	0.10	33599	-0.02	32.4	13.0	579.7	2.2	17.0
BH18-02 COMP	-0.05	35651	5.4	188	0.64	0.05	33464	-0.02	22.9	10.5	623.8	1.2	10.8
BH18-03 COMP	-0.05	40359	7.9	264	0.68	0.05	35281	-0.02	28.5	12.1	696.7	1.6	13.0
BH18-04 COMP	-0.05	47219	9.7	329	0.86	0.06	26952	-0.02	32.8	15.1	847.5	2.3	18.0
BH18-05 COMP	0.07	52408	9.4	308	0.93	0.09	27100	0.05	38.5	18.2	647.3	2.5	23.0
BH18-06 COMP	0.06	44364	7.1	272	0.76	0.05	26361	-0.02	28.8	13.5	505.1	1.9	13.2
BH18-06 COMP-X	-0.05	43080	7.5	267	0.77	0.05	26049	-0.02	29.7	13.3	489.8	1.9	13.1
BH18-07 COMP	-0.05	43335	8.3	257	1.01	0.06	24457	-0.02	29.6	12.5	543.2	1.9	13.6
BH18-08 COMP	-0.05	43575	9.7	285	0.74	0.05	11852	-0.02	30.1	13.5	1107.4	1.9	15.7
BH18-09 COMP	-0.05	51037	5.6	285	0.86	0.07	21816	0.06	36.8	19.5	480.5	2.2	20.9
BLANK	0.06	1938	-0.1	6	0.03	-0.01	-100	-0.02	9.7	0.2	2.9	0.1	0.8
BH18-10 COMP	0.05	52634	9.5	329	0.93	0.07	23188	0.05	37.3	18.6	748.7	2.4	23.2
BH18-11 COMP	0.06	45937	13.0	263	0.77	0.04	13475	-0.02	31.1	15.3	669.6	1.8	14.6
BH18-12 COMP	-0.05	55085	6.1	322	0.98	0.07	17251	0.07	40.0	18.4	553.1	2.4	23.3
BH18-12 COMP-X	-0.05	54041	6.1	320	0.96	0.08	16903	0.02	38.5	18.6	541.0	2.5	22.5
BH18-13 COMP	0.09	43401	4.5	253	0.71	0.04	27168	-0.02	29.6	14.1	431.1	1.5	13.4
STD - OREAS906													
STD - KZK-1													
STD - CDN-ME-1205	26.90	60010	1338.1	781	0.74	9.65	28495	18.31	33.9	22.7	72.0	1.8	2228.5
STD - AAL2010	97.68	53658	1045.1	1856	1.37	665.39	46584	3.31	50.7	25.3	149.1	29.4	2157.6
STD - OREAS905	0.52	73476	32.7	2636	2.52	5.25	6072	0.06	92.0	15.0	19.8	7.1	1542.7

SP0126278

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel co
REFERENCE : BH18-01 to BH18-13
REPORTED : 15-May-2019

SAMPLES	Fe ICP-5AM48 100 ppm	Ga ICP-5AM48 0.02 ppm	Ge ICP-5AM48 0.01 ppm	Hf ICP-5AM48 0.01 ppm	In ICP-5AM48 0.01 ppm	K ICP-5AM48 100 ppm	La ICP-5AM48 0.01 ppm	Li ICP-5AM48 0.2 ppm	Mg ICP-5AM48 100 ppm	Mn ICP-5AM48 5 ppm	Mo ICP-5AM48 0.1 ppm	Na ICP-5AM48 100 ppm	Nb ICP-5AM48 0.02 ppm
BH18-01 COMP	31343	10.34	0.04	0.55	0.05	9957	16.60	22.9	10767	505	2.2	13847	7.07
BH18-02 COMP	25231	7.44	0.03	0.32	0.03	6170	11.95	14.8	7604	465	2.0	12790	5.72
BH18-03 COMP	29760	8.59	0.04	0.42	0.03	7714	14.60	17.8	8870	549	2.0	12935	6.96
BH18-04 COMP	34711	10.71	0.03	0.59	0.04	10408	16.60	24.8	11694	523	2.8	14313	7.78
BH18-05 COMP	40865	12.69	0.05	0.54	0.06	10988	19.22	26.6	13334	641	2.0	13803	8.72
BH18-06 COMP	30513	9.97	0.04	0.43	0.04	8527	14.74	21.5	10547	510	1.9	13574	6.80
BH18-06 COMP-X	29411	9.72	0.04	0.44	0.04	8336	15.02	20.9	10361	500	2.0	13367	6.64
BH18-07 COMP	29377	9.71	0.03	0.49	0.04	8726	15.35	20.1	10321	486	2.0	14367	6.67
BH18-08 COMP	33180	9.55	0.04	0.61	0.04	8258	15.11	20.0	9304	436	3.0	15704	7.31
BH18-09 COMP	40884	12.29	0.04	0.48	0.05	9761	18.52	25.5	13420	644	1.7	14477	8.48
BLANK	525	0.44	-0.01	0.07	-0.01	782	3.17	0.7	-100	-5	0.5	151	0.20
BH18-10 COMP	41377	12.38	0.04	0.51	0.05	10635	18.79	27.4	13557	595	2.5	13345	7.61
BH18-11 COMP	33033	9.89	0.03	0.54	0.04	8712	15.85	21.6	10204	476	2.1	16403	7.35
BH18-12 COMP	39530	11.91	0.04	0.50	0.05	11465	19.75	28.5	13929	581	1.9	15335	6.92
BH18-12 COMP-X	40235	12.24	0.03	0.52	0.05	11147	19.20	27.4	13723	573	2.0	14837	7.26
BH18-13 COMP	30336	9.27	0.04	0.40	0.04	7417	14.67	19.2	10067	523	1.6	12273	6.54
STD - OREAS906													
STD - KZK-1													
STD - CDN-ME-1205	64528	14.33	0.05	1.34	1.81	12177	17.49	20.8	13240	821	80.3	17630	14.60
STD - AAL2010	43150	14.56	0.11	1.90	0.86	22968	28.80	33.5	17893	649	463.9	4893	11.55
STD - OREAS905	41619	24.53	0.08	6.81	0.70	29352	43.56	20.9	2932	384	3.7	23238	17.78

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FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel co
REFERENCE : BH18-01 to BH18-13
REPORTED : 15-May-2019

SAMPLES	Ni ICP-5AM48 0.1 ppm	P ICP-5AM48 10 ppm	Pb ICP-5AM48 3 ppm	Rb ICP-5AM48 1 ppm	Re ICP-5AM48 0.002 ppm	S ICP-5AM48 100 ppm	Sb ICP-5AM48 0.05 ppm	Sc ICP-5AM48 0.01 ppm	Se ICP-5AM48 0.2 ppm	Sn ICP-5AM48 0.1 ppm	Sr ICP-5AM48 1 ppm	Ta ICP-5AM48 0.02 ppm	Te ICP-5AM48 0.01 ppm
BH18-01 COMP	31.6	606	111	49	0.002	2487	0.89	8.87	-0.2	1.7	203	-0.02	-0.01
BH18-02 COMP	27.2	481	75	32	-0.002	688	0.78	6.62	-0.2	1.1	203	-0.02	-0.01
BH18-03 COMP	30.6	557	39	37	-0.002	1478	0.72	7.78	-0.2	1.3	212	-0.02	-0.01
BH18-04 COMP	39.2	641	45	50	-0.002	2868	0.96	9.08	-0.2	1.5	192	-0.02	0.01
BH18-05 COMP	42.0	732	21	54	-0.002	1031	0.87	11.22	-0.2	1.7	211	-0.02	0.03
BH18-06 COMP	33.2	574	61	43	-0.002	1372	0.81	8.51	-0.2	1.4	186	-0.02	-0.01
BH18-06 COMP-X	32.7	550	60	41	-0.002	1356	0.82	8.40	-0.2	1.3	180	-0.02	0.01
BH18-07 COMP	32.8	578	16	44	-0.002	1865	0.72	8.19	-0.2	1.4	166	-0.02	-0.01
BH18-08 COMP	38.6	602	25	39	0.002	3514	0.86	8.12	-0.2	1.4	129	-0.02	-0.01
BH18-09 COMP	40.9	762	23	47	0.002	932	0.85	12.15	-0.2	1.7	189	0.06	0.01
BLANK	0.4	18	-3	2	-0.002	-100	0.18	0.30	-0.2	-0.1	4	-0.02	-0.01
BH18-10 COMP	47.9	727	20	52	-0.002	1238	0.94	11.06	0.3	1.6	194	-0.02	0.01
BH18-11 COMP	35.9	618	18	39	-0.002	2874	0.77	9.08	-0.2	1.4	139	-0.02	-0.01
BH18-12 COMP	47.2	764	17	50	-0.002	1061	0.82	11.87	-0.2	1.6	163	-0.02	-0.01
BH18-12 COMP-X	46.6	747	17	53	-0.002	1036	0.84	11.62	-0.2	1.7	158	-0.02	0.02
BH18-13 COMP	29.9	616	13	34	-0.002	520	0.74	8.63	-0.2	1.2	193	0.13	-0.01
STD - OREAS906													
STD - KZK-1													
STD - CDN-ME-1205	191.3	781	1314	43	0.042	16009	23.89	10.79	3.7	14.8	348	0.54	0.57
STD - AAL2010	173.8	1243	1882	135	0.163	15576	53.09	7.97	15.6	26.2	223	1.22	7.22
STD - OREAS905	10.3	311	32	148	-0.002	726	2.10	4.52	2.4	4.1	162	4.03	0.07

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FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel co
REFERENCE : BH18-01 to BH18-13
REPORTED : 15-May-2019

SAMPLES	Th ICP-5AM48 0.1 ppm	Ti ICP-5AM48 10 ppm	Tl ICP-5AM48 0.002 ppm	U ICP-5AM48 0.1 ppm	V ICP-5AM48 1 ppm	W ICP-5AM48 0.1 ppm	Y ICP-5AM48 0.1 ppm	Zn ICP-5AM48 2 ppm	Zr ICP-5AM48 0.1 ppm	Al2O3 XRF-FUSION FeOre 0.01 pct	BaO XRF-FUSION FeOre 0.01 pct
BH18-01 COMP	4.6	3140	0.293	1.2	73	0.7	14.2	46	26.3	8.31	0.03
BH18-02 COMP	3.3	2863	0.202	0.8	56	0.7	11.8	33	19.7	6.42	0.02
BH18-03 COMP	3.8	3264	0.229	1.0	66	0.6	14.0	37	21.2	7.24	-0.01
BH18-04 COMP	4.6	3650	0.298	1.2	81	0.6	14.8	52	30.3	8.61	0.02
BH18-05 COMP	5.3	4156	0.298	1.3	93	0.8	17.9	56	30.0	9.72	0.04
BH18-06 COMP	4.2	3221	0.247	1.1	75	0.5	13.8	47	22.7	7.91	0.02
BH18-06 COMP-X	4.1	3128	0.249	1.1	75	0.5	13.6	46	23.0	8.03	0.01
BH18-07 COMP	4.5	3193	0.255	1.2	70	0.8	13.4	44	21.9	7.88	0.04
BH18-08 COMP	4.1	3375	0.251	1.2	71	0.6	13.8	45	26.9	8.09	0.03
BH18-09 COMP	5.0	4852	0.257	1.2	105	0.6	18.2	60	24.2	9.56	0.03
BLANK	0.9	109	0.015	0.2	2	-0.1	0.4	-2	3.1	0.26	-0.01
BH18-10 COMP	5.3	3914	0.283	1.5	99	0.6	17.0	58	26.9	9.80	0.03
BH18-11 COMP	4.1	3832	0.244	1.0	82	0.5	15.0	49	25.6	8.40	0.02
BH18-12 COMP	5.2	3964	0.286	1.3	100	0.6	18.1	62	29.0	10.06	0.04
BH18-12 COMP-X	5.3	4014	0.299	1.3	98	0.6	18.0	62	29.1	10.31	0.04
BH18-13 COMP	3.8	3571	0.199	1.0	75	0.5	14.4	44	21.9	7.78	-0.01
STD - OREAS906										14.18	0.27
STD - KZK-1											
STD - CDN-ME-1205	3.9	2961	1.921	1.4	98	14.7	12.1	3433	58.0		
STD - AAL2010	9.7	2221	4.314	10.9	154	51.5	16.7	407	52.8		
STD - OREAS905	14.9	1207	0.777	5.0	9	2.9	13.8	131	230.1		

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FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel co
REFERENCE : BH18-01 to BH18-13
REPORTED : 15-May-2019

	CaO		Cr2O3		Fe2O3		K2O		MgO		MnO		Na2O		P2O5	
	XRF-FUSION	FeOre	XRF-FUSION	FeOre	XRF-FUSION	FeOre	XRF-FUSION	FeOre	XRF-FUSION	FeOre	XRF-FUSION	FeOre	XRF-FUSION	FeOre	XRF-FUSION	FeOre
	0.01		0.01		0.01		0.01		0.01		0.01		0.01		0.01	
SAMPLES	pct		pct		pct		pct		pct		pct		pct		pct	
BH18-01 COMP	4.52		0.10		4.25		1.05		1.72		0.09		1.62		0.10	
BH18-02 COMP	4.46		0.10		3.38		0.65		1.19		0.08		1.55		0.08	
BH18-03 COMP	4.67		0.11		3.97		0.81		1.39		0.09		1.58		0.09	
BH18-04 COMP	3.60		0.13		4.76		1.09		1.86		0.08		1.73		0.11	
BH18-05 COMP	3.68		0.10		5.54		1.15		2.15		0.10		1.68		0.13	
BH18-06 COMP	3.72		0.08		4.13		0.89		1.74		0.09		1.63		0.10	
BH18-06 COMP-X	3.57		0.08		4.17		0.91		1.66		0.09		1.65		0.09	
BH18-07 COMP	3.29		0.09		4.06		0.91		1.62		0.08		1.71		0.10	
BH18-08 COMP	1.61		0.18		4.53		0.86		1.48		0.08		1.86		0.10	
BH18-09 COMP	2.97		0.07		5.61		1.03		2.13		0.10		1.70		0.13	
BLANK	-0.01		-0.01		0.10		0.09		-0.01		0.02		-0.01		-0.01	
BH18-10 COMP	3.16		0.12		5.66		1.13		2.18		0.09		1.68		0.13	
BH18-11 COMP	1.83		0.11		4.50		0.90		1.63		0.08		1.90		0.10	
BH18-12 COMP	2.31		0.08		5.53		1.20		2.20		0.08		1.84		0.13	
BH18-12 COMP-X	2.34		0.08		5.56		1.21		2.19		0.09		1.78		0.13	
BH18-13 COMP	3.66		0.06		4.17		0.77		1.57		0.08		1.56		0.10	
STD - OREAS906	0.81		-0.01		7.96		3.36		0.42		0.07		3.00		0.05	
STD - KZK-1																
STD - CDN-ME-1205																
STD - AAL2010																
STD - OREAS905																

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FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel co
REFERENCE : BH18-01 to BH18-13
REPORTED : 15-May-2019

	SO3	SiO2	SrO	TiO2	V2O5	C	S	LOI	Quartz	Feldspar
	XRF-FUSION FeOre	XRF-FUSION FeOre	XRF-FUSION FeOre	XRF-FUSION FeOre	XRF-FUSION FeOre	ELTRA-CS	ELTRA-CS	LOI	Quant XRD	Quant XRD
	0.01	0.01	0.01	0.01	0.01	0.003	0.003	0.01	1	1
SAMPLES	pct	pct	pct	pct	pct	pct	pct	pct	pct	pct
BH18-01 COMP	0.49	71.86	0.02	0.70	0.02	1.356	0.193	5.78	37	29
BH18-02 COMP	0.10	78.08	0.02	0.61	-0.01	0.951	0.053	4.09	45	17
BH18-03 COMP	0.26	74.11	0.02	0.71	-0.01	1.121	0.116	4.67	37	20
BH18-04 COMP	0.58	73.02	0.02	0.77	0.01	0.993	0.219	4.63	48	21
BH18-05 COMP	0.18	70.58	0.02	0.94	0.02	0.768	0.080	4.21	46	14
BH18-06 COMP	0.24	75.11	0.02	0.73	0.01	0.836	0.104	3.96	46	22
BH18-06 COMP-X	0.23	76.28	0.02	0.71	0.01	0.844	0.106	3.94	45	26
BH18-07 COMP	0.35	75.49	0.02	0.69	0.02	0.841	0.145	3.76	52	26
BH18-08 COMP	0.73	77.59	0.02	0.73	0.02	0.692	..267	2.91	47	25
BH18-09 COMP	0.15	72.64	0.02	1.01	0.02	0.429	0.075	3.08	47	24
BLANK	-0.01	99.41	-0.01	0.03	-0.01	0.007	0.008	0.25	100	
BH18-10 COMP	0.21	71.18	0.02	0.90	0.03	0.733	0.097	4.17	43	18
BH18-11 COMP	0.58	77.34	0.01	0.82	0.02	0.535	0.221	3.11	52	25
BH18-12 COMP	0.17	72.14	0.02	0.90	0.02	0.470	0.080	3.47	38	28
BH18-12 COMP-X	0.17	72.73	0.02	0.90	0.02	0.473	0.079	3.46	42	13
BH18-13 COMP	0.06	76.04	0.02	0.75	0.02	0.810	0.039	3.80	44	20
STD - OREAS906	0.04	66.41	0.02	0.18	-0.01			2.58		
STD - KZK-1						0.998	0.793			
STD - CDN-ME-1205										
STD - AAL2010										
STD - OREAS905										

SP0126278

FINAL REPORT

CLIENT : IPOP LLC
PROJECT : Bonanza Channel co
REFERENCE : BH18-01 to BH18-13
REPORTED : 15-May-2019

SAMPLES	Clinochlore Quant XRD 1 pct	Muscovite Quant XRD 1 pct	Calcite Quant XRD 1 pct	Amphibole Quant XRD 1 pct	Sand Extraction Size 0.01 PCT	Silt Extraction Size 0.01 PCT	Clay Extraction 0.01 PCT
BH18-01 COMP	6	23	1	3	82.03	12.75	5.22
BH18-02 COMP	4	30	1	2	94.58	3.05	2.37
BH18-03 COMP	5	35	1	1	89.25	6.09	4.66
BH18-04 COMP	8	20	1	2	77.70	16.55	5.75
BH18-05 COMP	10	26	1	3	72.14	21.32	6.54
BH18-06 COMP	6	23	1	1	83.75	11.42	4.82
BH18-06 COMP-X	5	22	1	2	85.77	9.54	4.69
BH18-07 COMP	8	12	2	3	83.26	11.13	5.61
BH18-08 COMP	7	11	2	8	81.37	13.66	4.97
BH18-09 COMP	9	16		4	80.42	14.46	5.11
BLANK					6.09	84.27	9.65
BH18-10 COMP	12	23	1	3	77.63	18.01	4.36
BH18-11 COMP	8	13		2	82.24	14.12	3.64
BH18-12 COMP	7	25		2	72.33	22.06	5.60
BH18-12 COMP-X	7	36		2	74.59	17.70	7.71
BH18-13 COMP	6	28	1	2	84.32	12.14	3.55
STD - OREAS906							
STD - KZK-1							
STD - CDN-ME-1205							
STD - AAL2010							
STD - OREAS905							

EXHIBIT 8D

DATE: 6.03.19 **1506/Warehouse/Prep/Client**

COMPANY: IPOP LLC (BONANZA)

PICK-UP BY: Claudia Wise **DATE:** 6/4/19 3:50pm

SHIPPED VIA: _____ **DATE:** _____

DELIVERED BY: X Claudia Wise **DATE:** 6/5/19 10:18 AM

EMPLOYEE SIGNATURE: ~~X [signature]~~ 6/5/19 10:18AM

PULPS, SPLIT PULPS, CORE REJECTS, REJECTS COMPOSITIES, DISPOSAL

JOB NUMBERS:

****

☐ SEE ATTACHED

126278

CLIENT: X Claudia Wise **DATE:** 6-4-19

AAL: [signature] **DATE:** 6.03.19

DATE: 6.3.19 **1506/Warehouse/Prep/Client**

COMPANY: IPOP LLC (BONANZA)

PICK-UP BY: Claudia Wise **DATE:** 6/4/19 3:50pm

SHIPPED VIA: _____ **DATE:** _____

DELIVERED BY: Claudia Wise **DATE:** 6/5/19 10:18 am

EMPLOYEE SIGNATURE: [signature] 6/5/19 10:18am

PULPS, SPLIT PULPS, CORE REJECTS, REJECTS COMPOSITIES, DISPOSAL

JOB NUMBERS:

****

☒ SEE ATTACHED

CLIENT: [signature] Claudia Wise **DATE:** 6-4-19

AAL: Nick Hatton **DATE:** 6.3.19

SP0126279,IPOP LLC,Bonanza Channel coring,BH18 COMP,BH18-COMP +50 (1),BH18-COMP -230 (4),4/29/2019,1 of 1,,05/01/19

SP0126278,IPOP LLC,Bonanza Channel coring,BH18-01 to BH18-13 COMP,BH18-01 COMP (1),BH18-13 COMP (13),4/29/2019,1 of 1,,05/03/19

SP0126277,IPOP LLC,Bonanza Channel coring,BH18-01 0-4' to BH18-13 17.5-21.5',BH18-01 0-4 (1),BH18-13 0-5.5 (73),4/29/2019,1 of 1,,05/02/19

EXHIBIT 8E

Chain of Custody Proof
Sparks Nevada, AALabs.

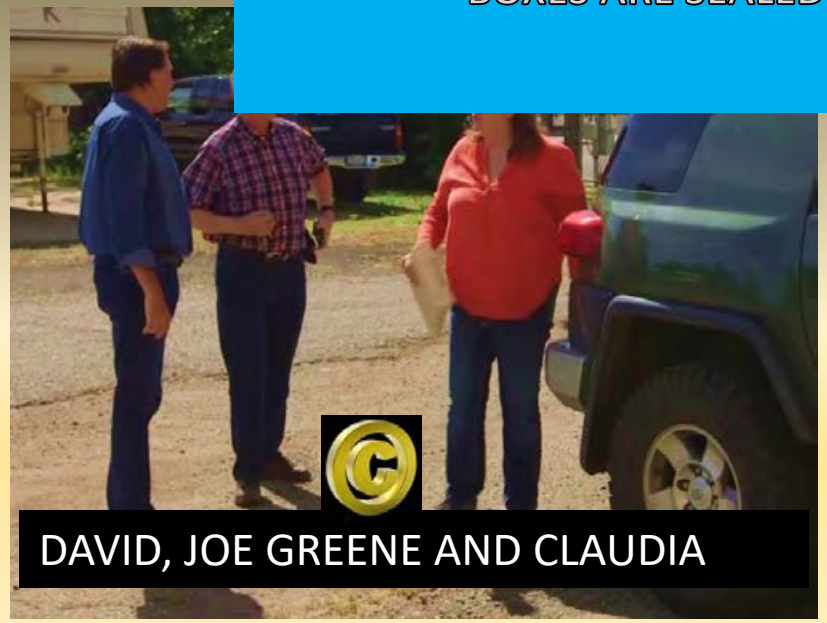
BOXES ARE SEALED AND OPENED BY ORO INDUSTRIES

Chain of Custody Proof
Oro Industries Arrival, Paul Clift Signs

BOXES ARE SEALED AND OPENED BY ORO INDUSTRIES

CORES ARRIVE


LAUDIA WISE


DAVID, JOE GREENE AND CLAUDIA


JOE CLAUDIA WITH PAUL CLIFT
CHAIN OF CUSTODY PAPERS

PAUL CLIFT TAKING CUSTODY

PAUL SIGNING FOR SAMPLES DAVID AND CLAUDIA OBSERVE

READY TO UNLOAD OVER 300 LBS. OF CORES

UNLOAD SAMPLES START AT ORO INDUSTRIES

EXHIBIT 8F

GETTING READY TO OPEN SEALED BOXES CORES

DAVID MAKING
NOTATIONS ON SAMPLES
ANALYSIS CONTROL SHEET

PROCESSING STARTS WITH LARGE CENTRIFUGE

NOTE SMALL SIZE MATERIAL

DAVID WATCHES PAUL START EXTRACTION OF GOLD

DAVID HANDS ON EXAMINATION

AN EXCITED PAUL PANS FOR GOLD IMMEDIATELY

PAUL HAND PANNING MATERIAL 1

PAUL TESTS TURBIDITY OF MATERIAL STARTING HERE-PART 1 OF 2

PAUL JUST “SUPER SHOOK” THE MATERIAL

PAUL SEES ZERO TURBIDITY ISSUES- VERY FAST SETTLING MATERIAL

MATERIAL SETTLED OUT PART 2 OF 2

PAUL IS CURIOUS WANTS TO PAN AGAIN

RUNNING THE SPIRAL AT ORO

RUNNING THE GOLD RICH CORE SAMPLES; PART OF THE 323

AT ORO POURING IN THE “SECOND” BUCKET

EVERYBODY HAPPY AT ORO AFTER FINDING ALL THE GOLD!


From just one of your pans
This a fact.
David sao marcos

EXHIBIT 8G

ORO INDUSTRIES

" Your ore is our business "

Date: November 1, 2019

To Whom it May Concern:

Oro Industries received on June 5, 2019 approximately 323 pounds of core samples delivered from IPOP LLC. We ran this material through a centrifuge and then a spiral concentrator of the same type IPOP intends to use in its Alaska dredging and processing operations as a batch test to confirm that our design for the equipment was consistent with the material to be processed in Alaska.

This process recovered approximately seven grams of gold from the 323 pound sample. We were all very gratified because the process had worked well and the amount of gold recovered was very rich.

Sincerely,

Paul Clift / CEO

Oro Industries Inc.

1203 F St. Marysville, Ca. 95901

paul@oro-industries.com
ph - 530-741-3800

Exhibit 9

Safety Sound Conductivity and Temperature Measurements

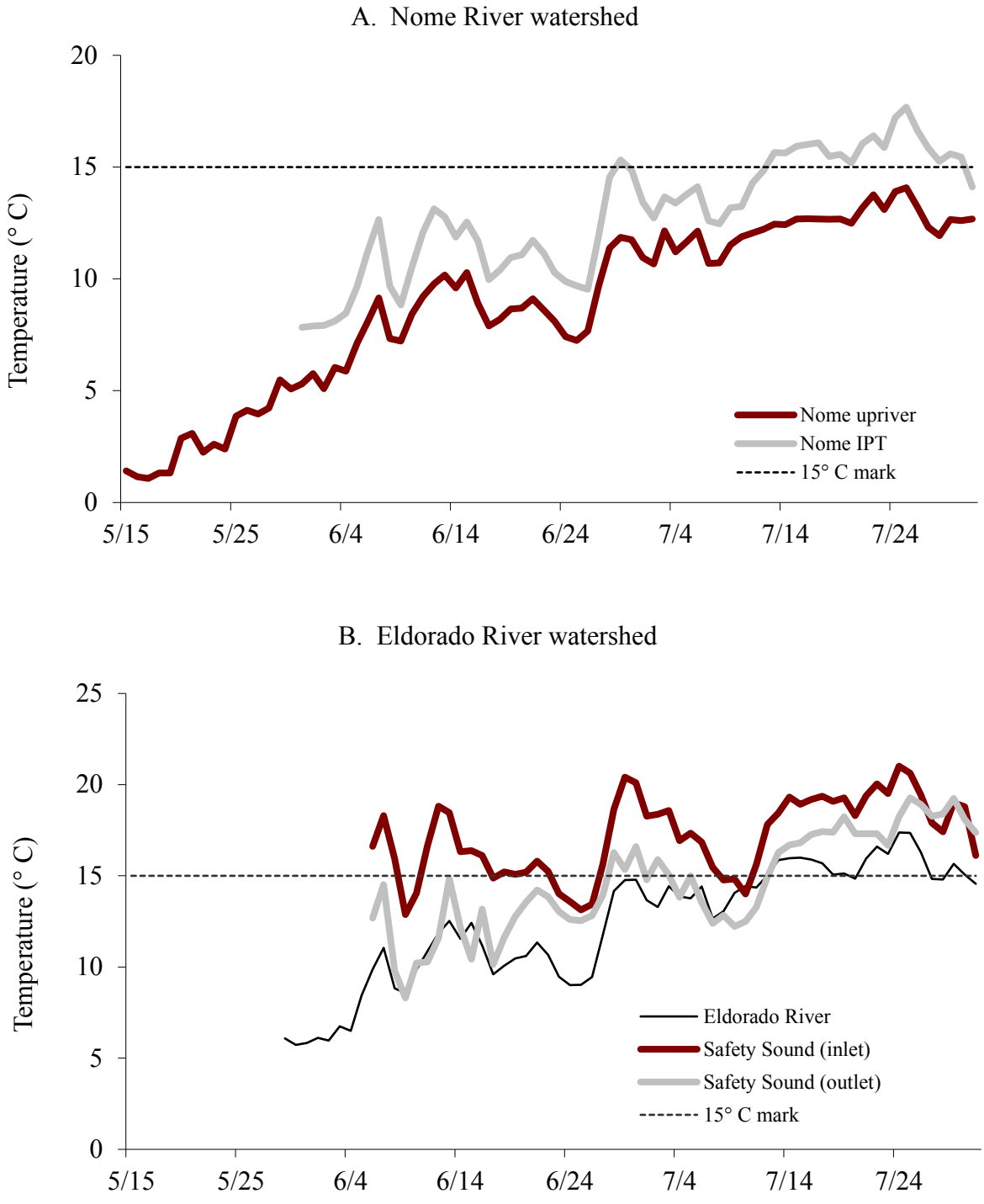


Figure 10. Mean daily temperature from continuous recorders in the (A) Nome River, and (B) Eldorado River watersheds, summer 2004. Dashed line shows 15° C for reference. Data for Nome River (upriver site) and Eldorado River from Kroeker and Dunmall (2005).

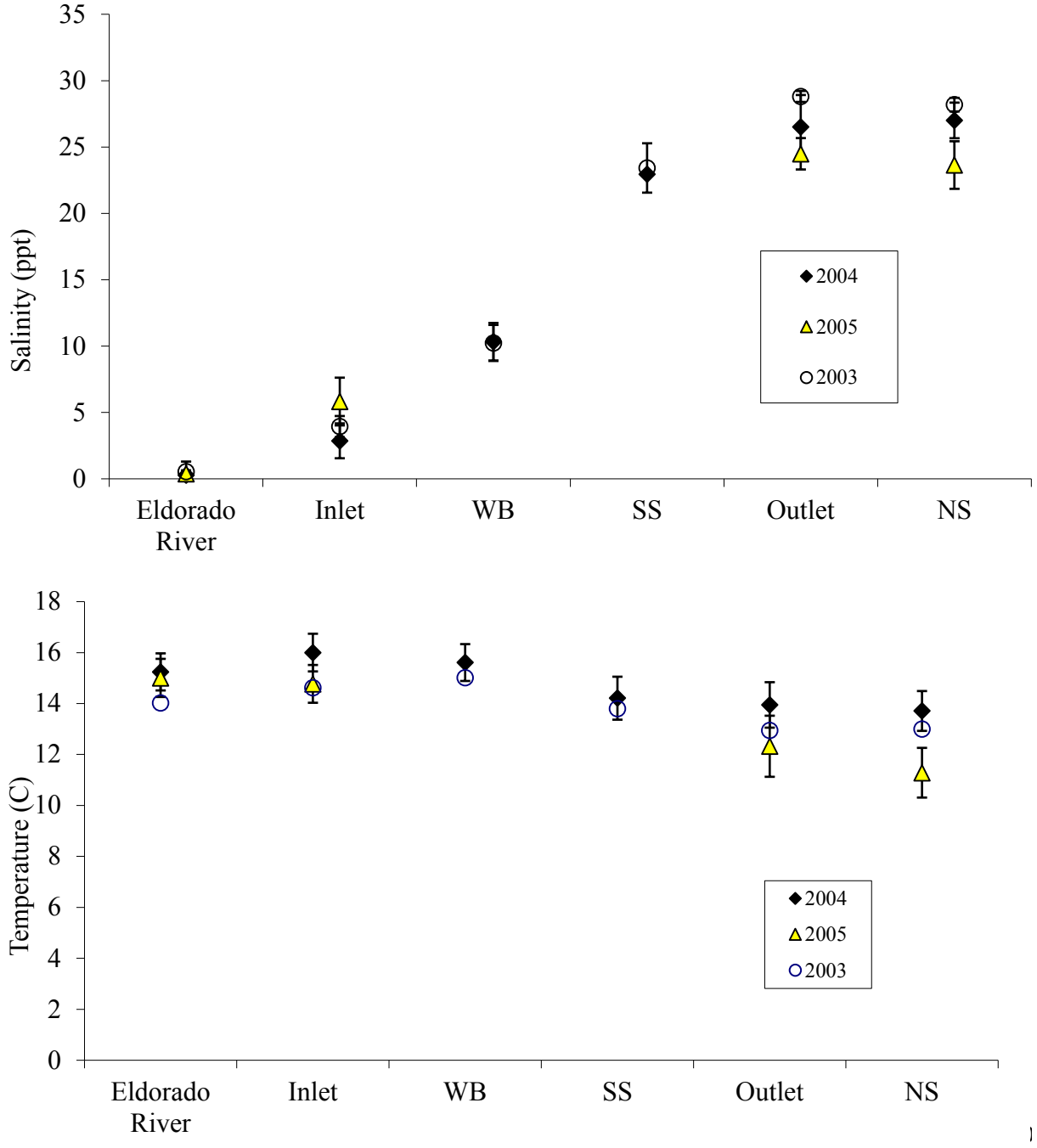


Figure 11. Mean water temperature and salinity throughout Safety Sound, 2003-2005. Sites listed from upstream to downstream. Vertical lines are 1 SE.

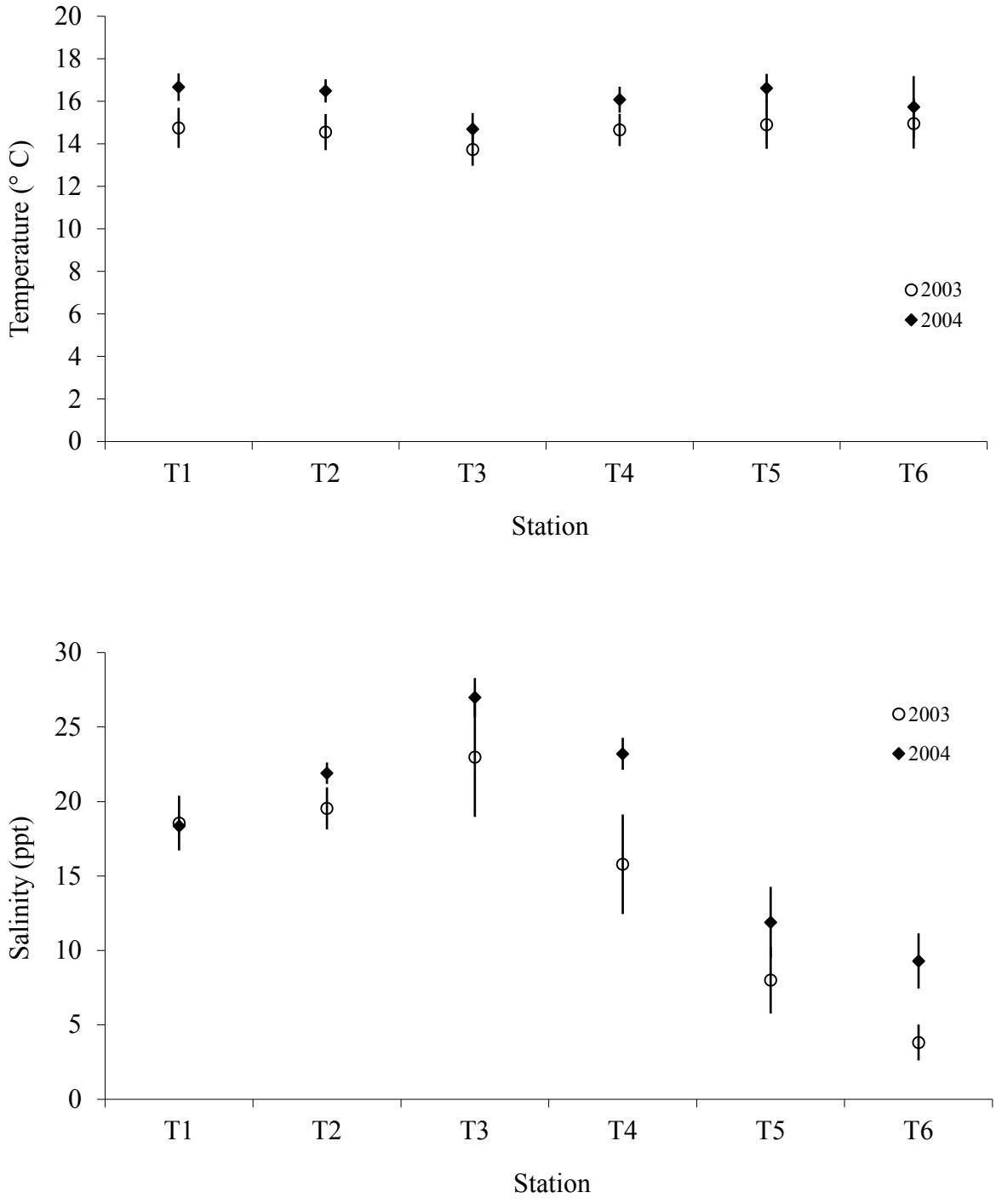


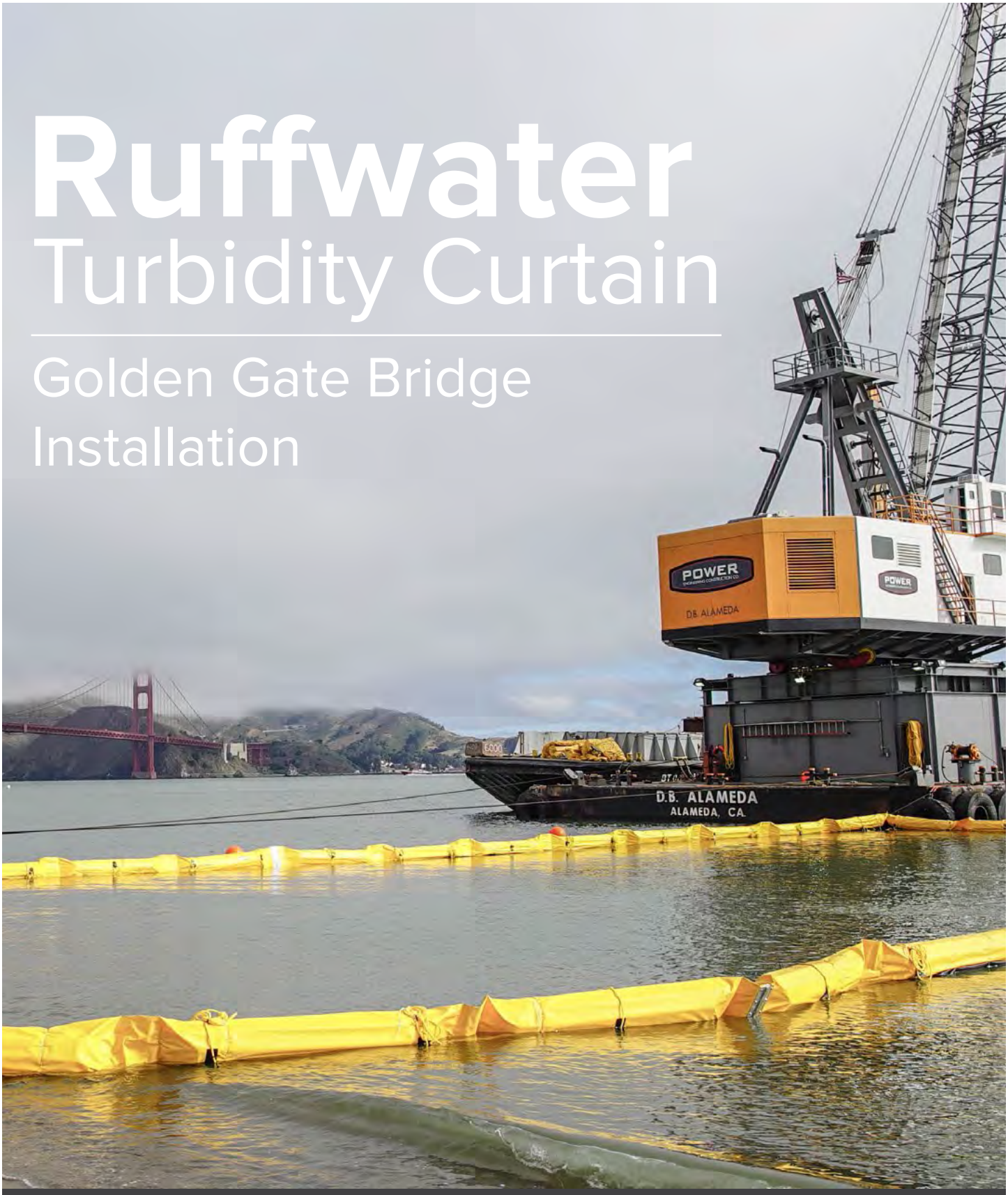
Figure 12. Mean water temperature and salinity across Safety Sound, 2003 and 2004. Stations are listed east to west. Vertical lines are 1 SE. Transects were not performed in 2005.

Exhibit 10

Turbidity Curtain Case Studies and Specifications

Ruffwater
Turbidity Curtain

Golden Gate Bridge Installation



ELASTEC

Oil Spill Equipment | Floating Barriers | Incinerators

The Project: Crissy Field Drainage Improvement Project San Francisco, California

A stormwater drainage outfall pipe near the Golden Gate Bridge needed to be widened and extended to prevent blockage from sand buildup which contributed to flooding problems upstream in the Crissy Field and Mason Street areas in San Francisco.

Environmental Impact Mitigation
To protect the fish and marine wildlife, underwater Best Management Practices were established before dredging and repair of the pipe began. An ELASTEC Type III Ruffwater Screen turbidity curtain was installed to minimize construction impacts and silt flow to this sensitive habitat.

ELASTEC Type III Ruffwater Screen
This is a heavy duty premium turbidity curtain for use in demanding waters such as tidal areas, nearshore ocean environments with strong currents, rivers, bays, harbors and lakes. An ELASTEC Ruffwater Screen controls the migration of silt and turbid water in the construction zone, keeping the surrounding water and marine wildlife safe.

In the Crissy Field project, 500 ft. of the 8 ft. skirt curtain was configured in a “U” shape to encompass the work site. The curtain installation was conducted by Elastec and monitored by the media, California Department of Transportation (Caltrans) and marine biologists. Crissy Field falls under the National Park Service jurisdiction. Powers Engineering Construction was the project contractor.

“It performed like a champ!”

On behalf of Caltrans I would sincerely like to thank you and your crew for our turbidity control curtain. Thank you to the Elastec family for assisting Caltrans in designing a Best Management Practice that has been both cost effective and has exceeded our expectations in performance.

Recently I was observing the waves onsite crashing against the shoreline - the winds were so strong they were blowing our plastic covers about; however, the turbidity curtain remained intact and during dredging operations there was no visible notice of turbidity outside of the curtain! It performed like a champ!

Eltora Charles, Civil T.E.
California Department of Transportation

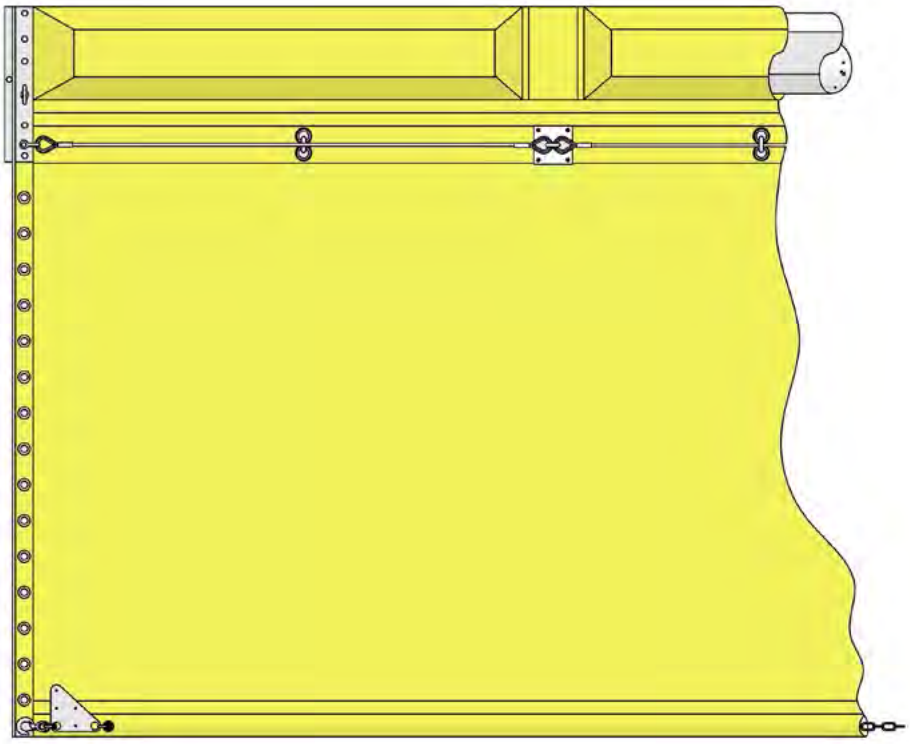
ELASTEC

926 County Road 1350 N
Carmi, IL 62821, USA
Phone: +1 (618) 382-2525
Fax: +1 (618) 382-3610
www.elastec.com
elastec@elastec.com

RBC-002
7/27/15

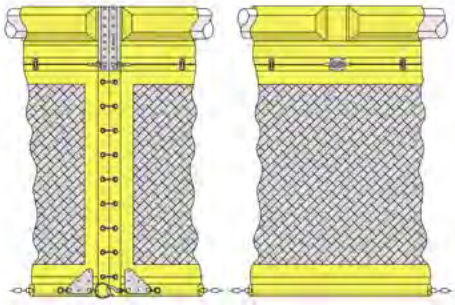
1309 W. Main St. Carmi, IL 62821
Tel: +1 (618) 382 2525 Fax: +1 (618) 382 3610
E-mail: elastec@elastec.com
Web Page: www.elastec.com

RUFFWATER SCREEN

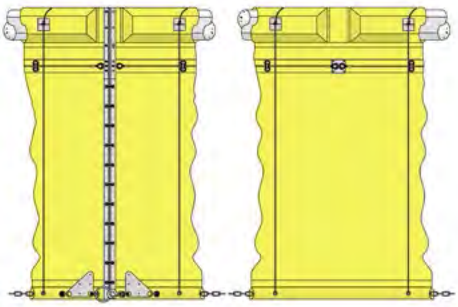


OPTIONAL RUFFWATER SCREEN MODIFICATIONS

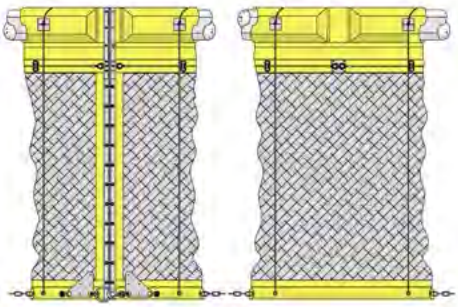
FILTER CLOTH



REEFING SYSTEM



FILTER CLOTH & REEFING SYSTEM



Type III Ruffwater Screen Turbidity Curtain is a heavy duty premium barrier for use in tidal areas or areas where adverse conditions can occur. It is designed for use in demanding water conditions. The curtain intercepts debris and slows the movement of rough water, helping to keep marine habitats safe.

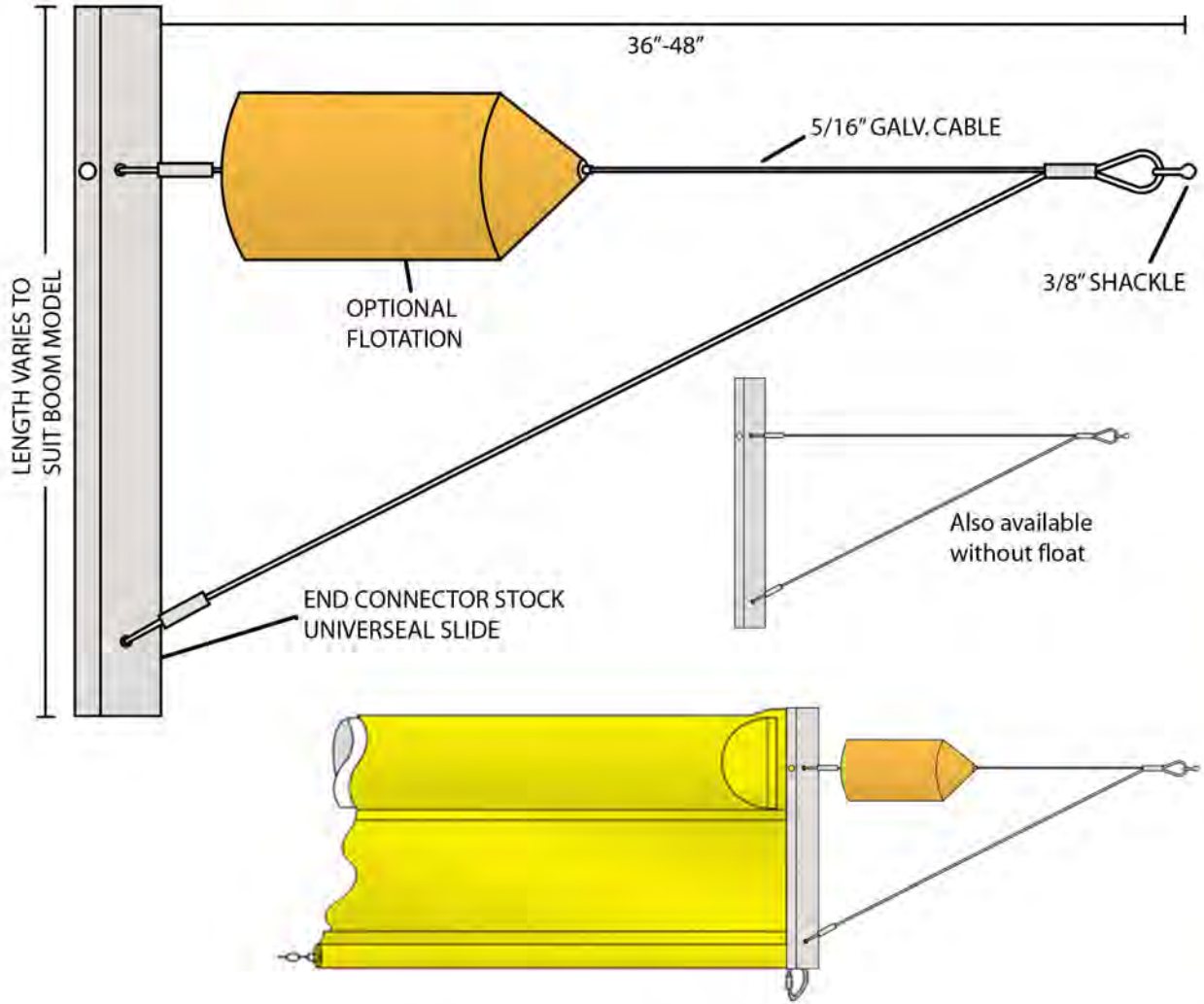
RuffWater Screen is the toughest turbidity curtain for sediment and silt control to protect fragile environmental conditions. The California Depatrment of Transportation's (CALTRAN) Crissy Field Drainage Improvement Project installed the RuffWater Screen to mitigate silt and turbid water in the construction zone. This project has received several environmental awards and recognitions. This curtain is well suited for the construction of bridges, intakes, and pipelines. It is available in permeable and impermeable options.

Section Length	100 ft / 30 m Standard (other lengths available on request)
Draft	3 - 30 ft / xx m (custom depths available on request)
Freeboard	12 inchs / xx cm
Flotation Element	12 inch octagonal expanded polystyrene logs placed end to end in the top fabric pocket with separations between logs to allow folding for storage.
Base Fabric	22 oz PVC - Safety Yellow (other colors available) 500 lb/in^2 tensile strength
Permeable Fabric	Bradley Fabrics - Phoenix XL55 (specifications available on request)
Tension Cable	2 each 5/16” galvanized steel cable, with a break strength of 10,540 lbs, is sheathed in vinyl and seamed into the fabric one on each side of the skirt 20” below the flotation. These cables are shackled to the section connectors for uniform tension load transfer.
Ballast	The ballast/tension member is a 3/8”, or heavier, galvanized steel chain enclosed in a double layer fabric pocket at the bottom of the skirt. The ballast chain enables the skirt to hang vertically in the water column. The ballast chain is shackled to a stainless steel stress plate at the end of each section. A hook and ring arrangement is provided to transfer the load from one section to the next through the stress plates.
Section Connector	Section of RuffWater Screen are joined together by sliding together the aluminum Universeal connectors that extend from the top of the flotation down the edge of the skirt. Below the connectors, skirts are joined by rope ties between evenly spaced grommets on the skirts. The ballast chain/stress plates are attached via a safety hook and ring. No tools are required.
Anchor Points	Provided every 50 ft. Standard anchoring is 1 anchor every 100’ in one directional flow (on upstream side), or 2 every 100’ (one on each side) if bi-directional is anticipated. Should flows increase or additional anchors be needed, the points will already be in place 50’ OC.
Reefing System (optional)	To raise and lower the curtain skirt. This allows for the system to match the depth requirements of the project exactly.
Optional Items	Marker Buoys, Anchor Systems, Navigational Warning Lights, Repair Kits, Oil Spill Kit, Incinerators, Debris Boom

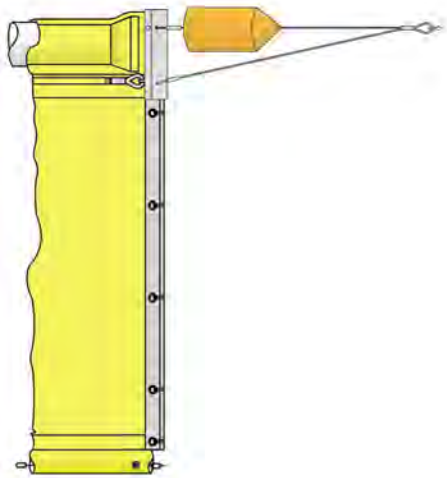
ELASTEC INC.

AmericanMarine INC.
Innovative Environmental Products

Tow Bridles



Tow Bridles can be provided with or without auxiliary floats. They may be used for handling the containment boom or silt curtain in water. Prior to deployment, the connector on the tow bridle should be mated to the boom or silt curtain and secured with a toggle pin. The shackle on the tow bridle will accept a line up to 3/4" in diameter. A choice of connectors are available.



1309 West Main St. Carmi, IL 62821
Phone: 618-382-2525 Fax: 618-382-3610

401 Shearer Blvd. Cocoa, FL 32922
Phone: 321-636-5783 Fax: 321-636-5787

Email: elastec@elastec.com www.elastec.com

DBC-016
4/13/09

ELASTEC INC.
AmericanMarine INC.

401 Shearer Blvd. Cocoa, FL 32922, USA
Tel: (321) 636-5783 Fax: (321) 636-5787
E-mail: elastec@elastec.com
Web Page: www.elastec.com

Phoenix 55XL

Fabric Property	Unit	Test Method	Minimum Average Roll Values
Fabric Weight	oz/yd^2	ASTM D-3776	7.4
Thickness	mils	ASTM D-1777	18
Grab Strength (MD/CD)	lbs	ASTM D-4632	350
Grab Elongation (MD/CD)	%	ASTM D-4632	21
Wide Width Tensile	lbs/in	ASTM D4595	225
Wide Width Elongation @ Break	%	ASTM D4595	18
Wide Width Tensile @ 5% Strain	lbs/in	ASTM D4595	80
Wide Width Tensile @ 10% Strain	lbs/in	ASTM D4595	150
Trapezoid Tear Strength (MD/CD)	lbs	ASTM D-4533	125
Puncture Resistance (5/16")	lbs	ASTM D-4833	165
Mullen Burst Strength	psi	ASTM D-3786	695
Vertical Water Flow	gpm/ft^2	ASTM D-4491	70
Coefficient of Permeability, K	cm/sec	ASTM D-4491	.046
AOS (Mod. to 10 min.)	sieve size	ASTM D-4751	45

MD = Machine Direction
CD = Cross Machine Direction

Reputable case study on effectiveness of bottom sealed turbidity curtain.

Evaluation of Filtering Geotextile Aquatic Filter Barrier Technology for Controlling Suspended Sediments and Turbidity During Dredging, Construction and Demolition

Andrew J. McCusker, C.E.P., Jaret Johnson, P.E., Melissa Hamlin and Christian Guelke
(Mackworth Group LLC, Scarborough, ME, USA)

MACKWORTH-ENVIRO
Aquatic Barrier & Screening Solutions

BARRIER TECHNOLOGY

Typically

- **Flexible geotextiles** for in-waterbody filtering, containment, flow training
- **Flotation** to support barrier curtain and maintain integrity at water surface
- **Sealed at sides and bottom** to prevent unfiltered flow

For Some Applications

- Impermeable materials, various mesh sizes
- Fixed frame or structure
- Automated air-cleaning systems with feedback instrumentation

MACKWORTH-ENVIRO
Aquatic Barrier & Screening Solutions

FULL-DEPTH, SHORE-TO-SHORE ENGINEERED TURBIDITY & FISH EXCLUSION BARRIER

Intertidal Coal Tar Remediation

Portland Harbor, Maine

7

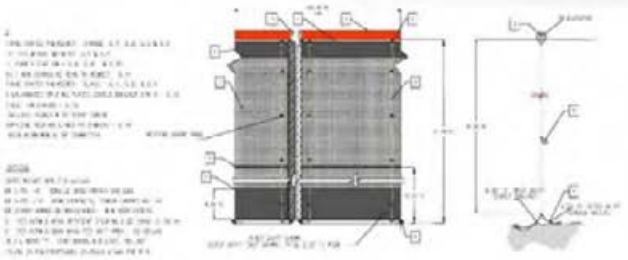
FULL-DEPTH, SHORE-TO-SHORE SYSTEM

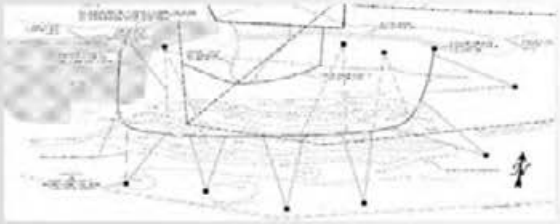
- Coal Tar Remediation
  - Voluntary; site of former MGP
  - Intertidal excavation
- AMEC Foster Wheeler Project
  - Mackworth-Enviro provided **turnkey** from design through installation, operation and removal
- ***Turbidity and Fish Exclusion Barrier – selected over a temporary sheet pile wall cofferdam***
  - Substantial cost savings
  - Substantial savings to overall schedule
  - Provided partial relief from time-of-year restrictions by excluding winter flounder during spawning season

FULL-DEPTH, SHORE-TO-SHORE SYSTEM

Challenges:

- Up to ~15-ft tides; strong tidal currents
- Sudden heavy loads from tanker and tug transit
- Rocky, uneven bottom; rock seawall
- Critical need to contain contaminants
- Threading through old pilings





Solutions:

- 3 layers for strength/filtration, plus sorbent
- Helical anchors for bottom holding strength
- Rock anchors & T-skirt into rock wall shoreline attachment – daisy chain helical anchors added on shore after rock pulled away

FULL-DEPTH, SHORE-TO-SHORE SYSTEM

Performance & Lessons Learned:

- No violations
- No sheen or turbidity plume observed outside of barrier
- Water displacement due to tanker with excessive speed pulled rock from seawall
- Barrier remained in place and sealed to bottom throughout.

Aerial view showing an example of a turbidity curtain effectively containing turbidity on a separate dredging project.

APPENDIX C

Bonanza Channel Placer Project

Supplemental Information

Regarding: Clean Water Act, Section 402

April 18, 2022

Prepared for:

Alaska Department of Environmental Conservation

Prepared by:

Yukuskokon Professional Services LLC

Bonanza Channel Placer Project
RE: CWA §402 Permit Application
Supplemental information
April 18, 2022

PROCEDURES FOR PREVENTING UNPLANNED RELEASE FROM WORK AREA

The Bonanza Channel Placer Project is designed to prevent unplanned release of turbidity by isolating the work area with a turbidity curtain.

Isolation of the Work Area

The sequence for establishing the isolated work area is as follows:

1) The operation plans to establish the work area prior to any dredging activities.

2) The work area will include exclusion booms (on the windward side of the operation) referred to as "locks" or "arctic entries." These will be installed on either end of the work area to allow for exclusion booms in those area prone to wind and daily tidal influence. These locks are referred to as Stage 1 Locks.

3) The operation will incrementally add additional sections of containment to the work area at the advancing edge outside of the exclusion booms "lock" area, creating a redundant lock on the advancing edge of the operation. This lock is referred to as Stage 2 Lock.

4) Once the newly constructed redundant Stage 2 Lock is complete, the curtain separating the operating area from the Stage 1 Lock can be safely dismantled and removed (on the advancing side of the operations as the dredge moves forward) without allowing turbidity to escape, retaining exclusion booms outside of the work area, whereby the Stage 2 Lock is turned into a Stage 1 Lock.

5) A new Stage 2 Lock will be created on the advancing edge and the process above will be repeated as the dredge advances along the mining channel.

6) Similarly, the opposite end of the work area will be advanced by creating Stage 1 and Stage 2 Locks for service boat access.

7) Extra contingency curtain shall be maintained on the worksite in the minimum amount of 10% of the exterior curtained circumference at all times should repair or replacement of a curtained section be warranted.

Locks and Boat Access

Service boats will enter a Stage 1 Lock that is isolated from the work area. Once the lock has been closed behind the service boat, the curtain will be open between the lock and the work area and quickly closed behind the boat. The water in the lock and the work area will be stagnant (essentially no flow) therefore turbidity increase in the lock area is expected to be minimal. When the service boat exits the work area the procedure will be reversed; however, the SOP is that any escaped turbidity into the lock must settle out prior to exiting the Stage 1 Lock.

- The service boats are expected to enter and exit no more than four times per day.
- The only risk of turbidity release would be upon exiting from the Stage 1 Lock; however this will be mitigated by engineering controls (SOP).
- Opening, exiting, and re-closing the Stage 1 Lock is estimated to take 15 minutes.

CHARACTERIZATION OF AN UNPLANNED RELEASE FROM WORK AREA

The potential for an unplanned release will be minimized by monitoring weather forecasts and if adverse conditions are predicted the operation will be suspended.

As observed by IPOP scientists, and documented in the field with both water quality data and drone footage, the background turbidity during these storm events and tidal influences from the Bering Sea will increase to nearly that of the work area. Storm events observed and documented during the study period show that the Bonanza Channel is subject to turbidity events (that last for weeks in some cases), including surges of both fresh- and saltwater influence, and tidal fluctuations which completely submerge low-level islands in the project area during flood tides, and render the bottom of much of the Bonanza Channel area dry during ebbing events. Both the flood and ebb conditions were photographically documented during the study period. Based on the August 2020 No-Curtain, Small Scale Dredge Test, a short-term, unplanned release of turbidity from the work area during existing ebb and flow tides is not likely to extend more than 100 feet from the curtained area, and will not be significantly different in nature than naturally occurring turbidity events, albeit much shorter in duration.

In 2020, during the duration of the turbidity curtain test, sustained winds over 20 mph with wind gusts up to 33 mph were experienced from August 30 to September 3. There were no turbidity releases outside the curtain observed during this storm event.

Potential causes of an unplanned release may include:

- Metal curtain connections coming loose
- Anchor shifting or accidental mooring line release
- Undermining of the curtain or anchor by the dredging operation.

Unplanned releases will be prevented by continuous inspections of the work area. If an unplanned release is discovered upon routine inspection, the operation will be shut down and repairs initiated immediately.

The only effect of an unplanned release outside the turbidity curtain would be a temporary local increase in background turbidity, which would be similar to naturally occurring turbidity events in NTU, but much shorter in duration. There would be no effect to ambient water chemistry. No water treatment is involved in the project. An unplanned release would not create conditions outside the curtain that would exceed naturally occurring turbidity events and would be shorter in duration (hours vs weeks) (Otero 2021).

Work boats, crews experienced with curtain placement, and the contingency curtain will be on site during all work activities. The on-site contingency curtain will be deployed immediately after identification of any unplanned release.

Summary

The project incorporates redundant silt curtains and boat access locks into the plan, with strict SOPs for the installation, operation, and inspection of the curtains and the access locks. The risk of accidental release is highest during storm events. Safeguards against this happening include weather monitoring and suspending operations if a tidal surge risk is high. Any unplanned release will be shore in duration and volume with a plume extending no more than 100 feet from the curtain because of the slow current and the speed at which the solids have been documented to settle.

Turbidity change during the August 2020 No-Curtain, Small Scale Dredge Test was documented by Otero Engineering, Inc. (Otero) (2020) and showed increased turbidity for 100 feet outside the dredge-test area after 30 minutes of dredging. Turbidity measurements showed values returned to background levels within two hours of dredging, a significantly shorter duration than naturally occurring turbidity events common in the Bonanza Channel. Weather conditions during the unconfined dredge were calm. Water flow during the dredge test ranged from 0.0 to 0.2 feet per second as consistent with seasonal conditions.

In the case of an unplanned release response plans and resources will be in place and immediate deployment of contingency curtain from on-site reserves will be initiated. Operational SOPs will be developed regarding the deployment of the contingency curtain and for planned drills to facilitate response actions.

In summary, if an unplanned release should occur, the duration of the turbidity event would be significantly shorter in duration and smaller than naturally occurring events.

APPENDIX D

Amendment to 2020 Narrative Operating Plan

Based on the Corps' Appendix 2: On-Site Alternative 2a (Least Environmentally Damaging Practicable Alternative) Project Description

The regulated activity consists of a multi-year phased dredging project associated with a placer gold mining operation within an area known as the Bonanza Channel and is described in the Applicant's report submitted for this project (Yukuskokon Professional Services, LLC. 2020a, 2020b, 2022). As part of the LEDPA review process, the Corps determined that the least environmentally damaging practicable alternative would involve reducing additional impacts associated with the applicant's Case Study proposal and modifying the Reclamation Plan to restore pre-project bathymetry. This Amendment therefore the 2020 Narrative as set forth herein to provide an updated Project Description.

The Bonanza Channel is part of a larger Section 10 waterbody that includes an area known as Safety Sound, which also contains special aquatic sites in the form of vegetated shallows, mudflats, and wetlands comprising an extensive estuarine system in this general vicinity. The project site is also generally adjacent to portions of the Alaska Maritime National Wildlife Refuge (AMNWR). This project would be implemented over a five-year period and involves dredging approximately 4.5 million cubic yards (CY) (estimated bulked volume of 4.82202 million CY) based on 24-hour-per-day operations, processing the materials for gold extraction, concurrently reclaiming the dredged channel, and disposing of the excess processed materials at locations within the immediate area.

During the course of application review, the Corps determined that a civil dawn to civil dusk mining restriction would be imposed to facilitate observation for marine mammals; the applicant intends to seek a modification of this provision based on observation experience, particularly assuming, as expected, no marine mammals are observed during the first mining season. The dawn-to-dusk restriction, by limiting operating hours, will reduce the progress the applicant makes in the mining plan and the total dredged acres in proportion to lost operational hours, meaning that the full five-year mining channel as described in the 2020 Narrative is not likely to be completed. Nevertheless, given the possibility of modifications and other uncertainties, Applicant continued to seek a permit for the full mining channel and the 2020 Narrative plan and footprint except as modified herein to further reduce environmental impacts.

Mining would occur by using a 36-inch-diameter cutterhead attached to a 10-inch diameter suction dredge. Dredged materials would be transferred to a production barge where the materials would be processed for recovery of gold and returned to the channel.

The total area affected by the placement of dredged materials (reclamation and disposal) within waters of the U.S. (WOUS) and Section 10 waters is 159.3 acres (which

may be further reduced by operating hours restrictions and other factors). In addition to the dredged areas, which include both a separate access channel (between launch ramp and full-scale mining channel) and the full-scale mining channel, the project includes dredged materials disposal sites (DMDSs) for temporary storage of dredged materials t be used in final reclamation, a launch ramp, man camp, and staging area. DMDS Area C and the DMDS areas to be used in years 2 through 5 of the plan have been adjusted from the 2020 Narrative as described herein. The man camp and staging area would continue to be sited in uplands above the mean high water (MHW) line as set forth in the 2020 Narrative.

The project site is located within ten mining claims secured by the Permittee from the State of Alaska and shown on the enclosed figures as DKSN 29-37, and 39. Twenty-two additional mining claims are held by the Permittee generally to the east of the project site, but no activities within those claims has been included under this permit. From the man camp area, the Permittee would dredge a 10-foot-deep access channel that would extend from the boat ramp to the full-scale mining channel (see attached figures). The full-scale mining channel extends generally east-west across the project site. This channel would be dredged/mined sequentially over a five-year period during the summer mining season between May 1st and November 1st while the work area is free of ice and can be worked by dredging/processing equipment. At the end of the operational season, the Applicant would cease operations and shut down and secure the man camp until the following operational season.

Dredged materials would either be used for concurrent reclamation within the dredged channel or temporarily storied (excess materials) at various locations in the project area. Excess materials dredged from the full-scale mining operations would be placed within shallow water areas approximately adjacent to the dredged areas up to the mean lower low water (MLLW) line. Four DMDSs (approximately 46.7 acres total) would be used (see attached figures and Table A below). The materials stored in the DMDSs would be temporarily stored and used for reclaiming the two access channels at the end of the project. Most of the dredged materials will be used to concurrently backfill the dredge channel to restore the approximate pre-dredging bathymetry except for a temporary access channel extending ten feet below the MHW and along the entire mining channel and the access channel between the mining channel and the man camp/boat ramp. The two access channels would be backfilled to pre-project bathymetry by the end of project operations.

Table A. Estimated Dredge and Fill Volumes and Acreage[1]

Item Description	Acres	Storage Capacity (CY)	Dredged Volume (CY)	Bulked Dredged Volume* (CY)
Access trench	4.2	0	33,200	35,690
Year 1	21.7	957,346	900,000	964,404
Year 2	21.7	957,346	900,000	964,404
Year 3	21.7	957,346	900,000	964,404

[1] This replaces Table 5-7 in the 2020 Narrative.

Year 4	21.7	957,346	900,000	964,404
Year 5	21.7	957,346	900,000	964,404
Dredge Disposal Site A	14.6	13,666		
Dredge Disposal Site B	7.1	7,019		
Dredge Disposal Site C	18.7	23,008		
Dredge Disposal Site Years 2-5	6.3	7,356		
Totals	159.3	4,837,779	4,533,200	4,857,710
*Assuming 1.075 bulking factor				

The modification of the Reclamation Plan to restore original bathymetry enables a significant reduction in DMDS areas disturbed by the project because more materials can be returned to the mining channel,[2] though there remains an ongoing need to use these areas to segregate surface materials.

The access channel between the launch ramp and the full-scale mining area would be maintained at ten feet deep and would be approximately 2,200 feet long and 85 feet wide. The full-scale trapezoidal mining channel would be 31 feet deep with a top width of about 360 to 365 feet and a bottom width of about 200 feet. The total length of this mining channel is approximately 13,000 feet. A ten-foot-deep access channel would be maintained along the entire length of the full-scale mining channel after initial reclamation to allow for access to the full-scale mining channel by dredging equipment.

At the completion of mining operations, the two access channels would be reclaimed to the pre-project bathymetry, meaning that benefits are no longer claimed for modifications to the bathymetry as presently set forth in §§ 4.11 of the 2020 Narrative and in the existing Reclamation Plan.

Equipment proposed for the project includes a single engine dredge vessel (dimensions: 50 feet long x 24 feet wide) with a 36-inch diameter Vosta cutterhead, a 10-inch diameter dredge nozzle, two small tender boats (dimensions: 25 feet long x 12 feet wide) and a processing barge (dimensions: 64 feet long x 40 feet wide). The dredge vessel would be connected to the processing platform by a 300 to 600-foot-long floating pipe.

The total surface area that would be affected by the placement of dredged material is 159.3 acres or less, occurring over a five-year period. Although the impact duration could be limited, because of the period of time expected for special aquatic sites to recover with regard to their respective functions and services (which resource agencies

[2] Site A remains as depicted in Figure 5-20 of the 2020 Narrative. Sites B, C, and Years 2-5 have been modified as indicated in the attached Figures 1-4.

A revised Reclamation Plan will be provided replacing Figure 9-5 of the Plan, which showed additional sites associated with the Case Study Alternative (Sites D-H, Plan Figures A-9 to A-14); those sites will be eliminated along with Site J (Plan Figure A-15). Monitoring and other aspects of the Plan will remain unchanged.

have claimed could be as much as two or more years notwithstanding the applicant's test dredging results) the Corps considers the impact duration permanent. The project would not result in the permanent loss of WOUS or Section 10 waters. Rather the impacts would occur in the form of temporary loss of functions and services from the type conversions between different types of WOUS/special aquatic sites, for example, conversion of vegetated shallows to mudflats from dredge disposal. The impact footprint contains vegetated shallows and mudflats. Wetlands are limited to adjacent areas outside the project footprint.

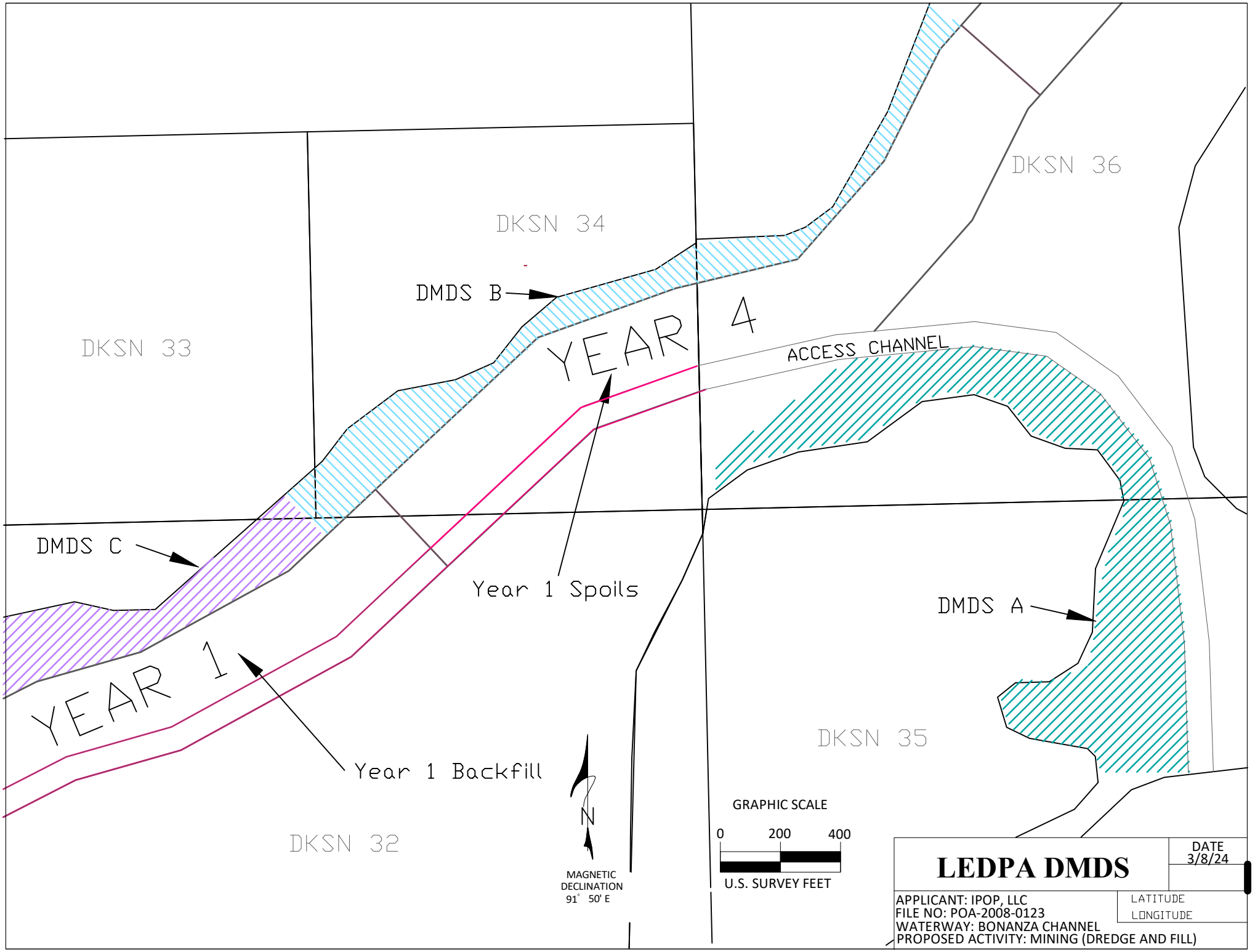
Except as modified by this Amendment, the provisions of the 2020 Narrative will continue to govern project operations.

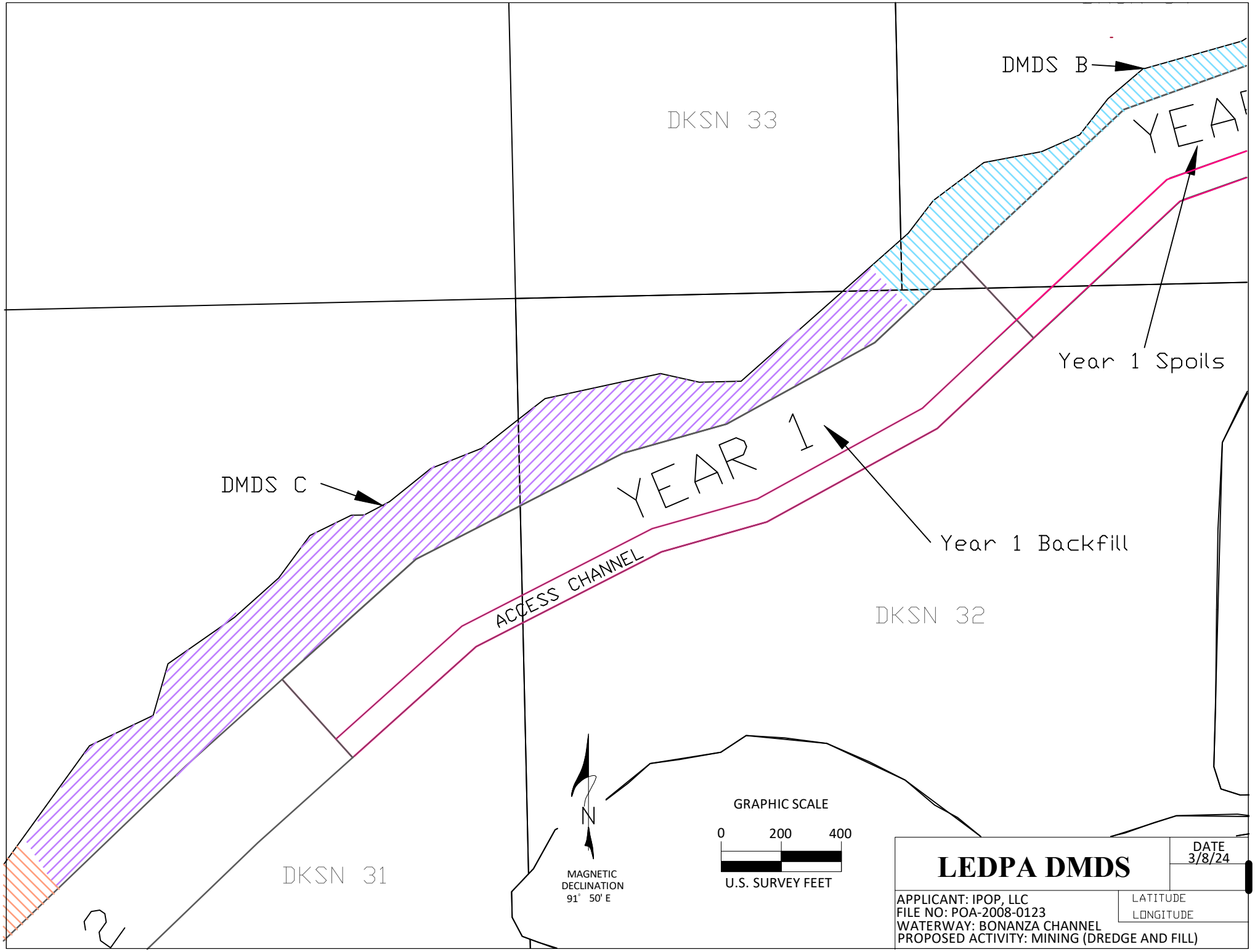
References:

Yukuskokon Professional Services, LLC. 2020a. 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska, IPOP LLC. Prepared by Yukuskokon Professional Services, LLC. For IPOP, LLC. Wasilla, AK.

Yukuskokon Professional Services, LLC. 2020b. July 3. POA-2018-00123, APMA 2875 – 2020 Individual Permit Application Additional Information Requested. Wasilla, Alaska.

Yukuskokon Professional Services, LLC. 2022. *Bonanza Channel Placer Project near Nome, Alaska, Reclamation Plan Revision 2*. March. Prepared by Yukuskokon Professional Services, LLC. For IPOP, LLC. Wasilla, AK. (to be revised by permittee after permit issuance consistent with the Amended Project Description)


DKSN 36
DKSN 34
DKSN 33
DMDS B
YEAR 4
ACCESS CHANNEL
DMDS C
Year 1 Spoils
DMDS A
YEAR 1
Year 1 Backfill
DKSN 35
DKSN 32
N
MAGNETIC DECLINATION
91° 50' E
GRAPHIC SCALE
0 200 400
U.S. SURVEY FEET
LEDPA DMDS
DATE
3/8/24
APPLICANT: IPOP, LLC
FILE NO: POA-2008-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)
LATITUDE
LONGITUDE


DMDS B
DKSN 33
YEAR
Year 1 Spoils
YEAR 1
DMDS C
Year 1 Backfill
ACCESS CHANNEL
DKSN 32
DKSN 31
N
MAGNETIC
DECLINATION
91° 50' E
GRAPHIC SCALE
0
200
400
U.S. SURVEY FEET
LEDPA DMDS
DATE
3/8/24
APPLICANT: IPOP, LLC
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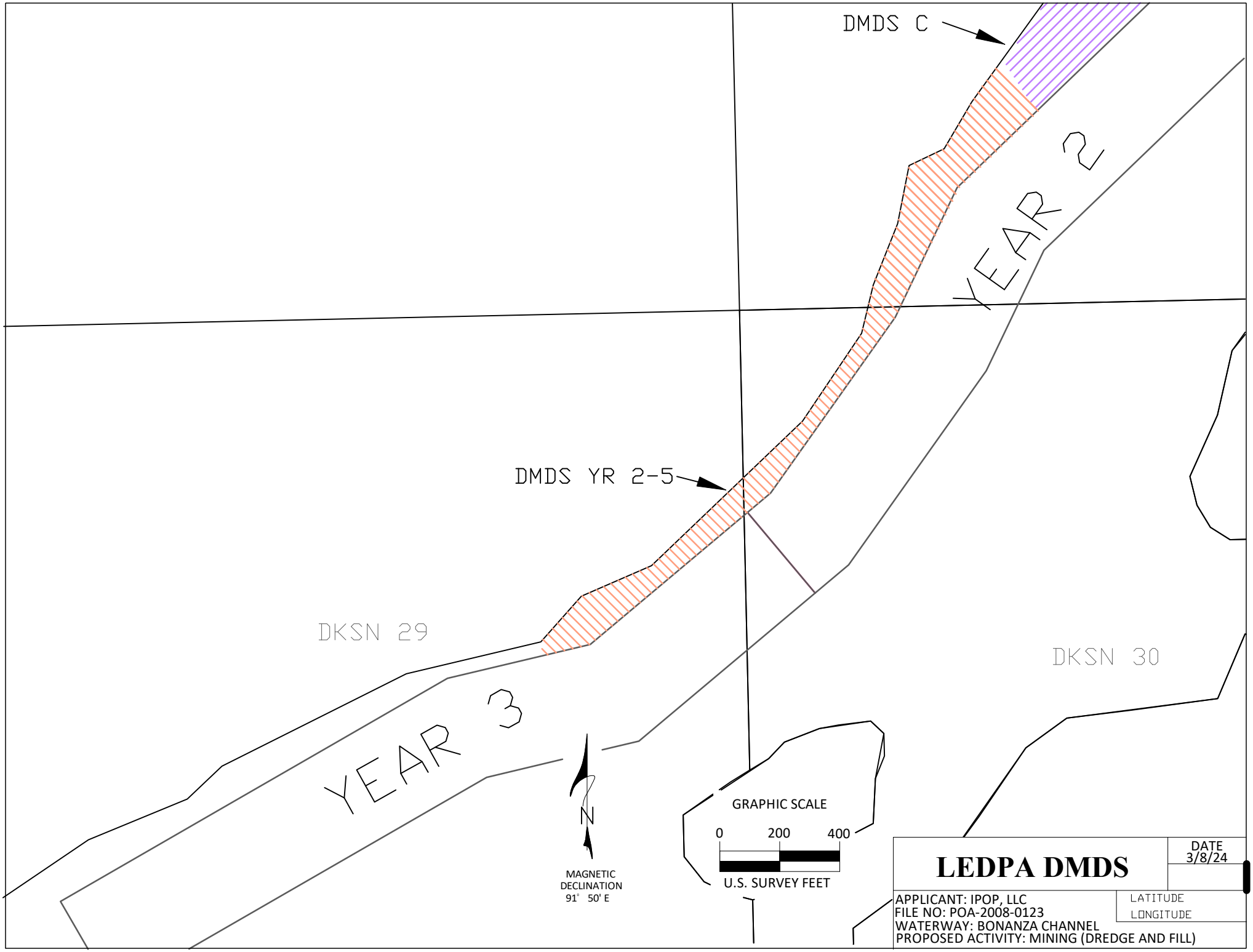
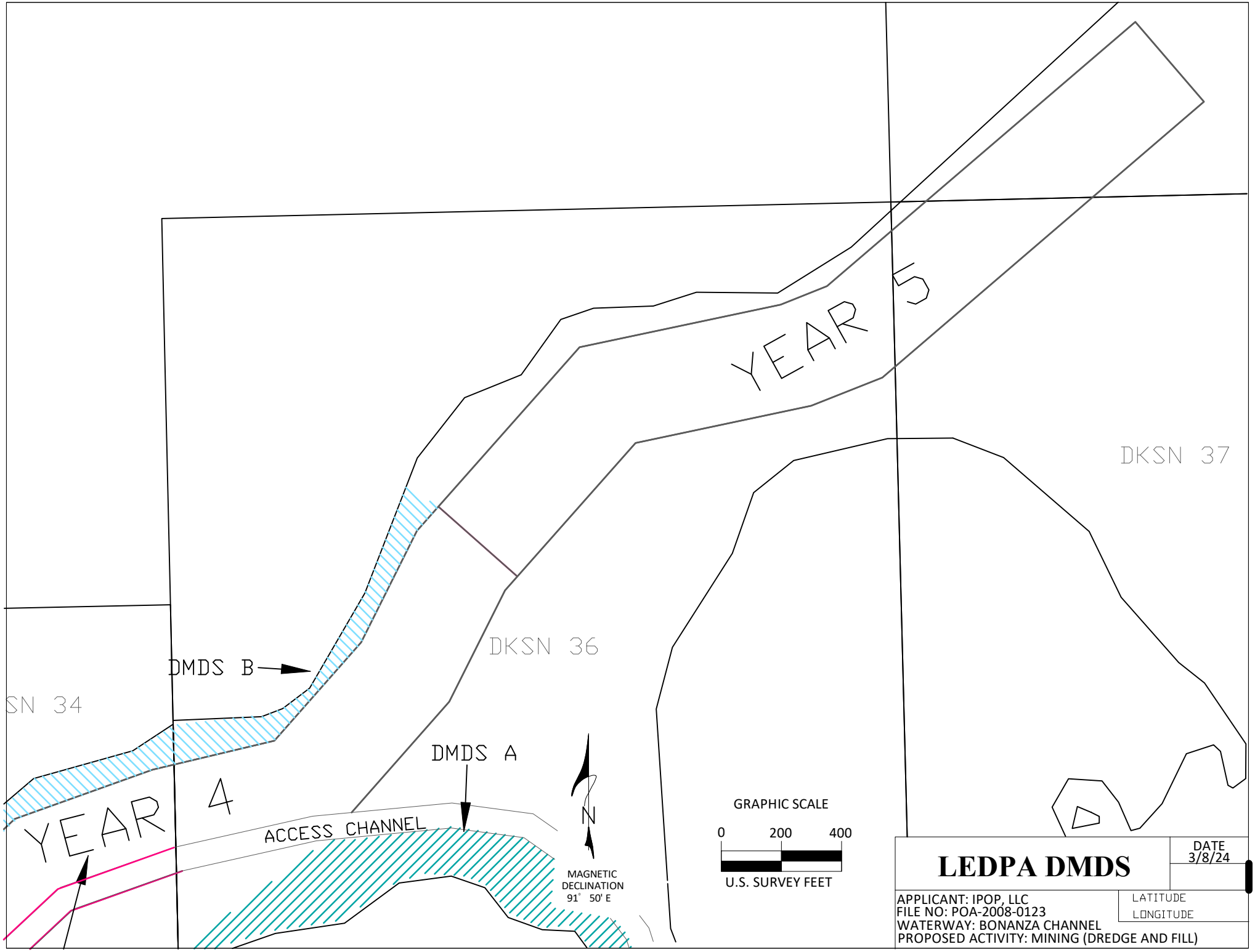


LEDPA DMDS

DATE
3/8/24

APPLICANT: IPOP, LLC
FILE NO: POA-2008-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

LATITUDE
LONGITUDE


YEAR 5
DKSN 37
DKSN 36
DMDS B
SN 34
DMDS A
YEAR 4
ACCESS CHANNEL
N
MAGNETIC
DECLINATION
91° 50' E
GRAPHIC SCALE
0 200 400
U.S. SURVEY FEET
LEDPA DMDS
DATE
3/8/24
APPLICANT: IPOP, LLC
FILE NO: POA-2008-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)
LATITUDE
LONGITUDE

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM

FACT SHEET

Permit Number: AK0062295

IPOP, LLC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Wastewater Discharge Authorization Program

555 Cordova Street

Anchorage, AK 99501

Public Comment Period Start Date: **June 28, 2024**
Public Comment Period Expiration Date: **August 5, 2024**
Alaska Online Public Notice System

Technical Contact: Allan S. Nakanishi, PE
Alaska Department of Environmental Conservation
Division of Water
Wastewater Discharge Authorization Program
555 Cordova Street
Anchorage, AK 99501
allan.nakanishi@alaska.gov

Issuance of an Alaska Pollutant Discharge Elimination System (APDES) permit to

IPOP, LLC

For wastewater discharge from

IPOP, LLC silt curtain containment system doorway to the Bonanza Channel located approximately ten miles southwest of the Village of Solomon and 28-miles east of Nome, Alaska

The permit authorizes and sets conditions on the discharge of pollutants from this facility to waters of the United States. To ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility and outlines best management practices to which the facility must adhere.

This fact sheet explains the nature of discharges and the development of the permit including

- information on appeal procedures,
- a listing of effluent limitations, monitoring requirements, and other conditions,
- technical material supporting the conditions in the permit, and
- monitoring requirements.

Appeals Process

A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See Alaska Department of Environmental Conservation (DEC or department) "Appeal a DEC Decision" web page https://dec.alaska.gov/commish/review-guidance/ for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200. Requests must be submitted no later than the deadline specified in 18 AAC 15.

Documents are Available

The permit, fact sheet, application, and related documents can be obtained by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below. The permit, fact sheet, and other information are located on the department's Wastewater Discharge Authorization Program website: http://dec.alaska.gov/water/wastewater/.

Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program		
Fairbanks Office 610 University Ave. Fairbanks, AK 99709 (907) 451-2136	***Anchorage Office*** 555 Cordova Street Anchorage, AK 99501 (907) 269-6285	***Juneau Office*** 410 Willoughby Ave., Suite 303 Juneau, AK 99801 (907) 465-5180

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TABLES

FIGURES

1.0 APPLICANT

This fact sheet provides information on the Alaska Pollutant Discharge Elimination System (APDES) permit for the following entity:

Name of Facility:	IPOP, LLC
APDES Permit Number:	AK0062295
Facility Location:	28 miles east of Nome, Alaska
Mailing Address:	9811 Charleston Blvd., #2-444, Las Vegas, NV 89117
Facility Contact:	MacNamara Shoulders, Twister Creek Environmental, LLC

Figures at the end of this fact sheet show the location, project area and line drawing of operations of the IPOP, LLC project.

2.0 FACILITY INFORMATION

2.1 Background

The Bonanza Channel Placer Project is located approximately 28 road miles east of Nome along the Nome-Council Highway in the Bonanza Channel (Figure 1). IPOP claims and operations are protected from the Bering Sea by an approximate ½ mile-wide southern boundary barrier island traversed by the Nome-Council Highway (Figure 2). On the north side of the Bonanza Channel are uplands of the coastal plain.

The area is devoid of trees. The mining areas are classified as estuarine and marine wetland tidal habitat dominated by perennial plants (primarily grasses) on the Bonanza Channel uplands and barrier islands. The area is surrounded by low hills of less than 200 feet (ft.) elevation, and ridges to the north that have been sculpted by periods of glaciation. These hills are drained by the Bonanza, Eldorado, and Solomon Rivers, and various creeks that have provided source material for the river deltas and beaches that now form the Bonanza Channel coastal plain. The Bonanza and Solomon Rivers currently feed directly into the Bonanza Channel, the tidal lagoon where IPOP has mining claims.

The geomorphology and hydrologic processes of Bonanza Channel are indicative of a lagoon environment, characterized by limited freshwater inputs, a shallow depositional environment, perpendicular orientation to the coast, low flow, and tide inundations of less than one ft. Flow in the project area appears to be additionally influenced by hydrostatic controls from Safety Sound and the Bonanza/Solomon Rivers complex. In context of the surrounding area, the Bonanza Channel can be characterized as a sedimentary subsystem to Safety Sound. Bonanza Channel exhibits characteristics of a lagoon system with uniformly shallow depths (which amplify winter and summer temperature extremes), minimal currents to facilitate nutrient subsidies and exchange, and salinities that are vary depending on weather conditions.

The Bonanza Channel is a shallow estuary fed by two rivers, the Bonanza River and the Solomon River. Though the Bonanza Channel deepens where the Bonanza River drains into the estuary the lowest elevation observed on the applicant's claims are about 7-ft. below mean high water.

Flow rates in the estuary vary with respect to location and proximity to the rivers that feed it. Flow measurements reported in June 2020 indicate an average flow of 0.2 ft. per second. Most of

Bonanza River drains to the northeast of where it enters the Bonanza Channel, while a small percentage of the Bonanza River volume drains slowly southwesterly towards Safety Sound. The Solomon River drains into Norton Sound close to where it enters the Bonanza Channel and has little effect on the flow within the estuary. Both the flow of the Solomon and most of the flow from the Bonanza River enter Norton Sound (off the claims) at 64°32'57.96" N, 164°25'00.34" W. The waters of Safety Sound enter Norton Sound off the claims at 64°28'20.70" N, 164°44'44.98" W. The coastal region immediately north and bounding the proposed mining areas includes rolling tundra, grasses, shrubs, persistent emergent flora, mosses and other perennial plants consistent with large freshwater emergent wetlands.

In 2020, salinity measurements were consistently uniform, ranging from 13 to 16 practical salinity units. Water temperatures during June and July 2020 averaged approximately 15 degrees Celsius (°C) with maximum temperatures over 22°C. Water temperatures in August averaged 13°C to 15°C, declining to less than 10°C in September. Turbidity in the project area was variable, ranging from 0.7 to 25.7 nephelometric turbidity units (NTU) depending on local storms.

The project area is typically accessed by vehicle from the Nome-Council Highway at milepost 28 (usually open June through October), by snowmobile (during winter and spring), or by boat from Norton Sound. The surrounding area is very sparsely populated (10 people in 2010 census) consisting of the small, -seasonal community of Solomon which is 10 miles east at milepost 38 and Council which is 44 miles east at milepost 72. The depth of water on the mining claims is typically 2 to 4 ft. above mean high water. The deepest observed depth in the project area was 7.1 ft. Drill test results indicate the substrate as poorly sorted gravelly sand overlain by 7 to 12 inches of silt, clay, and organic "muck."

Storm events observed and documented during the study period show that the Bonanza Channel is subject to turbidity events (that last for weeks in some cases), including surges of both fresh- and saltwater influence, and tidal fluctuations which completely submerge low-level islands in the project area during flood tides. Field observations, along with water quality data and drone footage, indicate storms significantly increase background turbidity levels in the project area.

2.2 Facility Description

The IPOP, LLC facility consists of floating placer mining operation that will dredge for placer gold within the sediments of the Bonanza Channel (Figure 3). The project consists of a four-trailer mobile camp (to house workers) that will be parked on lands owned by the State of Alaska adjacent to the Nome-Council Highway. Mining equipment includes two small tender boats 25 ft. or less, a cutterhead dredge (designed to operate in shallow waters), and a processing barge (designed to capture very fine gold particles). The project will operate seasonally during the summer and early fall within the waters of the Bonanza Channel.

Additional Project Summary Information:

- Annual mining activity window from June 1 to November 1
- Project operating life of approximately 5 years
- Greater than 4,500,000 cubic yards of material mined over the life of the project
- Mining and processing rate of up to 900,000 cubic yards of material per year
- Mining depth of up to 31 ft.
- Reclamation occurs concurrently with mining, and all temporary dredge material disposal sites will be reclaimed by the end of the project.
- Ore processing is by gravity separation only. There are no chemicals or metals used as a part of the ore processing.
- Site access to the dredge is by a 2,150 to 4,500 ft. long access channel that will be maintained and/or re-established annually.
- A one-acre camp site will be accessed from a 330 ft-long access road on the north of the Nome-Council Highway near the project area.
- Dredging schedule consists of two 12-hour shifts per day for an average of 20 weeks per year during a seasonal mining activity window from June 1to November 1
- Occasional seasonal winter delineation drilling schedule for 30 continuous days annually between January 1 to May 31 for the purpose of directing annual mining with the aim of minimizing the environmental impact
- Employment of 20 to 40 personnel for operations and seasonal start up, respectively

2.3 Adopted References

The permittee shall adhere to department-approved plans authorized under the permit and listed below. When the terms of this permit differ from the terms of department-approved project documents adopted by reference in this section, the most recent term with written department approval is controlling. If there is doubt as to which conflicting term is newer, the permit shall control. Department-approved plans adopted by reference in this section may be revised provided that written department approval is received. Department-approved plans adopted by reference into this permit include the following documents and identified sections of the *2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska, IPOP, LLC* (Plan of Operations), *Bonanza Channel Placer Project Supplemental Information* April 18, 2022 (Supplemental Information), and *Amendment to 2020 Narrative Operating Plan* (Amendment to the Plan of Operations).

- General operations are adopted in
  - Sections 5.1, 5.2, 5.3, 5.8 and 5.9 of the Plan of Operations,
  - The Supplemental Information, and
  - The Amendment to the Plan of Operations.
- Best management practices plan (BMP Plan) procedures are adopted in

- Section 5.10 of the Plan of Operations and
- The Supplemental Information.

- Silt curtain management plan (SCM Plan) procedures are adopted in
  - Sections 5.10.2, 5.10.3, and 5.12 of the Plan of Operations and
  - The Amendment to the Plan of Operations.
- Monitoring plan procedures are adopted in section 5.11 of the Plan of Operations.

2.4 Clean Water Act (CWA), Section 404, Individual Permit POA-2018-00123

The area of dredge operation and the silt curtain containment system are authorized under a U.S. Army Corps of Engineers (USACE) CWA, Section 404, Individual Permit (POA-2018-00123) and associated CWA, Section 401 Certification issued by the department. Permit coverage under POA-2018-00123 includes all discharges within the silt curtain containment system and discharges that are incidental to the movement of the silt curtain containment system.

The permit designates the water, as bound by the silt curtain containment system required under POA-2018-00123, is designated as a "treatment works", as defined in Alaska Statutes (AS) 46.03.900(33) as "works installed for the purpose of treating, neutralizing, stabilizing, or disposing of sewage, industrial waste, or other wastes." Under 18 AAC 70.010(c), Water Quality Standards (WQS) do not apply to a treatment works authorized by the department and applicable water quality criteria "must be met in adjacent surface water and groundwater at and beyond the boundary of the treatment works." The permit also requires that the permittee comply with all seasonal operating restrictions as stipulated within POA-2018-00123 and ensures that all wastewater and tailings are deposited in a manner that will not damage or otherwise jeopardize the integrity of silt curtain containment system.

2.5 Discharge and Wastewater Description

The permit authorizes the discharge of wastewater to the Bonanza Channel from Outfall 001 which is identified as the opening or double doorway portion of the silt curtain containment system surrounding the mining operation through which the dredge and other support craft may pass. The discharge from Outfall 001 consists of wastewater containing suspended particulates created during dredge operation and other activities disturbing the substrate within the silt curtain. The pollutants of concern identified in the permit consist of turbidity and suspended solids. The permit authorizes a 100-ft. radius mixing zone centered on Outfall 001.

Impacts to Receiving Waters

During the June and July 2020 background study, the average turbidity measured in the project area was 3.5 NTU, with a maximum of 25.3 NTU. Immediately prior to the no-curtain dredge test, the average turbidity of 1.63 NTU, with a maximum of 2.88 NTU (excluding higher readings in the 25 Formazin Nephelometric Units (FNU) range due to interpreted sea grass bias) (IPOP, LLC, 2020).

During the no-curtain dredge test, two holes removed only the top 12" of "muck" and two holes were dredged to three ft. in depth to sample both the upper layer of "muck" and the underlying sediments. Turbidity data collected during the test ranged from 33.1 during dredging, to 1.12 NTU, approximately 2 hours after dredging was suspended (IPOP, LLC, 2020).

Prior to the solid curtain dredge test the average turbidity outside the curtain averaged 2.32 FNU with a high of 4.6 FNU. Turbidity data was collected outside the curtain during the test had an average of 1.43 NTU with the highest measurement of 3.1 NTU was taken at a leak in the curtain. A subsequent measurement 45 minutes later in the same location was 1.51 NTU (IPOP, LLC, 2020).

From baseline and test data, mining discharge impacts will be de minimis or minor, of short duration (less than 2 hours), and localized. All operational discharges will be within the range of natural variability of the receiving water. A factor further attenuating discharges of turbidity and settleable solids is that dredging will take place at a comfortable distance from the silt curtain providing additional settling time and lower turbidity at the silt curtain doorway where discharges occur.

Test studies indicate that the silt curtain containment system is capable of withstanding storms with sustained winds over 20 miles per hour (mph) with wind gusts up to 33 mph. Such conditions were experienced from August 30 to September 3, 2020 without any observed turbidity releases outside the curtain during this event.

3.0 COMPLIANCE HISTORY

This is the first issuance of this permit.

4.0 EFFLUENT LIMITS AND MONITORING REQUIREMENTS

4.1 Basis for Permit Effluent Limits

Under 18 AAC 83.015, it prohibits the discharge of pollutants to waters of the U.S. without first obtaining a permit authorized by the APDES Program meeting the purposes of AS 46.03 according to Section 402 of the CWA and requirements adopted by reference at 18 AAC 83.010.

The CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are established by EPA according to the level of treatment that is achievable using available technology. WQBELs are set as the permit limit if they are more stringent than TBELs to ensure that the receiving water quality is protected.

4.1.1 TBELs

EPA promulgated effluent limitation guidelines (ELGs) for the gold placer mining point source category in 1988 [40 CFR § 440.143 Subpart M, as adopted by reference at 18 AAC 83.010(g)(3)]. The ELGs specify the degree of effluent reduction attainable by the application of the best practicable control technology currently available, the best available technology economically achievable, and New Source Performance Standards. The ELGs also established BMPs.

The gold placer mining ELGs do not apply to the discharge authorized under this permit. Since the mining discharge subject to the ELG is authorized under CWA, Section 404, Individual Permit POA-2018-00123, as referenced in the permit. In Permit Part 1.3, the department designates the silt curtain containment system as a treatment works, as defined in AS 46.03.900(33). Under 18 AAC 70.010(c), WQS do not apply to a department-authorized treatment works and applicable water quality criteria "must be met in adjacent surface water and groundwater at and beyond the boundary of the treatment works." Since the discharge during vessel entrance and exit from the silt curtain containment authorized under this permit is specific to access and does not cover mining, the permit does not contain TBELs.

4.2 Water Quality-Based Effluent Limits

The CWA required the establishment of limitations in permits necessary to meet WQS by July 1, 1977 [CWA § 301(b)(1)]. DEC regulations require that permits include water quality-based effluent limits that "achieve water quality standards established under CWA § 303, including State narrative criteria for water quality" [18 AAC 83.435(a)(1)]. All discharges to state waters must also comply with WQS, including the State's Antidegradation Policy.

Under 18 AAC 83.475(3), BMPs must be included in a permit "when numeric effluent limitations are infeasible." Dredging's unique method of intake and displacement presents unusual permitting issues. A dredge is a mechanical device that operates on the water surface and elevates bed material and in situ water into a wash plant from which gold or other minerals may be recovered. The discharge from dredges consists entirely of intake water and bed material immediately released back into the receiving water. Because dredges do not contain standard treatment systems, nor add chemicals other than those already present in the intake water or bed material, typical permit conditions are considered infeasible for most operations; therefore, BMPs have been established in the permit to control the discharges (Permit Part 3.1).

DEC determined that turbidity and settleable solids are the pollutants of concern that must be limited to meet WQS. The BMPs include requirements to minimize and manage turbidity from the discharge. Additionally, turbidity monitoring is required at the mixing zone boundary and ensuring that BMPs are implemented properly and effective (Permit Parts 1.5 and 1.6). The permit requires a daily visual inspection of the silt curtain containment system for turbidity, film and sheen detection. Monitoring for turbidity and settleable solids is required before and after wastewater discharge from opening and closing the silt curtain containment system's double doorway. An increase greater than five NTU above background turbidity beyond the boundary of the 100-ft. radius mixing zone is a violation of the permit. If turbidity greater than five NTU above background conditions is observed, the permittee must sample for settleable solids. The limit of no greater than five NTU above background limit can be found at 18 AAC 70.020 (b)(12), as amended through April 26, 2024.

Because effluent limitations based on water quality criteria alone are considered infeasible when background turbidity is naturally elevated, the permit also implements BMPs, according to 18 AAC 83.475(3). Permit limits and monitoring, combined with the BMPs help ensure that the receiving water is adequately protected for all existing and designated uses.

4.3 Basis for Effluent and Receiving Water Monitoring

Under AS 46.03.110(d), the department may specify in a permit the terms and conditions under which waste material may be disposed. Monitoring is required to determine compliance with effluent limits. By gathering effluent and receiving water data, impacts on the receiving waterbody are determined and water quality protected.

4.4 Effluent Limits and Monitoring Requirements

Minimum monitoring frequencies are based on the nature and effect of a pollutant, as well as a determination of the minimum sampling necessary to adequately represent the facility's performance. The permittee has the option of taking more frequent samples than are required under the permit; however, these samples must be included with reporting information per Permit Appendix A, Part 3.3. Table 1 summarizes the effluent limits and monitoring requirements for Outfall 001.

Table 1: Effluent Limits and Monitoring

Parameter	Limit	Units	Minimum Sample Frequency	Sample Type
Turbidity, background sample	The background sample must be taken from the Bonanza Channel at a point approximately 100 ft. downstream of the silt curtain containment system doorway to measure water quality influenced by the release of wastewater from breaching the doorway. The sample must be taken just prior to the silt curtain containment system doorway breach.	NTU[a]	1/Opening	Grab
Turbidity, compliance sample (background sample, natural condition)	The turbidity must not be more than 5 NTUs above the background sample. The compliance sample must be taken at the same approximate location of the background sample as soon as practicable and within 30 minutes after closing the silt curtain containment system doorway.	NTU	1/Opening	Grab
Settleable Solids, downstream sample	If the compliance sample exceeds the turbidity limit, a settleable solids sample must be taken as soon as practicable and within 30 minutes after closing the silt curtain containment system doorway. The sample should be taken at the same approximate location as the compliance sample. Settleable solids must not exceed 0.2 ml/L	ml/L[b]	As necessary	Grab

a. Nephelometric turbidity units
b. Milliliters per liter

5.0 RECEIVING WATERBODY

5.1 Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limits in permits necessary to meet water quality standards by July 1, 1977. Per 18 AAC 83.435, APDES permits must include conditions to ensure compliance with 18 AAC 70 – WQS. Regulations in 18 AAC 70 require that conditions in permits ensure compliance with the WQS. The WQS are composed of use classifications, numeric and/or narrative water quality criteria, and an antidegradation policy. The use classification system designates the beneficial uses that each waterbody is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the state to support the beneficial use classification of each waterbody. The antidegradation policy ensures that the beneficial uses and existing water quality are maintained.

Waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230 as listed under 18 AAC 70.230(e). Some waterbodies in Alaska may also have a site–specific water quality criterion per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b). The receiving water for the discharge, the Bonanza Channel, has not been reclassified, and site-specific water quality criteria have not been established. Therefore, the Bonanza Channel must be protected for all designated freshwater use classes listed in 18 AAC 70.020(a)(2). To ensure protection of receiving water quality, Table 1 contains parameters that must be monitored in the area impacted, the Bonanza Channel, by the discharge. Required receiving water monitoring verifies compliance with permit limits and associated mixing zone authorization stipulations. Receiving water monitoring is required to verify that the designated uses of the Bonanza Channel have been protected from the pollutants of concern.

5.2 Water Quality Status of Receiving Water

Any part of a waterbody for which the water quality does not or is not expected to meet applicable WQS is defined as a "water quality limited segment" and is placed on the State's impaired waterbody list. The Bonanza Channel is not listed as an impaired waterbody in *Alaska's Final 2022 Integrated Water Quality Monitoring and Assessment Report*, nor is it listed as a CWA 303(d) waterbody requiring a total maximum daily load (TMDL). Accordingly, a TMDL has not been established for Bonanza Channel.

5.3 Mixing Zone Analysis

State regulations provide that the department may authorize a mixing zone in a permit (18 AAC 70.240, as amended through April 26, 2024). An authorized mixing zone must ensure that water quality criteria will be met at the boundary of the mixing zone and existing uses outside the mixing zone are maintained and fully protected. The department's mixing zone analysis follows.

Dimensions and Permit Requirements

The permit authorizes a 100 ft. radius mixing zone centered at Outfall 001, wherein water quality criteria may be exceeded. The mixing zone size was determined following 18 AAC 70.240(k), which specifies the maximum size for authorizations in estuarine waters at approximately 10-percent of the average width of the Bonanza Channel. Based on best professional judgement and practical experience with other large dredge operations that are capable of meeting water quality

criteria at the boundary of the mixing zone, adherence to permit-required limits, BMPs, and monitoring will fully protect WQS.

Larger-sized mixing zones have been issued to offshore dredges including prior EPA-issued NPDES individual permits for large-scale suction and mechanical dredge operations in Norton Sound (AK-004319-2, AK-005331-7, AK-005347-3, and AK-005353-8). EPA-issued individual permits applied research results from the WestGold BIMA operation in Norton Sound and authorized a 500-meter (1,640 ft.) radius mixing zone, wherein discharges were allowed to exceed water quality criteria (ENSR, 1989).

Studies and model results from the WestGold BIMA operation indicate that the production rate of the dredge had only a minor effect on the size of the discharge plume when compared to the effects of the silt content of dredged material, current speed, and position in the ore reserve (Garvin, Sweeney, and Rusanowski, 1991). Prior studies (ENSR, 1989; MMS, 1990, Prussian et al. 1999 and USGS, 1997) conducted as part of the Ocean Discharge Criteria Evaluation for the 2013 BIMA permit and inspections of dredge operations confirm that suction or mechanical dredging conducted according to permit conditions has only short term, locally increased, turbidity during mining. Areas beyond the mixing zone remain unaffected.

Because operational practices affect discharge characteristics more than dredge size or production rate, the permit authorizes a mixing zone based on the mixing zone size restriction required under 18 AAC 70.240(k) and controls the discharge through the implementation of BMPs.

In authorizing this mixing zone, the department considered all aspects required in 18 AAC 70.015 (Antidegradation policy) and 18 AAC 70.240 (Mixing zones), as amended April 26, 2024, including, but not limited to, the predicted effluent quality from the discharge and the potential risk to human health and to aquatic resources.

The department finds that the mixing zone authorized for a discharge following the requirements in the permit is appropriate and provides reasonable assurance that beneficial, designated, and existing uses of the receiving waters at the boundary of the mixing zone will be maintained and fully protected.

6.0 ANTIBACKSLIDING

Per 18 AAC 83.480(a), “Except as provided in (b) of the section, when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially and substantially changed since the permit was issued, and the change in circumstances would constitute cause for permit modification or revocation and reissuance under 18 AAC 83.135.” Since this permit is neither a permit renewal nor reissuance, the antibacksliding provisions of 18 AAC 83.480(a) do not apply, and further evaluation is unwarranted.

7.0 ANTIDEGRADATION

Section 303(d)(4)(B) of the CWA states that, for waterbodies where the water quality meets or exceeds the level necessary to support the waterbody's designated uses, WQBELs may be revised if the revision is consistent with the state's antidegradation policy. The state’s antidegradation policy and

implementation approach are found at 18 AAC 70.015 & 18 AAC 70.016. Both the antidegradation policy and the implementation methods are consistent with 40 CFR 131.12 and approved by EPA. This section analyzes and provides rationale for the department's decisions in the permit issuance with respect to the Antidegradation policy and implementation methods.

Using the policy and corresponding implementation methods, the department determines a tier protection level, whereby a higher numbered tier indicates a greater level of water quality protection. Tier 1 and Tier 2 classifications protect on a parameter-by-parameter basis. A Tier 3 protection level applies to a designated water. At this time, no Tier 3 waters have been designated in Alaska.

Under 18 AAC 70.015(a)(2), it states that if the quality of water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected, unless the department authorizes a reduction in water quality. If the Bonanza Channel were impaired it would be listed as impaired (Category 4 or 5) in *Alaska's 2022 Integrated Water Quality Monitoring and Assessment Report* and receive Tier 1 level of protection. It is not and the Tier 2 protection level applies to Bonanza Channel.

As a result, both Tier 1 and Tier 2 protection levels apply to Bonanza Channel. The department may allow a reduction of water quality only after the specific analysis and requirements under 18 AAC 70.016(b)(5)(A)–(C) and 18 AAC 70.016(c)(7)(A)–(F) are met. The department's findings under these provisions follow:

Tier 1 Analysis: 18 AAC 70.016(b)(5) *the department will not authorize a discharge to a Tier 1 water unless the department finds*

> ***(A)*** *existing uses and the water quality necessary for protection of existing uses have been identified based on available evidence, including water quality and use related data, information submitted by the applicant, and water quality and use related data and information received during public comment;*
>
> ***(B)*** *existing uses will be maintained and protected; and*
>
> ***(C)*** *the discharge will not cause water quality to be lowered further where the department finds that the parameter already exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b).*

The water quality criteria on which the permit effluent limits are based serve the specific purpose of protecting the existing and designated uses of the receiving water. Per 18 AAC 70.020 and 18 AAC 70.050, all waters are protected for all uses; therefore, the most stringent water quality criteria found in 18 AAC 70.020 and the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* apply and were evaluated here. Implementation of the most stringent water quality criteria ensures protection of water quality necessary to fully maintain designated and existing uses of the receiving waterbody. The permit protects Bonanza Channel for all uses by maintaining water quality necessary according to 18 AAC 70.016(b)(5)(A).

The permit places limits and conditions on the discharge of pollutants discharged from the silt curtain containment system. According to 18 AAC 70.016(b)(5)(B), the permit ensures that designated and existing uses (i.e., all uses) outside the mixing zone for Bonanza Channel will be maintained and protected through numeric effluent limits, monitoring, and BMPs for pollutants of concern.

No parameter for a contaminant of concern in Bonanza Channel exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b). As such, 18 AAC 70.016(b)(5)(C) does not apply here.

The department concludes the terms and conditions of the permit will fully protect and maintain the designated and existing uses of the water and that the permitted discharge meets Tier 2 analysis conditions under 18 AAC 70.016(b)(5).

As explained above, the department will continue to a Tier 2 analysis because under 18 AAC 70.016(c)(1), Tier 2 is presumed for all water as the default protection level for all parameters unless an exception applies, and here no exception applies.

Tier 2 Analysis: 18 AAC 70.016(c)(7) *[I]f, after review of available evidence, the department finds that the proposed discharge will lower water quality in the receiving water, the department will not authorize a discharge unless the department finds that [the conditions of 18 AAC 70.016(c)(7)(A)–(F) are met].*

Here, the proposed discharge may lower water quality in Bonanza Channel. Therefore, the department cannot authorize a discharge unless it makes the following findings. Analysis of 18 AAC 70.016(c)(7)(A)–(F) follows.

18 AAC 70.016(c)(7)(A) *[The department will not authorize a discharge unless it finds that] the reduction of water quality meets the applicable criteria of 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b), unless allowed under 18 AAC 70.200, 18 AAC 70.210, or 18 AAC 70.240[.]*

Section 1.4.1 of the permit requires that the discharge shall not cause or contribute to a violation of WQS unless an exception is authorized by the permit under 18 AAC 70.200 – 70.240 (i.e., mixing zone, variance, etc.). Based on the reasonable potential for turbidity and settleable solids to exceed water quality criteria at Outfall 001, and available assimilative capacity in the receiving water, the permit authorizes a mixing zone under 18 AAC 70.240 (See Fact Sheet Section 5.3). The resulting effluent limits and monitoring requirements in the permit protect water quality criteria and will not violate water quality criteria found at 18 AAC 70.020.

WQS protect the existing uses of the receiving waterbody. The Bonanza Channel is protected for all designated uses (see Fact Sheet Section 4.0); therefore, the most stringent water quality criteria found in 18 AAC 70.020 and in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (DEC 2022 were used to determine the permit effluent limits. BMP requirements in the permit further ensure that the mixing zone size will be constrained to the authorized dimension and that discharge will be minimized to short duration, localized events closely managed under an approved Plan of Operations and Monitoring Plan. As such, receiving water quality at and beyond the authorized mixing zone boundary is fully protected for all designated uses. The permit effluent limits fully protect all designated uses. The mixing zone, appropriately sized to fully protect the existing uses of the Bonanza Channel, is authorized under 18 AAC 70.240.

WQBELs for pollutants of concern are based on the most stringent water quality criteria of all protected use classes under 18 AAC 70.020(b). Because of the nature of the permitted discharges, pollutants, which are not present or without a reasonable potential to be present at harmful levels exceeding WQS have been carefully identified and removed from concern. Basing the permit effluent limits on WQS serves to protect existing and designated uses.

The mixing zone authorized in the wastewater discharge permit, under 18 AAC 70.240, uses the assimilative capacity in the receiving water. Reduction of water quality within the mixing zones is specifically authorized according to 18 AAC 70.240 and as allowed in 18 AAC 70.015(a)(2).

More information about the authorized mixing zone can be found in Section 5.3 of the Fact Sheet. The resulting effluent limits and monitoring requirements in Permit Part 1.5 result from applying water quality criteria and assumptions ensuring that water quality criteria found at 18 AAC 70.020 will not be exceeded beyond the boundary of the authorized mixing zone.

Site-specific criteria as allowed by 18 AAC 70.235 have not been established for the Bonanza Channel and are not applicable. The permit does not authorize short term variances or zones of deposit under 18 AAC 70.200 or 18 AAC 70.210; therefore, these provisions do not apply.

The department concludes that the reduction of water quality meets applicable criteria of both 18 AAC 70.020(b) and 18 AAC 70.030 and is allowable under 18 AAC 70.240. Thus, the finding required under 18 AAC 70.016(c)(7)(A) is met.

18 AAC 70.016(c)(7)(B) *[The department will not authorize a discharge unless it finds that] each requirement under (b)(5) of this section for a discharge to a Tier 1 water is met[.]*

This only applies to Tier 1 waters, and the Bonanza Channel is a Tier 2 waterbody.

18 AAC 70.016(c)(7)(C) *[The department will not authorize a discharge unless it finds that] point source and state-regulated nonpoint source discharges to the receiving water will meet requirements under 18 AAC 70.015(a)(2)(D); to make this finding the department will*

> *(i) identify point sources and state-regulated nonpoint sources that discharge to, or otherwise impact, the receiving water;*
>
> *(ii) consider whether there are outstanding noncompliance issues with point source permits or required state-regulated nonpoint source best management practices, consider whether receiving water quality has improved or degraded over time, and, if necessary and appropriate, take actions that will achieve the requirements of 18 AAC 70.015(a)(2)(D); and*
>
> *(iii) coordinate with other state or federal agencies as necessary to comply with (i) and (ii) of this subparagraph[.]*

The requirements under 18 AAC 70.015(a)(2)(D) state:

> *(D) all wastes and other substances discharged will be treated and controlled to achieve*
>
> *(i) for new and existing point sources, the highest statutory and regulatory requirements; and*
>
> *(ii) for nonpoint sources, all cost-effective and reasonable best management practices[.]*

Here, 18 AAC 70.015(a)(2)(D)(i) applies because the discharges are point sources. As such, the highest statutory and regulatory requirements for this point source are defined at 18 AAC 70.015(d):

> *(d) For purposes of (a) of this section, the highest statutory and regulatory requirements are*
>
> *(1) any federal technology-based effluent limitation identified in 40 C.F.R. 122.29 and 125.3, revised as of July 1, 2017 and adopted by reference;*
>
> *(2) any minimum treatment standards identified in 18 AAC 72.050;*
>
> *(3) any treatment requirements imposed under another state law that is more stringent than a requirement of this chapter; and*

(4) any water quality-based effluent limitations established in accordance with 33 U.S.C. 1311(b)(1)(C) (Clean Water Act, sec. 301(b)(1)(C)).

The first part of the definition includes all applicable TBELs. TBELs are unwarranted for the discharge and have not been established in the permit as outlined in Fact Sheet Section 4.1.1.

The second part of the definition references the minimum treatment standards for domestic wastewater discharges found at 18 AAC 72.050. The federal technology based ELGs for secondary treatment of domestic wastewater are found in 40 CFR Part 133. These ELGs apply to publicly owned treatment works (POTWs) and are not applicable to the authorized discharge. For the discharge, all applicable federal and state technology based ELGs have been considered for incorporation into the permit.

The third part of the definition refers to treatment requirements imposed under another state law that are more stringent than 18 AAC 70. Other applicable regulations, beyond 18 AAC 70, include 18 AAC 15 and 18 AAC 72. Neither 18 AAC 15 nor 18 AAC 72, nor any other state law that the department is aware of, imposes more stringent requirements than those found in 18 AAC 70.

The fourth part of the definition refers to WQBELs, which are designed to ensure that the WQS of a waterbody are protected and may be more stringent than TBELs. Section 301(b)(1)(C) of the CWA requires the development of limits in permits necessary to meet WQS by July 1, 1977. WQBELs included in APDES permits are derived from EPA-approved WQS. Under 18 AAC 83.435(a)(1), it requires that permits include WQBELs that can achieve water quality standards established under CWA § 303, including state narrative criteria for water quality.

In summary, the highest statutory and regulatory requirements applicable to this point source are WQBELs, which are incorporated in the permit. After review of the methods of treatment and control and the applicable statutory and regulatory requirements, including 18 AAC 70, 18 AAC 72, and 18 AAC 83, the department finds that the discharge authorized under this permit meets the highest applicable statutory and regulatory requirements in applicable WQBELs. Therefore, the 18 AAC 70.016(c)(7)(C) finding is met.

18 AAC 70.016(c)(7)(D) *[The department will not authorize a discharge unless it finds that] the alternatives analysis provided under (4)(C)–(F) of this subsection demonstrates that*

(i) a lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary; when one or more practicable alternatives that would prevent or lessen the degradation associated with the proposed discharge are identified, the department will select one of the alternatives for implementation; and

(ii) the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are found by the department to be the most effective and practicable[.]

The department finds that a lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary because the current permitted method of treating discharge is the only practical method in for the proposed project, per the analysis under 18 AAC 70.016(c)(7)(E). The department considered the most effective and practicable methods of prevention, control, and treatment, which in this case are the practices and requirements set out in the permit that will be applied to all wastes and other substances to be discharged. These findings, discussed further here, satisfy 18 AAC 70.016(c)(7)(D)(i) and (ii).

The department finds the most effective methods of prevention, control, and treatment are the practices and requirements set forth in this permit and adopted BMP plan. The BMP plan includes pollution prevention measures and controls appropriate for the facility and discharge. The design, construction,

and performance of the dredge plan of operation authorized under CWA Section 404 Permit POA-2018-00123 has been reviewed by the department in determining the discharge authorization, consistent with 18 AAC 72 and 18 AAC 83.

The department concludes that the lowering of water quality is necessary under 18 AAC 70.015(a)(2)(A) and determines that the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are the most effective and practicable methods. Therefore, the 18 AAC 70.016(c)(7)(D) finding is met.

18 AAC 70.016(c)(7)(E) *[The department will not authorize a discharge unless it finds that] except if not required under (4)(F) of this subsection, the social or economic importance analysis provided under (4)(G) and (5) of this subsection demonstrates that a lowering of water quality accommodates important social or economic development under 18 AAC 70.015(a)(2)(A).*

The permit applicant provided the department with economic information demonstrating that a lowering of water quality accommodates important economic development where the receiving water is located, per 18 AAC 70.016(c)(4)(G) and (5)(B). *Requests must be submitted no later than the deadline specified in 18 AAC 15.*

IPOP, LLC anticipates the contribution of substantial economic benefit to local and state economies by providing employment opportunities, annual payments to the state, and business to supporting industries. The project will provide benefits to the local and state economies through employment opportunities, annual lease fees and taxes to the state, and spending at local businesses supporting operations. IPOP, LLC's annual payroll and services during operations are projected to be more than $3,000,000 per year and the project is expected to provide at minimum 5 years of positive socio-economic benefits to the city of Nome and the surrounding communities through the employment of residents and commercial transactions with local businesses in the region. In 2018, applicant spent $2.87 million in Alaska in support of this project. IPOP, LLC estimates that the project will contribute up to $2.25 million in local taxes and $260 million in payroll and other goods and services over a 5-year period. Additionally, additional local revenue is projected to bring an additional $1,000,000 to Nome local businesses from increased tourism by IPOP, LLC shareholders because of this project. IPOP, LLC anticipates that a fully staffed operation will have up to 40 employees with an average wage substantially greater than the Alaskan average.

The effluent limits in the permit will meet WQS, provide for water quality adequate to protect designated and existing uses, and treat and control discharges by the most effective and reasonable means and to the highest statutory and regulatory requirements. Allowing the discharge is economically important for the Nome area and the State of Alaska.

The department concludes that the operation of IPOP, LLC and the operation of the wastewater treatment system and the discharges authorized by the permit demonstrate that a lowering of water quality, specified by the permit, accommodates important economic development; therefore, the 18 AAC 70.016(c)(7)(E) finding is met.

18 AAC 70.016(c)(7)(F) *[The department will not authorize a discharge unless it finds that] 18 AAC 70.015 and this section have been applied consistent with 33 U.S.C. 1326 (Clean Water Act, sec. 316) regarding potential thermal discharge impairments.*

Discharges authorized under the permit are not associated with a potential thermal discharge impairment. Therefore, further analysis here is not applicable.

8.0 OTHER PERMIT CONDITIONS

8.1 Electronic Reporting (E-Reporting) Rule

The permittee is responsible for electronically submitting DMRs and other reports according to 40 CFR §127.

8.2 Quality Assurance Project Plan (QAPP)

The permittee is required to develop procedures ensuring that monitoring data are accurate and explaining data anomalies if they occur. The permittee is required to develop and implement procedures in a QAPP documenting standard operating procedures for collecting (e.g., sample collection or measurements), handling, storing, and shipping samples; laboratory analysis (e.g., most sensitive methods); and data reporting.

The QAPP must follow EPA's Quality Assurance Project Plan Standard and must be approved in accordance with this standard. The QAPP shall be reviewed at least annually to confirm its suitability and evaluate its effectiveness for the project. If a QAPP has already been developed and implemented, the permittee must review and revise the existing QAPP to ensure it includes the necessary content. The permittee must submit a letter to the department prior to discharging or within 60 days of the effective date of the permit certifying that the QAPP has been revised and implemented. The QAPP shall be retained onsite and made available to the department upon request.

8.3 Best Management Practices Plan

BMPs are measures designed to prevent or minimize the generation and the potential for the release of pollutants from industrial facilities to the waters of the U.S. through normal operations and ancillary activities. APDES permits must include BMPs to control or abate the discharge of pollutants when 1) numeric effluent limitations are infeasible or 2) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA [18 AAC 83.475(3) – (4)]. The required BMPs and rationale are as follows:

8.3.1 Operational controls to reduce turbidity generated during excavation must be implemented as required in the department approved BMP Plan.

8.3.2 Site conditions, such as tides, waves, currents, wind, and substrate type, must be considered and operational methods must be adjusted, as necessary, to ensure discharges comply with permit limits and separation distance requirements.

8.3.3 Operational controls to reduce turbidity generated during dredging operation including, but not limited to, equipment movement, dredging, processing, and discharge must be performed in accordance with CWA Section 404 Permit POA-2018-00123.

9.0 OTHER CONSIDERATIONS

9.1 Endangered Species Act

The Endangered Species Act of 1973 (ESA), first enacted in 1973 provides for the conservation of species that are listed as endangered or threatened throughout all or a significant portion of

their range, and the conservation of the ecosystems on which they depend. NMFS is responsible for administration of the Endangered Species Act (ESA) for listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, and sea otters) are administered by the U.S. Fish and Wildlife Service (USFWS). The ESA requires federal agencies to consult with NMFS and USFWS (collectively referred to as the Services) if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with the Services regarding permitting actions. However, the department values input from the Services and interacts voluntarily with these federal agencies to obtain listings of threatened and endangered species and critical habitat.

Based on communications with NMFS during prior permit issues and review of the NMFS protected species directory (https://www.fisheries.noaa.gov/species-directory) and ESA Critical Habitat Mapper https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper), the department determined that two threatened and four endangered species under NMFS jurisdiction may occur in or near the coverage area. Threatened species include the bearded seal [Beringia distinct population segment (DPS)] and ringed seal (Arctic subspecies). Endangered species include the fin whale, humpback whale (western North Pacific DPS), Northern Pacific right whale, and Steller sea lion (western DPS). Critical Habitat for the bearded seal (Beringia DPS) and ringed seal (Arctic subspecies) also falls near the permit coverage area. By letter of October 21. 2021, NMFS determined that the project was not likely to adversely affect listed species.

Based on communications with USFWS during prior permit issues and review of the USFWS *Information for Planning and Consultation* website (http://ecos.fws.gov/ipac/), the department determined that three threatened and one endangered species under USFWS jurisdiction may occur in or near the coverage area. Threatened species include polar bear, spectacled eider, and Steller's eider. Endangered species include the short-tailed albatross. Critical habitat for polar bear also falls within the permit coverage area. By letter of July 14, 2021 to USACE, the USFWS concluded that the project was not likely to adversely affect the listed eiders or polar bears.

Permit Part 1.3.1 indicates that all discharges within the silt curtain containment system and substrate disturbance incidental to the movement or repair of the silt curtain containment system is covered under the jurisdiction of POA-2018-00123. Permit Part 1.3.2 indicates that the permittee must comply with all seasonal operating restrictions stipulated in POA-2018-00123.

Therefore, the department does not anticipate adverse effects on threatened and endangered species due to the discharge authorized under this permit.

9.2 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) designates Essential Fish Habitat (EFH) in waters used by anadromous salmon and various life stages of marine fish under NMFS jurisdiction. EFH refers to those waters and substrates (sediments, etc.) necessary to fish from commercially-fished species to spawn, breed, feed, or grow to maturity. NMFS describes freshwater EFH for Alaskan stocks of Pacific Salmon as "those waters identified in ADF&G's Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fish Species … and wherever there are spawning substrates"

(ADF&G 1998, NMFS 2005). Freshwater EFH applies to eggs, larval and juvenile stages, and adult salmon. The Anadromous Waters Catalog may be viewed on the ADF&G website at https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.home. EFH for marine waters is further identified, based on species and region, within Fishery Management Plans developed by the North Pacific Fishery Management Council. The Magnuson-Stevens Act requires federal agencies to consult with NMFS when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. As a state agency, DEC is not required to consult with NMFS regarding permitting actions. However, the department values NMFS input and interacts voluntarily with NMFS to identify EFH.

Based on review of the Alaska EFH Mapper (https://www.fisheries.noaa.gov/resource/map/alaska-essential-fish-habitat-efh-mapper), EFH for chum, pink, and coho salmon species is in the vicinity of the project area (Norton Sound).

USACE as the issuing agency of POA-2018-00123 has completed all required agency consultation requirements and has considered and implemented NMFS recommendations prior to permit issuance.

Permit Part 1.3.1 indicates that all discharges within the silt curtain containment system and substrate disturbance incidental to the movement or repair of the silt curtain containment system is covered under the jurisdiction of POA-2018-00123. Permit Part 1.3.2 stipulates that the permittee must comply with all seasonal operating restrictions as approved by the department and stipulated within POA-2018-00123. Therefore, authorized discharge in accordance with the permit requirements will not adversely affect EFH or the receiving waters.

9.3 Permit Expiration

The permit will expire five years from the effective date of the permit.

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FIGURES

Figure 1: Project Location

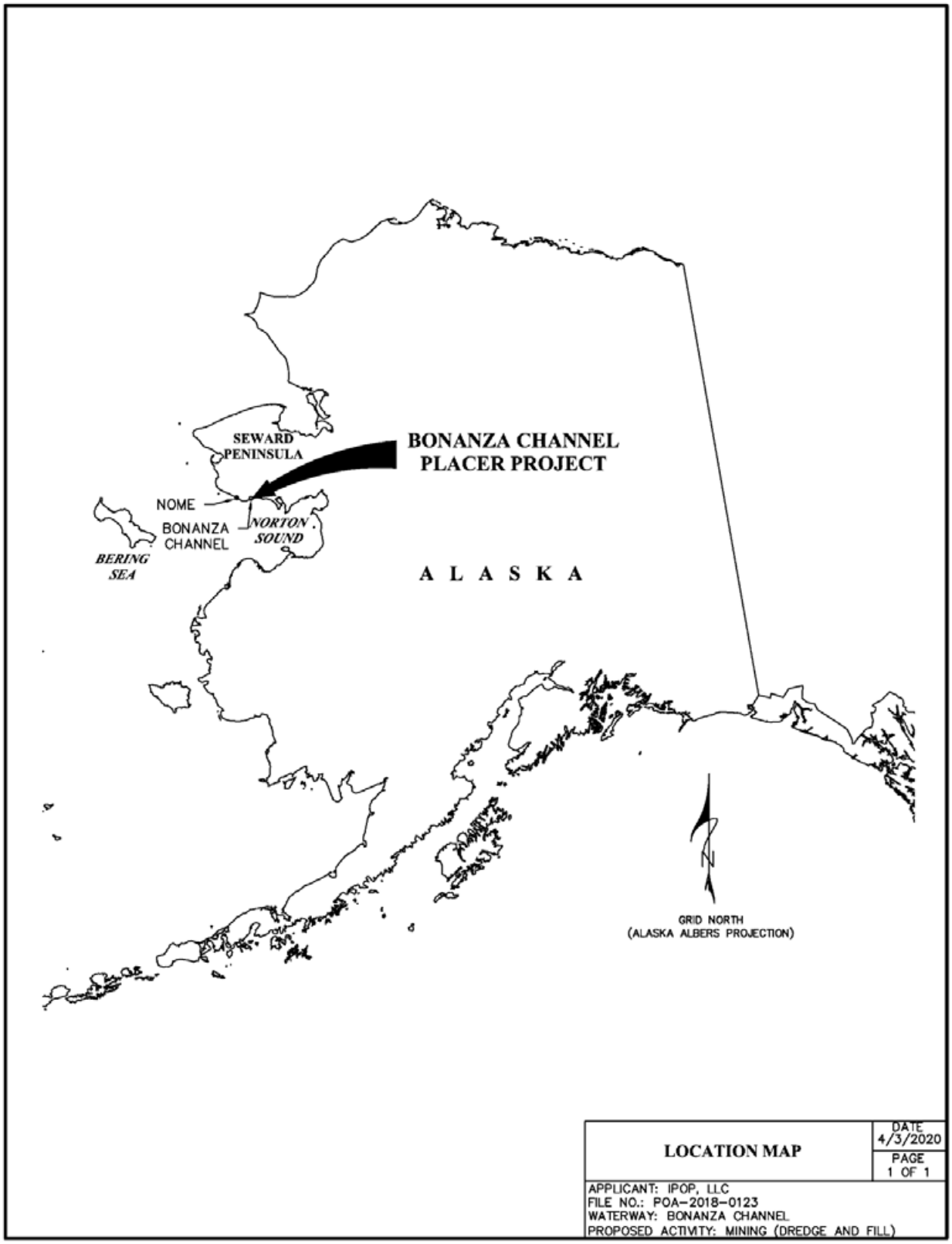


Figure 2: Project Area

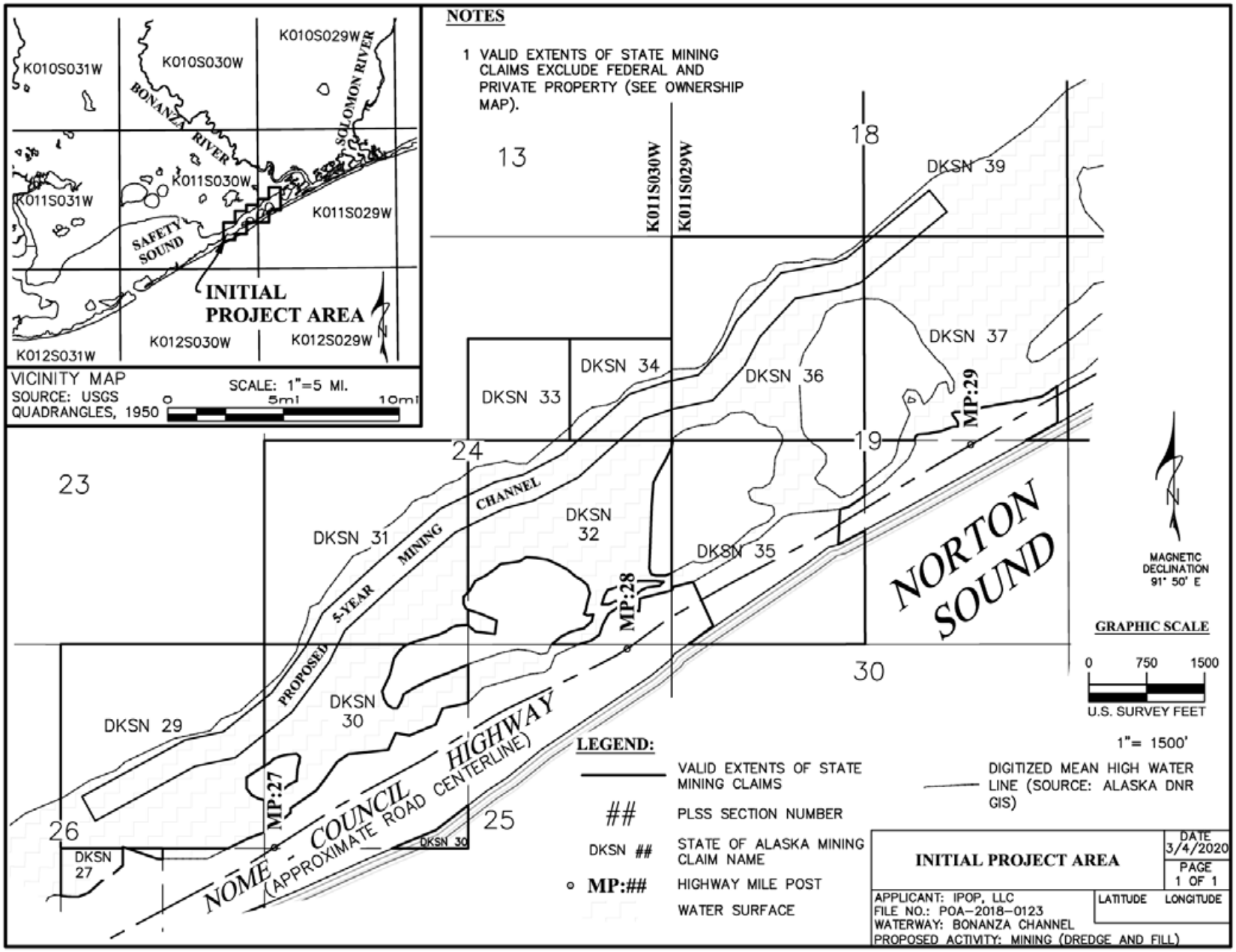
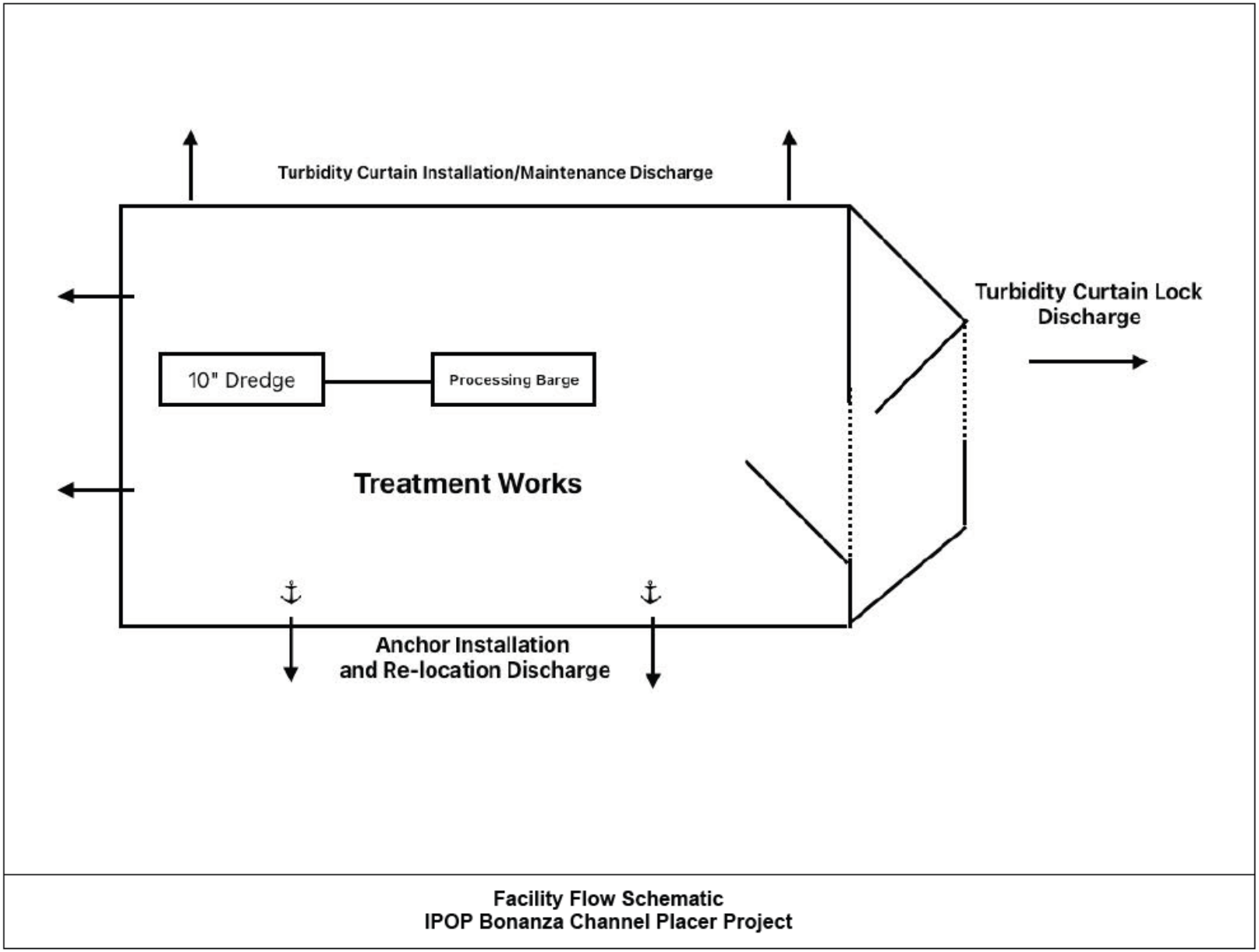


Figure 3: Line Drawing



Facility Flow Schematic
IPOP Bonanza Channel Placer Project

EXHIBIT 2

Public Comment on the Draft Alaska Pollutant Discharge Elimination System to IPOP, LLC (Alaska Department of Environmental Conservation Permit No. AK0062295) and Request for Public Hearing

July 29, 2024

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RE: Public Comment and Request for Public Hearing on Draft Alaska Pollutant Discharge Elimination System to IPOP, LLC (Alaska Department of Environmental Conservation Permit No. AK0062295)

Ms. Ebert,

Kawerak, Inc. (Kawerak) submits these comments and request for public hearing pursuant to 18 AAC 83.120, and in response to the Alaska Department of Environmental Conservation (ADEC)'s tentative determination to issue a discharge permit for the activities set forth in Alaska Pollutant Discharge Elimination System (APDES) Permit No. AK0062295 (Draft APDES Permit) to IPOP, LLC (herein referred to collectively as IPOP, or Applicant). The Draft APDES Permit sets forth IPOP's proposal to discharge wastewater from the IPOP silt curtain containment system doorway into the Bonanza Channel (Project) under 18 AAC 83.005 - 18 AAC 83.990, and requires in relevant part that "[a]ll activities conducted and all plan approvals implemented by the permittee pursuant to the terms of this permit shall comply with all applicable local, state, and federal laws and regulations."[1] Yet the Project as structured already violates Federal and State subsistence and water quality requirements. On these and other grounds, Kawerak strenuously opposes the Project.

In a related proceeding, the U.S. Army Corps of Engineers (USACE, or Corps) arbitrarily reversed its earlier denial of IPOP's application to dredge under Section 404 of the Clean Water Act (CWA), and offered individual permit #P0A-2018-00123 (Corps Permit) to IPOP to dredge and dispose of material in U.S. waters approximately 25 miles east of Nome, Alaska, in the Bonanza Channel. The Corps Permit—which was issued without renewed public notice or comment—incorporates ADEC's April 6, 2022 CWA § 401 Certification of Water Quality,

[1] Draft APDES Permit, § 1.17 of Appendix A-6.

which certification is conditioned on IPOP obtaining the APDES Permit at issue in ADEC's Notice. In the **six** years that have passed since IPOP submitted its initial application materials to relevant Federal and State authorities, Kawerak has developed a consistent record of opposition to the Project on both State and Federal stages.

Our comments on the Draft APDES Permit specifically concern the adverse effects to subsistence activities, to water quality, and to Kawerak's sacred cultural and traditional resources that would occur as a result of the activities described in the Draft APDES Permit (which incorporates the Corps Permit by reference), and which run afoul of State and Federal law. We are especially alarmed by the "unavoidable adverse effects" occasioned by IPOP's proposed activity, which adverse effects are acknowledged by the Corps and—by extension—ADEC.[2] In sum, the Project disregards demonstrated negative impacts and cumulative damage to Tribal cultural and subsistence resources, the environment, wetlands, historic properties, fish and wildlife, water supply and quality, and welfare of the people. Both the Corps Permit and the Draft APDES Permit rely on the unsupported assertions of the Applicant, which do not overcome—and often do not even address—substantive issues of Federal or State law. Indeed, Federal and State laws prohibit the issuance of a permit that would de-prioritize the subsistence needs of rural Alaskans and result in yet-undetermined adverse impacts to water quality and wildlife.

Kawerak adopts in full and incorporates by reference its April 9, 2018 comments on IPOP's APMA permit application; its May 24, 2021 Comments to USACE regarding IPOP's Corps Permit application, and its Joint Correspondence of April 12, 2024 alongside the Village of Solomon, Solomon Native Corporation, Bering Straits Native Corporation, Sitnasuak Native Corporation, and Norton Sound Economic Development Corporation.

I. The Project Violates State and Federal Law with Respect to Subsistence Priority.

The Bonanza Channel and its surrounding environs serve as a subsistence use area throughout the year. The Corps has acknowledged the same.[3] In addition to fishing and foraging, subsistence users hunt mammals, marine mammals, and birds, gather eggs and greens, gather salt for processing meats, and herd reindeer, often as a means of food security and to insulate community members from the grocery markups in the fly-in City of Nome, Alaska. Moreover, Kawerak has explained, subsistence is part of the cultural identity of local Native communities.

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[2] U.S. ARMY CORPS OF ENGINEERS, PACIFIC OCEAN DIVISION, MEMORANDUM FOR RECORD: DEPARTMENT OF THE ARMY ENVIRONMENTAL ASSESSMENT AND STATEMENT OF FINDINGS FOR THE ABOVE-REFERENCED STANDARD INDIVIDUAL PERMIT APPLICATION (Decision Document), File Number, POA- 2018-00123.

[3] Decision Document at 12 ("Government-to-government consultations with the Village of Solomon, a federally recognized Tribe traditionally associated with the project vicinity, confirmed the longterm subsistence activities conducted by the Tribe and others in this general area.

In previous comments, Kawerak and other affected parties have raised concerns that the presence, noise, and visual disturbance of IPOP's Project would negatively impact subsistence resources—specifically including saffron cod or tomcod, eiders, swans and other birds, ringed & subadult bearded seals which utilize the area to hone their foraging skills as it is an inshore estuary; both of which are on the ESA list as Threatened and are known to frequent the area — and therefore these year-round local subsistence users. Additionally, the Safety Sound/Bonanza Channel is host to the farthest north eelgrass bed in Alaska. Eelgrass plays an important role in the marine environment, and the federal government designated eelgrass as Essential Fish Habitat (EFH) and a Habitat of Particular Concern under the Magnuson-Stevens Fishery Conservation and Management Act of 1996 (**https://www.fisheries.noaa.gov/feature-story/importance-eelgrass**).

Rather than address these concerns, IPOP has simply taken the position that no subsistence permits have been issued for the Project area. Numerous subsistence salmon permits have been issued by the State Of Alaska; Alaska Department of Fish & Game for decades. With respect to local concerns regarding the effect of Project on fish migration, seal presence, and other subsistence resources of the area, IPOP simply declined to respond.[4] When commenters explained that IPO's proposed operations would limit the use of subsistence vessels to navigate the channel, IPOP argued that "there would be other places in the vicinity from which to view wildlife and engage in recreational activities."[5] But **yielding to subsistence priority is not discretionary. Rather, entitlement to subsistence priority is enshrined in both State and Federal law.**

Federal law requires that rural residents of Alaska be given a priority for subsistence uses of fish and wildlife.[6] At the State level, **AS 16.05.258** SUBSISTENCE PRIORITY, mandates that subsistence use is prioritized above all else. **AS 16.05.790** protects against HUNTER HARASSMENT. The Corps deferred any such analysis to the State, noting that "[a]s both are state laws, their implementation and enforcement are outside of the Corps' purview . . ."[7] With respect to its own subsistence analysis, the Corps simply concluded that

> [t]he mining operation would **likely prevent subsistence-related activities in the area being actively mined and the immediately surrounding areas,** but this involves a relatively small area compared to the 25-mile regional estuary system and the terrestrial areas to the north of estuary. **Although the general project vicinity supports various subsistence activities,** no unique subsistence

[4] *Id.* at 47; 48.
[5] *Id.* at 46.
[6] 16 U.S.C. §3101, *et seq.*
[7] *Id.* at 54.

> opportunities are known to exist at Bonanza Channel that would be adversely affected.[8]

The Corps further acknowledged that "[p]otential adverse impacts related to subsistence activities, aesthetics, noise, and increased activity levels in the project area" had been identified.[9]

For purposes of ADEC's analysis, the Corps' findings—which expressly acknowledge the Project's likely adverse impacts to subsistence use in the area—are insufficient to overcome Alaska's statutory requirements. Specifically, AS 16.05.258 directs the Alaska Board of Fisheries and Alaska Board of Game to provide a **reasonable opportunity for subsistence uses** first, before providing for other uses of any harvestable surplus of a fish and game population. A "reasonable opportunity" under the statute means an opportunity, as determined by the appropriate board, "that allows a subsistence user to participate in a subsistence hunt or fishery that provides a normally diligent participant with a reasonable expectation of success of taking of fish or game."[10] IPOP's Application denies subsistence users this "reasonable opportunity," as IPOP has declined altogether to address the community members' concerns related to the Project's effects on fish migration, seal presence, and other subsistence resources of the area. Moreover, IPOP's response to concerns regarding access for subsistence activities has been to point to the existence of **other** subsistence areas (rather than accommodating the requisite reasonable subsistence use of the area at issue).

Nor does IPOP's Application adequately address the prohibition on harassing activities towards those conducting lawful hunting, fishing, trapping or viewing of fish and game under AS 16.05.790. That statute prohibits the intentional obstruction or hindrance of another person's lawful hunting, fishing, trapping or viewing of fish and game. Illegal activities include positioning one's self in a location where human presence may alter the behavior of fish or game another person is pursuing.[11] It is also illegal to create a sight, sound, smell, or physical stimulus to alter the behavior of fish and game another person is attempting to take.[12] Yet IPOP's Application proposes to do just that, without regard for the consequences.

II. IPOP Has Not Established That its Project Will Not Degrade Alaskan Waters.

Alaska's commitment to protecting its pristine waters drives ADEC's water quality standards.[13] Pursuant to the ADEC's antidegradation policy, "if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation

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[8] *Id.* at 92 (Emphasis added).
[9] *Id.* at 120.
[10] AS 16.05.258(f).
[11] AS 16.05.790(a)(1).
[12] AS 16.05.790(a)(2).
[13] AAC tit. 18, § 70.015(a)(2) (2023); *see generally* ALASKA DEP'T OF ENV'T CONSERVATION DIV. OF WATER, https://dec.alaska.gov/water/water-quality/ .

in and on the water, that quality must be maintained and protected" unless the ADEC provides a short-term variance.[14] Moreover, "[a]n applicant for a permit, certification, or approval who seeks to reduce water quality as described in . . . this section shall provide to the department all information reasonably necessary for a decision on the application."[15] To Kawerak's knowledge—and with the limited documentation and data available—IPOP has altogether failed to establish that the resultant changes to the Project area's water quality will not curtail the propagation of fish, wildlife, and recreation in the area.

Indeed, IPOP concedes that its activities **will** impact water quality "within the curtained area."[16] And in response to concerns that

> [t]here was a lack of water quality characterization (e.g., pH, salinity, dissolved organics, metals) and little analysis regarding changes from pre-project to post-project conditions for SAV, benthic communities, aquatic habitat functions, fish habitat, bird habitat, water quality, etc.[,]

IPOP "declined to disclose project activities," instead proposing a 'case study' that "would" illustrate "temporary" impacts.[17] Likewise, in response to NMFS concerns regarding the adverse effects dredging and disposal operation would have on the water column and quality, IPOP simply "declined to respond."[18]

The ADEC mandate to ensure water level quality sufficient to support fish and wildlife propagation takes on especial importance in this region. As just one example, the Southern Seward Peninsula is in the midst of a salmon crisis that has lasted nearly five years. The majority of salmon that enter the Bonanza Channel and Safety Sound Estuary come through the eastern most outlet just past the Bonanza Bridge. If IPOP is allowed to dredge and mine these waters, their operations will certainly impact salmon migration and propagation, further exacerbating salmon declines. The Bonanza Channel and Safety Sound are listed in the Anadromous Body of Water Catalog and chum salmon are noted by the Alaska Department of Fish and Game to have spawning grounds in close proximity to the proposed dredging and mining operation. Further, Safety Sound has been documented as an important rearing and growth habitat for juvenile chum salmon as they migrate to the ocean.

Kawerak therefore joins with Tribes, its tribal members, community and neighbors in

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[14] *Id.*
[15] *Id.*
[16] Decision document at 5.
[17] *Id.* at 19-20.
[18] *Id.* at 42.

expressing its opposition to the as-of-yet undetermined levels of disturbance to the substrate and resuspension of toxic heavy metals occasioned by IPOP's mining activities. Kawerak notes with particular concern IPOP's lack of data regarding water chemistry and the potential for introduction of metals including arsenic, mercury, copper and lead into the Project area. Nor has IPOP furnished any reassurance on this front; to the contrary, IPOP has conceded that its activities will negatively impact the water quality, wildlife, and recreational activities in the area (but assures the authorities these effects will be "temporary" and "minor").[19] But ADEC cannot as a matter of law simply take IPOP's unsupported water quality assurances at face value. Nor can ADEC rely on the Corps' determination that IPOP's Project will pass muster, because the Corps Permit in turn relies on the State's determination.[20]

It is impermissible for ADEC to certify a Project if the Project will cause the quality of water to exceed levels necessary to support propagation of fish, shellfish, wildlife and recreation. Yet IPOP has provided no evidence that its dredging activities will meet this standard. ADEC therefore lacks the data and the evidentiary support to conclude that the Project will continue to support the various wildlife, recreation, and subsistence uses within the Project area, and ADEC must deny IPOP's Application.

III. The Project will Adversely Impact Numerous Cultural and Natural Resources.

As established by the public record for this Project, the Corps' decision to issue IPOP's Corps Permit failed to take into account the vociferous opposition of local testimony and comments, was contrary to actions requested during Tribal Consultation, and ignored the recommendations of the U.S. Fish and Wildlife Service and NOAA. We ask that ADEC not repeat the mistakes of the Federal government, and instead take into account the devastating impact that IPOP's Project will have on Native and rural Alaskan communities.

Another factor that IPOP's permit application does not address is the impact it will have on Native Allotment and campsite owners. Several Native Allotments have been identified by the Corp's and the State of Alaska to be in close proximity to the area intended to be mined by IPOP. There are reports of IPOP trespassing on several Native Allotments in the area. Native allotments and campsites are chosen in this area due to their close proximity to subsistence harvestable resources. Native Allotments have been in use for generations and must be maintained as such and simply cannot be moved.

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[19] *Id.* at 72.

[20] *Id.* ("In addition, the Applicant would implement water quality conditions included in the Clean Water Act Section 401 water quality certification issued by the state of Alaska, including obtaining permits under Section 402 of the Clean Water Act that govern discharges by this project.").

Bird-watching is another activity that would be impacted if IPOP is allowed to operate. Migratory birds, birdwatching and bird tourism provides economic opportunities and the maintenance of the wildlife habitat is of economic importance.

State & Federal agencies have stated that they will not be on the ground, or in the area to regulate any activity taking place by IPOP, LLC. However, state & federal agencies will rely on members from IPOP, LLC to self-report or the general public to make a report. Kawerak's experience with state agencies (DNR, DED, Div. of Habitat) regarding reporting on other mining activities taking place to be that of reluctance or just outright denial of any reports having been made. This is of concern, as the closest Department of Natural Resource office is located in Fairbanks, Alaska and then Anchorage, Alaska over 539 air miles from Nome.

IV. Request for Public Hearing

As provided by ADEC in its Public Notice regarding this matter, Kawerak formally submits this written request for a public hearing. Kawerak asks that the public hearing undertake the following issues, as set forth in greater detail above:

- Draft APDES Permit's lack of compliance with AS 16.05.258;
- Draft APDES Permit's lack of compliance with AS 16.05.790; and
- IPOP's failure to meet ADEC's anti-degradation and water quality requirements.
- Further data i.e. eel grass documentation.

Kawerak's contact information is as follows:

- Melanie Bahnke, Kawerak CEO or desired point of contact
- Address P.O. Box 948, Nome, AK 99762
- telephone number 1-907-443-5231 or 1-907-443-4377
- Email address MBahnke@kawerak.org or bahmasuk@kawerak.org

V. Conclusion

Thank you for the opportunity to provide comments on Kawerak's concerns with the Project and the minimal cosmetic changes to the Project that still do not bring the Project into compliance with State or Federal law. We are very troubled with how the Project would seriously and adversely impact community subsistence, Subsistence Priority, Native Allotment owners, water quality, migratory birds, marine mammals, aquatic species, and other properties of traditional, religious, and cultural importance to Kawerak, as well as native and non-native use of the area. These comments and our previous comments on the scope of the Project describe the many reasons why Kawerak opposes this Project and the many considerations that ADEC must evaluate in reviewing IPOP's Application. After completing a thorough review of all the

environmental and cultural impacts and costs that would result from this Project, we strongly urge ADEC to deny the Application.

If you have any questions regarding these comments, you may call me at 907-443-5231.

Sincerely,

KAWERAK, INC.

Mary David for

Melanie Bahnke, President