

KWIGILLINGOK AIRPORT IMPROVEMENTS

Project No. 52571

ENVIRONMENTAL ASSESSMENT

October 2014

DRAFT

Prepared for:

U.S. Department of Transportation
Federal Aviation Administration
Alaska Region Airports Division
222 West 7th Avenue
Anchorage, Alaska 99513-7587

On Behalf of the Sponsor:

State of Alaska
Department of Transportation
and Public Facilities
Central Region
P.O. Box 196900
Anchorage, Alaska 99519-6900

Kwigillingok Airport Improvements Draft Environmental Assessment FINDING OF NO SIGNIFICANT IMPACT

59.874847° North Latitude and 163.167661° West Longitude (USGS Quad Map Kuskokwim Bay D-4),
in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian,
and Section 3, Township 4 South, Range 81 West, Seward Meridian

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This environmental assessment becomes a Federal document when evaluated, signed, and dated
by the Responsible FAA Official.

Responsible FAA Official

Date

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List of Acronyms and Abbreviations

AAC	Alaska Administrative Code	HMM	Hydraulic Mapping and Modeling
AASP	Alaska Aviation System Plan	ILMA	Interagency Land Management Agreement
AC	[FAA] Advisory Circular	M&O	Maintenance and Operations
ADEC	Alaska Department of Environmental Conservation	medevac	medical evacuation
ADF&G	Alaska Department of Fish and Game	MIRL	Medium Intensity Runway Lighting
AFWFO	Anchorage Fish & Wildlife Field Office	MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
AHRS	Alaska Historic Resources Survey	NEPA	National Environmental Policy Act
AIP	Airport Improvement Program	NMFS	National Marine Fisheries Service
ALP	Airport Layout Plan	NOAA	National Oceanic and Atmospheric Administration
APDES	Alaska Pollutant Discharge Elimination System	NPL	National Priority List
APE	Area of Potential Effect	NWI	National Wetlands Inventory
ASTM	American Society for Testing and Materials	OHA	Office of History and Archaeology
ATV	All-Terrain Vehicle	PAPI	Precision Approach Path Indicators
bgs	below ground surface	PSI	Preliminary Site Investigation
BLM	U.S. Bureau of Land Management	REIL	Runway End Identifier Lights
BMPs	Best Management Practices	RS	Revised Statute
cfs	cubic feet per second	sf	square foot/square feet
cy	cubic yards	SHPO	State Historic Preservation Officer
DCCED	Alaska Department of Commerce, Community and Economic Development	SOA	State of Alaska
DNR	Alaska Department of Natural Resources	SREB	Snow Removal Equipment Building
DNR-MLW	DNR Division of Mining, Land, and Water	SWPPP	Storm Water Pollution Prevention Plan
DOT&PF	Alaska Department of Transportation & Public Facilities	T&E	Threatened and Endangered
EA	Environmental Assessment	USACE	United States Army Corps of Engineers
EDR	Environmental Data Resources, Inc.	USDA	United States Department of Agriculture
EFH	Essential Fish Habitat	USFWS	United States Fish and Wildlife Service
ESA	Endangered Species Act	VFR	Visual Flight Rules
ESCP	Erosion and Sediment Control Plan	WRCC	Western Regional Climate Center
FAA	Federal Aviation Administration	WS	[USDA] Wildlife Services Program
FEMA	Federal Emergency Management Agency	WSO	Bethel Airport (FAA designation)
FIRM	Flood Insurance Rate Map	Y-K	Yukon-Kuskokwim
FONSI	Finding of No Significant Impact		
HAPC	Habitat Area of Particular Concern		
HMCP	Hazardous Materials Control Plan		

1 INTRODUCTION AND PROJECT HISTORY

Kwigillingok is located in remote southwestern Alaska, approximately 77 miles southwest of Bethel and one mile from the western shore of Kuskokwim Bay. The town relies on its airport for essential services such as passenger transportation, bypass mail and cargo delivery, and medical evacuations (medevac). There are no roads connecting Kwigillingok to neighboring communities. Improvements to the Kwigillingok Airport were evaluated in an Environmental Assessment (EA) and a Supplemental EA that were completed in 1996 and 2004, respectively. Findings of No Significant Impact (FONSI) were issued on January 22, 1996, and May 11, 2004. Previously approved build alternatives faced land acquisition and funding challenges that delayed the project. Due to the severity of the airport deficiencies and community concerns, the project was re-initiated with community support and is now a high priority in the Department of Transportation and Public Facilities' (DOT&PF's) funding plan.

To secure the property identified in the Airport Layout Plan (ALP), this project includes acquiring the property for a proposed runway extension to 3,300 feet as well as for a future crosswind runway. This project does not include the construction of a crosswind runway; only the land acquisition is considered in this EA. Another environmental process would be completed prior to the construction of the crosswind runway.

2 PURPOSE AND NEED

The Alaska Department of Transportation and Public Facilities (DOT&PF) proposes to make improvements to the airport at Kwigillingok (Figure 1). The purpose of the project is to improve safety at the airport and correct the deficiencies of the existing airport by bringing the airport up to current standards for a Community Class Airport that meets criteria identified in the Yukon-Kuskokwim Delta Transportation Plan (Y-K Plan), the Alaska Statewide Transportation Plan, the Alaska Aviation System Plan (AASP), and Federal Aviation Administration (FAA) design standards. The improvements should meet the near term aviation demands and plan for future demand.

The existing runway at the Kwigillingok Airport is short (1,835 feet), narrow (40 feet), and unlit. Surfacing material is thin to nonexistent. The airport surface suffers from inadequate surfaces rutted by ponding, ruts, and unevenness. Present operational surfaces do not meet the design standards of Advisory Circular 150/5300-13A. The deficiencies of the existing airport are further described in Table 1 and Appendix A.

Table 1 – Facility Deficiencies and Requirements

Airport Component	Existing Facility	Facility Requirements (FAA or State of Alaska [SOA])	Deficiency
Runway Length	1,835 feet	3,300 feet (SOA)	1,465 feet
Runway Width	40 feet	60 feet (FAA)	20 feet
Runway Safety Area Width	100 feet	120 feet (FAA)	20 feet
Runway Safety Area Length	2,900 feet	3,780 feet (FAA+SOA)	880 feet
Taxiway Width	25 feet	35 feet (FAA)	10 feet
Taxiway Safety Area Width	40 feet	79 feet (FAA)	39 feet
Apron Area and Aviation Support Area	18,000 sf*	112,200 sf (FAA+SOA)	94,200 sf**
Lighting	Portable runway lighting available upon request for emergency use only	Medium Intensity Runway Lighting (MIRL) (SOA)	MIRL
Navigational Aids	Unreliable windssock, deteriorated segmented circle	Rotating beacon, wind cone and segmented circle (FAA)	Rotating beacon, wind cone and segmented circle

*sf = square feet

** The AASP lists a facility requirement of 60,000 sf for the apron. An aviation support area is needed to generate revenue and provide space for the Snow Removal Equipment Buildings.

3 PROPOSED ACTION

The proposed action consists of making improvements to the existing airport at Kwigillingok to bring the airport to the current State and FAA standards for a community-class airport. The runway would be designed and constructed to meet Runway Design Code (RDC) B-I-5000 standards. The taxiway would be increased to Taxiway Design Group 2 standards to provide additional maneuvering room for snow removal equipment and occasional use of larger aircraft. The project would include acquisition of approximately 285 acres from Kwik Incorporated, the Native Village of Kwigillingok, and Native allottees for improvements. Construction would include expanding the existing runway to a 3,300-foot-long by 60-foot-wide lighted primary runway with a taxiway and apron. Navigational aids would be installed, including a rotating beacon, wind cone, and segmented circle, and pads for future navigational aids.

The existing Snow Removal Equipment Building (SREB) would be demolished and two new SREBs (one heated, one unheated) would be constructed. An access road between the apron and the main road connecting to the community would be constructed.

Construction of the near-term improvements is planned to occur in stages, with the first stage to begin in 2016 or 2017 depending on funding availability and the timing of the land acquisition. The second stage is anticipated to begin around 2021; not only is this stage dependent upon

funding becoming available, but construction cannot begin until after the embankment placed in Stage I settles and is firm enough to place and compact additional surfacing.

3.1 Identification of Federal Action Requested

The federal actions requested of the FAA by DOT&PF are approval of the ALP, airport improvements, and land acquisition and participation in funding the Kwigillingok Airport Improvements project through the FAA's Airport Improvement Program (AIP).

4 ALTERNATIVES

4.1 Alternatives Dropped from Further Consideration

Previously studied alternatives and additional alternatives were developed, evaluated, and presented in an Engineering Scoping Report. Evaluations included safety, engineering, environmental, and fiscal considerations. All but one of the alternatives was dropped from further consideration. A summary of alternatives studied between 1996 and 2014 is provided in Appendix B.

4.2 Alternative 1: Proposed Action

The proposed action would improve the existing runway to ensure it meets DOT&PF and FAA standards for a community class airport. Approximately 285 acres of land need to be acquired for the runway improvements, future crosswind runway, and access road. This is expected to take approximately two years and must be completed to meet the proposed construction dates. The improved airport would include the following components, as illustrated in Figure 2:

- Expand the existing runway to 3,300 feet long and 60 feet wide. The total runway and safety area dimensions would be 3,780 feet by 120 feet (typical section illustrated on Figure 3).
- Build a new, 35-foot-wide taxiway to a new apron (typical section shown on Figure 4). The total width of the taxiway safety area would be 79 feet (Airplane Design Group II standard); the larger safety area allows for snow removal and occasional operations by larger aircraft.
- Construct a 374-foot by 300-foot new apron and aviation support area (typical section illustrated on Figure 5).
- Build two SREBs on the aviation support area (one heated and one for cold storage).
- Improve runway and taxiway lighting to include Medium Intensity Runway and Taxiway Lighting (MIRL), build a pad for the Automated Airport Weather Station (AWOS) site, two pads for the Precision Approach Path Indicator (PAPI) lights, two pads for the Runway End Identifier Lights (REIL), and a segmented circle.
- Install wind cones and a rotating beacon to aid navigation.
- Build a 24-foot-wide access road between the apron and the main road connecting to the community.
- Install an overhead power line to power the new SREB.
- Relocate the portion of the Kinak-Kipnuk trail, a RS2477 right of way that currently runs through the proposed runway extension.

Due to the short-term safety needs, geotechnical considerations, and funding constraints, construction for the project is anticipated to be staged. Construction is expected to take place over the course of five years. Stage I begins with acquiring land for the airport improvements and includes placing silt embankment materials and raising the grade of the existing runway. Proposed work for Stage I would include:

- Acquiring property for the airport improvements and the proposed crosswind runway.
- Barging in equipment and surface course material as no substitute is locally available.
- Improving the existing barge access trail as needed in order to provide a haul route for barged materials (Figure 8). The existing road is a 36-foot-wide 17(b) easement trail typically utilized by ATVs.
- Imported material may be staged along the haul route in a proposed staging area to be constructed approximately 300 feet from the existing barge landing.
- Developing one or more local borrow sources for embankment material (Figures 2 and 7) and establish a connecting access road from the runway area to the material sites.
- Placing embankment material for the proposed runway extension, new apron and taxiway, and access roads.
- Realigning a small channel which has been responsible for eroding the embankment parallel to the runway (Figure 6).
- Re-vegetating and reclaiming the work sites.

The new embankments would be allowed to consolidate and settle and the settling rate would inform when Stage II would occur. Stage II would place additional material on the new embankments and complete the proposed airport improvements. The existing runway surfacing would be completed with crushed aggregate surface course material barged into Kwigillingok. The timing of Stage II would be determined by the success of the first stage and the runway settlement and consolidation rates, funding, and updating of the environmental documentation. Stage II would complete the proposed improvements and includes:

- Barging in surface course material, as no suitable source is locally available.
- Improving the existing barge access trail as needed in order to provide a haul route for barged materials (Figure 8). The existing road is a 36-foot-wide 17(b) easement trail typically utilized by ATVs.
- Imported material may be staged along the haul route in a proposed staging area to be constructed approximately 300 feet from the existing barge landing.
- Placing surface course material on the runway extension, taxiway and apron, and airport access road.
- Construction of new SREBs on the new apron.
- Installing runway and taxiway lighting systems and navigational aids.
- Relocating an existing winter trail around the west end of the expanded airport property. This consists of moving the existing trail markers.
- Re-vegetating and reclaiming the work sites.

4.2.1 Permits or Approvals

The following permits and clearances would be necessary to complete the proposed action:

- U.S. Army Corps of Engineers (USACE) Section 404 individual permit for fill in wetlands A (Appendix C)
- Alaska Department of Environmental Conservation (ADEC) 401 Certificate of Reasonable Assurance for water quality
- ADEC Letter of Non-Objection for the proposed airport's change to the natural drainage movement
- Alaska Department of Natural Resources (DNR) Material Site Reclamation Plan approval (obtained by the construction contractor)
- DNR Temporary Water Use Permit for use of water from the Kwigillingok River in ice road construction and embankment material compaction
- Two Alaska Department of Fish & Game (ADF&G) Fish Habitat permits—one for realignment of the stream and one for withdrawing water from the Kwigillingok River to construct ice roads
- Section 106 consultation with the State Historic Preservation Office (SHPO)
- Section 7 Endangered Species Act (ESA) consultation with the U.S. Fish & Wildlife Service (USFWS)

Copies of the permit applications are provided in Appendix D. Copies of the Agency Scoping efforts are provided in Appendix E. Copies of the Section 106 SHPO consultation and the Endangered Species Act (ESA) Section 7 USFWS consultation are provided in Appendices F and G.

The project would involve more than one acre of ground disturbance from construction activities (as discussed in Section 6) and has a potential for storm water discharge to adjacent wetlands and waters. The construction contractor and DOT&PF would be required to conduct all construction activities in compliance with the ADEC Alaska Pollutant Discharge Elimination System (ADPES) General Permit for Construction Activities in Alaska. A Storm Water Pollution Prevention Plan (SWPPP) would be developed by the contractor, reviewed by DOT&PF, and submitted to ADEC for approval, and then implemented throughout construction.

4.3 Alternative 2: No Action

The No Action alternative would leave the Kwigillingok Airport in its current state without making improvements or addressing airport deficiencies. The No Action alternative would not bring this airport up to current standards. The runway is short, narrow, and unlit, with a soft, bumpy surface. Continued M&O efforts to address the deteriorating surface conditions, including grading the surface or applying additional surface material, would be required to keep the airport functional.

4.3.1 Permits or Approvals

No permits would be needed under the No Action alternative. DOT&PF would, however, be required to acquire right-of-way or land use agreements with the Native Village of Kwigillingok

for the existing airport. The No Action alternative would not meet the purpose and need of the proposed project and would not bring the airport up to current FAA and DOT&PF standards.

4.4 Alternatives Summary

The alternatives (proposed action and no action), are summarized in Table 2 below. A detailed discussion of the potential impacts associated with each alternative can be found in Section 6.

Table 2 – Comparison of Alternatives

	Proposed Action	No Action
Purpose and Need		
Compliance with Current State and FAA Airport Standards	The proposed action would meet purpose and need.	The No Action Alternative would not meet the purpose and need.
Environmental Impacts		
Air Quality	Non-issue	Non-issue
Coastal Resources	Non-issue	Non-issue
Compatible Land Use	The community supports the project.	
	Land would be acquired from Kwik Incorporated, the Native Village of Kwigillingok, Calista Corporation, DNR, and owners of two Native allotments.	For airport use, land would need to be acquired from Kwik Incorporated, the Native Village of Kwigillingok, Calista Corporation, DNR, and owners of two Native allotments.
	Landfill separation distance recommendations from FAA Advisory Circular (AC) guidance would be met. However, the U.S. Department of Agriculture (USDA) Wildlife Services (WS) Wildlife Hazard Evaluation recommendations would not be met. In addition, the separation distance requirement for the water reservoir and sewage lagoon would not be met.	The separation distance requirement for the water reservoir and sewage lagoon would not be met.
Construction Impacts	There would be temporary air quality impacts from equipment exhaust and disturbance of soils during construction. There would also be direct short-term effects to water quality due to ground disturbance and erosion from storm water runoff. Solid waste generation would temporarily increase. Use of heavy machinery would create temporary noise impacts limited to the project area. The proposed action would cause short-term impacts to streams during construction. These short-term impacts would be minimized as described in Section 6.3. All in-water work would occur in the winter and would follow stipulations to be specified in the ADF&G Title 16 Fish Habitat Permit.	No effect
Section 4(f)	Non-issue	Non-issue
Farmlands	Non-issue	Non-issue

Proposed Action		No Action
Subsistence, Fish, Wildlife, and Plants	The proposed action is not anticipated to adversely affect threatened and endangered species. DOT&PF has determined that there would be no adverse effects to essential fish habitat from the proposed action.	No effect on threatened and endangered species or Essential Fish Habitat
Floodplains	The proposed action is not expected to result in considerable probability of loss of human life or extensive damage to airport facilities in the future because the project will be constructed to be above the floodplain.	No action may result in continued damage to the airport facilities because the infrastructure resides below the predicted floodplain elevation.
Hazardous Materials, Pollution Prevention, and Solid Waste	A temporary increase in solid waste will occur during construction. No long-term increase is anticipated. Short-term increases would not exceed the capacity of the existing community landfill.	No effect
Historical, Architectural, Archaeological, and Cultural Resources	On September 19, 2013, SHPO concurred with DOT&PF's determination that no historic properties would be affected by the proposed action.	No effect
Light Emissions and Visual Impacts	There would be increased lighting from the airport improvements with added runway MIRL and the rotating beacon.	No effect
Natural Resources and Energy Supply	Non-issue	Non-issue
Noise	Non-issue	Non-issue
Secondary (Induced) and Cumulative Impacts	The proposed action is not expected to cause shifts in population movement, growth or public service needs.	No action may result in negative impacts to the community through reduced airport capacity.
Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks	The health and safety of local residents would benefit, as this would improve air travel access for medevacs. Other socio-economic benefits are associated with more reliable air travel, mail, and cargo delivery.	Access to the community would remain unreliable.
Water Quality	The proposed action would not threaten the public drinking water supply. Short term adverse impacts to water quality will result during construction; however, the net impact results in no long-term change to water quality. The new channel will be offset from the runway, thus protecting the runway and safety area.	Erosion by tidal fluctuation and runoff would continue to cause a high sediment load in the water and would continue to impair the water quality.
Wetlands	The proposed action would impact 128 acres of wetlands.	No effect
Wild and Scenic Rivers	Non-issue	Non-issue
Regulatory Requirements		
Section 404 Permit for Wetlands Fill	Required	Not required

	Proposed Action	No Action
401 Certificate of Reasonable Assurance for Water Quality	Required	Not required
ADEC Letter of Non-Objection	Required	Not required
Mining and Reclamation Plan Approval	Required	Not required
ADF&G Fish Habitat Permit	Two Fish Habitat permits are required: one for ice road construction and one for channel realignment.	Not required
Temporary Water Use Permit	Required	Not required
Section 106 Consultation	Required	Not required
APDES SWPPP	Required	Not required
Section 7 ESA Consultation	Required	Not required

5 GENERAL SETTING

5.1 Climate

Kwigillingok is located in a marine climate area one mile from the western shore of Kuskokwim Bay. Based on data from the Western Regional Climate Center (WRCC) data, Bethel Airport (WSO) is the closest weather station. For the period of record from September 3, 1949, through December 31, 2005, Bethel has an annual precipitation average of 16.96 inches, with an average of 53.70 inches of snowfall.

5.2 Topography

The Kwigillingok area is an essentially flat and topographically featureless landscape of wet tundra that is devoid of plants larger than small shrubs and bushes.

5.3 Hydrology, Soils, and Geology

Kwigillingok sits in a vast expanse of wetlands that make up the Yukon-Kuskokwim (Y-K) Delta. The area surrounding Kwigillingok is dotted with countless tundra ponds and lakes, and numerous streams crisscross the region. The Kwigillingok River runs roughly north to south along the eastern edge of the community and is navigable (DNR, 2013).

The region consists of poorly drained interbedded marine and terrestrial deltaic and eolian deposits. Typical soils in the area are surface organics over layered organics, organic silts, and silts.

The area is discontinuous permafrost with thawed ground beneath lakes, sloughs, and river channels. Primarily, higher ground is frozen and lower subsurface thawed with temperatures increasing with depth. During a 2012 geotechnical investigation, groundwater was found to be zero to 20 feet below ground surface (bgs) in the proximity of the existing runway. The Geotechnical Report is available upon request and can be found at DOT&PF's Central Region.

During the 2012 geotechnical investigation for the project, 13 borings were drilled within the two proposed material sites. In general, borings indicate that the subsurface strata consist of:

- **0 to 1-4 feet:** Sandy silt with organics
- **1-4 feet to 14-20 feet:** Silt with sand or sandy silt
- **10 feet:** Evidence of seasonal frost

Thawed soils are prevalent within the proposed material sites, with six to ten feet of seasonally frozen soils. Bedrock and gravel are non-existent. For any construction requiring surface course, material must be imported and barged in on the Kuskokwim Bay to the Kwigillingok River.

6 IMPACT COMPARISON OF TWO ALTERNATIVES

This section analyzes the affected environment and the environmental consequences (per FAA Orders 1050.1E and 5050.4B) for the Proposed Action and the No Action Alternative. The purpose of the analysis is to determine whether each alternative would have a significant impact on any of the resources. The severities of impacts were measured against the significance thresholds as outlined in FAA guidance.

6.1 Categories of Non-Issue

The following impact categories have been determined to be non-issues. Temporary impacts related to construction may occur to those categories determined to be non-issues; these are discussed in Section 6.3. Justification for the determination of non-issue can be found in Appendix H.

- Air Quality
- Coastal Resources
- Department of Transportation Act: Section 4(f)
- Farmlands
- Natural Resources and Energy Supply
- Noise
- Wild and Scenic Rivers

6.2 Compatible Land Use

6.2.1 Affected Environment

Land use patterns in Kwigillingok have been influenced by the abundance of wetlands, the presence of permafrost, tidal fluctuations, wind direction, proximity to the Kwigillingok River, and various other physical, cultural, and historic factors. These factors would continue to

influence land use and development patterns well into the future. Outside the main community, the surrounding lands are used primarily for subsistence hunting and gathering.

There are no permanent roads connecting Kwigillingok to any surrounding communities. Residents travel within the community on boardwalks. An all-terrain vehicle (ATV) trail connects the airport to the community and barge landing area. This trail is a 17(b) trail within a 36-foot-wide easement. Winter trails provide overland access to the nearby villages of Kipnuk and Kongiganak when the ground is frozen.

The Village of Kwigillingok has no zoning laws. The Kinak-Kipnuk trail currently runs along the edge of the drained lake bed. DNR lists the trail as a RS2477 trail. Revised Statute (RS) 2477 granted states the right of way for the construction of highways over public lands not reserved for public uses. "Highways" referred to foot trails, pack trails, wagon roads, and other corridors for transportation. The trail between the barge landing and the airport is a 17(b) trail that serves as a public easement. Kwigillingok residents use the trail on a daily basis. These easements are 17(b) easements because Section 17(b) of the Alaska Native Claims Settlement Act (ANCSA) (Public Law 92-203) requires the U.S. Bureau of Land Management (BLM) to reserve these easements when conveying lands to the Native corporations.

6.2.1.1 Land Ownership

Kwigillingok Airport is located on lands owned by Kwik Incorporated, the Native Village of Kwigillingok, and Native allottees, and on waterways owned by the DNR. Subsurface rights to the land owned by Kwik Incorporated and the Native Village of Kwigillingok are owned by Calista Corporation. DOT&PF is the airport sponsor. The airport is located on land previously leased from the BLM. The land associated with the lease includes a 5,500-foot by 1,000-foot airport boundary (which includes the existing runway). The lease expired in 1999. BLM transferred the property to others. The project will acquire land interest from each grantee (Native allottees, Kwik Inc., the Village of Kwigillingok, and subsequent others).

6.2.1.2 Wildlife Attractants

FAA provides guidance on hazardous wildlife attractants in AC 150/5200-33B, recommending minimum separation distances between airports and attractants such as landfills, water reservoirs, and wastewater treatment facilities. For airports like Kwigillingok, the AC recommends a separation distance of 5,000 feet between the airport operations area and wildlife attractants. If the wildlife attractant could cause hazardous wildlife movement into or across the approach or departure airspace, the AC recommends increasing the separation distance to five miles.

Kwigillingok's existing and new landfills, described in Section 6.6 of this EA, meet the 5,000-foot separation distance. However, the wastewater treatment facility (sewage lagoon) and water reservoir do not meet the separation distance. The lagoon is approximately 3,600 feet from the south end of the runway and the reservoir is approximately 3,300 feet from the north end of the runway.

6.2.2 Environmental Consequences of Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Are there significant noise impacts related to the airport development?*

Factors to Consider from FAA Order 1050.1E

- *Are there any land uses on or near the proposed airport that attract wildlife?*
- *Have zoning laws been reviewed and suggestions made to appropriate agencies regarding compatible land use and development?*
- *Are there land use consequences such as community disruption or business relocation?*

Table 3 – Environmental Consequences: Compatible Land Use

Impact Category	Proposed Action	No Action
Noise	Aside from temporary impacts related to construction, noise is determined to be a non-issue. See Appendix H.	No change.
Land Use – Separation Distances	<p>The proposed action would bring the runway closer to the existing and new landfills. Separation from the existing landfill would decrease from 1.5 miles to 1.4 miles. The proposed runway extension would be approximately 5,500 feet from the new landfill. These distances still meet 5,000-foot separation guidelines.</p> <p>USDA-WS prepared a Wildlife Hazard Evaluation (WHE) of Kwigillingok Airport (see Appendix I). The WHE report recommended 10,000 feet between the runway and landfill because turbine-powered aircraft (Piper Caravan) operate at Kwigillingok. The WHE also recommended monitoring bird activity at the landfills, water reservoir, and sewage lagoon and offered other recommendations to reduce wildlife hazards.</p> <p>The separation distances between the proposed runway and the water reservoir and sewage lagoon attractants would remain closer than the FAA recommended separation distance. The water reservoir would be approximately 1,800 feet and the lagoon would be about 2,665 feet from the improved runway.</p> <p>For the proposed action, the FAA guidance recommending a 5,000-foot separation is appropriate.</p>	<p>The runway would remain in its current location. While meeting the recommended separation distance set by the FAA for the landfills, the sewage lagoon and water reservoir would remain closer than FAA guidance recommends.</p>
Land Use – Material Sites	<p>It is anticipated that the excavation of the material source will result in a land depression after construction and reclamation efforts are complete. Depending on the depth of excavation, ponded water could accumulate in the depressed areas. This may be a bird attractant. However, the effect is anticipated to be negligible due to the numerous natural waterbodies abundant in the watershed.</p>	

Impact Category	Proposed Action	No Action
Community Disruption	<p>The airport is located on the west side of the community. The proposed action and expansion would not disrupt current or planned development. The Kinak-Kipnuk RS2477 trail that is currently used for travel would need to be relocated. This relocation will slightly lengthen travel distance but the relocation is minimal. Trail users would use the existing landfill access road to connect to the trail.</p> <p>The condition of the 17(b) trail from the barge landing to the airport would greatly benefit from the improvements needed for construction access.</p> <p>The village of Kwigillingok has no zoning laws to follow.</p>	<p>No action would result in no effect and no relocation of the Kinak-Kipnuk trail. No improvements to the 17(b) trail would result in no change to the current state of the trail.</p>

6.2.3 Minimization and Mitigation

As no substantial change in compatible land use is anticipated, long-term mitigation will not be required. For construction-related mitigation, see Section 6.3.

6.3 Construction Impacts

6.3.1 Affected Environment

Due to funding constraints and poor soils requiring extended settlement time, construction would likely take place over the course of five years. Impact to the local community and environment would largely be minimized by conducting a large amount of the construction in the winter.

Long-term construction impacts to the community are positive and include the use of a safe and reliable airport, the use of a greatly improved trail from the Kwigillingok River to the community (proposed haul route), and use of an improved access road from the community to the airport. An additional positive impact from construction to the community is the development of the staging area near the existing barge landing. After construction, the staging area would likely be left in place for community use.

6.3.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *None established. See the significance threshold for the resources(s) construction would affect.*

Factors to Consider from FAA Order 1050.1E

- *Are any of the effects subject to local, state, or federal ordinances or regulations?*
- *Do any of the temporary effects meet or exceed the threshold for the individual resources?*

Table 4 – Environmental Consequences: Construction Impacts

Impact Category	Proposed Action	No Action
Air Quality	<p>The operation of heavy equipment may cause temporary air quality impacts. In addition, the excavation, hauling, and placement of fill material can create airborne dust. However, the air quality change is not expected to cause or contribute to an exceedance of the National Ambient Air Quality Standards or exceed recommended exposure standards.</p>	<p>The No Action Alternative would not result in a change from current conditions in the area.</p>
Fish, Wildlife, and Plants	<p>The construction of the proposed action is not anticipated to have an adverse effect on wildlife. Construction noise should be consistent with the noise of airplanes landing and taking off from the airport and therefore not adversely affect wildlife. Impacts to migratory birds could result from summer construction activities, but these will be minimized by adhering to the USFWS and AFWFO recommendations. See Section 6.3.3.</p> <p>A November 7, 2013 letter from the USFWS indicates that increased barge traffic resulting from the proposed airport construction is unlikely to disturb or otherwise harm Steller’s eiders or their critical habitat. Aside from the permanently impacted aquatic plants related to wetlands, it is anticipated that plants will be restored after reseeding and construction is completed.</p> <p>Impacts to fish will likely result from construction, but these will be minimized by adhering to the ADF&G Fish Habitat permit stipulations and the proper implementation of the contractor-provided SWPPP. See Section 6.3.3.</p>	
Hazardous Materials	<p>Demolition of the existing SREB is planned and would be included in the construction of Stage II of the proposed action. Further assessment for the existing SREB floor and surrounding area is warranted prior to demolition of the building. Construction contracts would include a provision that if contaminated soil or groundwater is suspected or encountered during construction activities, the construction contractor will contact the DOT&PF Project Engineer and stop work so that DOT&PF can coordinate with ADEC in accordance with 18 AAC 75.300.</p> <p>The proposed action is not anticipated to encounter the old dumping ground, and the project design avoids the area. If hazardous waste associated with the old dump area is encountered, work would stop and DOT&PF would be notified. A Phase II Environmental Site Assessment of the area was not completed, DOT&PF determined that the on-site contractor will handle clean-up if need be. The construction specifications will include a provision for handling potentially hazardous waste.</p>	
Solid Waste	<p>Construction would not generate more solid waste than the existing landfill can handle. The contractor would collect and make provisions for legal disposal of all trash before leaving the site at the end of the construction project, including but not limited to flagging, survey stakes and non-biodegradable erosion and pollution control materials.</p>	

Impact Category	Proposed Action	No Action
Historical, Architectural, Archaeological, and Cultural Resources	It is not anticipated that cultural resources will be encountered during construction. The risk of discovery is low due to the treeless, wet nature of the environment. If cultural resources are encountered, mitigation will be as outlined in Section 6.12.3.	
Noise and Traffic Delays	The use of heavy machinery during construction would create temporary noise impacts. Construction noise would be limited primarily to the airport property, haul routes, material sites, and staging areas.	
Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks	The proposed action would have a beneficial effect on the residents, as it would bring construction jobs to Kwigillingok. Construction could also provide a short-term economic boom to the community, as the contractor would likely hire local residents.	
Water Quality	Construction activities could result in direct, short-term effects on water quality due to ground disturbance and erosion and sedimentation from storm water runoff. Winter construction of an ice road may be required for the channel realignment in order to mobilize needed heavy equipment. The ice road would melt in the spring; no water quality issues are expected.	
Wetlands	Temporary wetland impacts are anticipated within the 20-foot vegetative buffer around the construction footprint from activities including track walking and heavy equipment maneuvering. It is anticipated that disturbed areas would be restored after construction is complete. Nevertheless, this footprint will be included in the USACE 404 permit.	

6.3.3 *Minimization and Mitigation*

- In accordance with Section 401 of the Clean Water Act and the Alaska Water Quality Standards, the project will require a **Certificate of Reasonable Assurance from ADEC** prior to construction. Construction plans will include measures to control erosion and sedimentation.
- In accordance with the Alaska Pollutant Discharge Elimination System (APDES), a **SWPPP specific to the project area and local conditions will be prepared by the contractor** and approved prior to construction.
- DOT&PF will develop an **Erosion and Sediment Control Plan (ESCP)** to be used as guidance for the contractor to develop the SWPPP. Appropriate best management practices (BMPs) related to erosion and sediment controls, grading, fertilizing, and seeding for disturbed areas will be specified.
- **Dust will be controlled through watering or other appropriate means.**
- Wind erosion will be mitigated by **re-vegetating the embankment or implementing other appropriate stabilization BMPs** as soon as possible.
- All waste will be disposed of in accordance with State and federal regulations.

- If contaminated or hazardous materials are encountered during construction, all work in the vicinity of the contamination will be stopped until ADEC is contacted and a corrective action plan is approved and implemented by ADEC.
- If previously undiscovered cultural material is found during construction, all work in the area will be stopped and the SHPO will be notified immediately.
- When possible, **barging will occur after April and before August** to avoid direct impacts to migrating Steller's eiders. Dependent on weather barging activities may continue through the end of October.
- DOT&PF will comply with the **Migratory Bird Treaty Act by either adhering to the USFWS recommended timing window of May 5 to July 25 or by following the Anchorage Fish and Wildlife Field Office Nest Survey Guidelines**. Given the treeless environment, it is anticipated that vegetation clearing will be a minimal effort.
- **The construction contractor will be required to develop a Hazardous Materials Control Plan (HMCP)** in accordance with DOT&PF contract specifications.
- DOT&PF will comply with all federal, state, and local laws and regulations regarding invasive species during construction of the proposed project. Soil stabilization materials, top soils, and seed mixes that are free from noxious weeds will be used. If these materials are not available, locally produced products will be used to minimize potential importation of new weed propagules from outside Alaska. All disturbed areas will be reseeded with certified weed-free seed and vegetated in accordance with the DNR Alaska Coastal Revegetation and Erosion Control Guide.
- A Spill Prevention, Control, and Countermeasures (SPCC) plan may also be required to address storage of fuels and potential fuel spills.

6.3.4 Permits

Permits and/or clearances listed below would be obtained prior to construction to comply with all applicable federal, state, and local regulations. The Proposed Action would require the following permits:

- USACE Section 404 permit for fill in wetlands
- ADEC Division of Water 401 Certificate of Reasonable Assurance for fill in wetlands
- ADEC APDES General Permit for Discharges from Large and Small Construction Activities for ground disturbances equal to or greater than one acre.
- DNR Temporary Water Use Permit
- DNR Material Site Reclamation Permit
- ADF&G Title 16 Fish Habitat Permit

6.4 Subsistence, Fish, Wildlife, and Plants

6.4.1 Affected Environment

Kwigillingok is an active subsistence community. Most of the population participates in subsistence fishing, hunting, and gathering activities to supplement their income. The southeastern end of the project area is a popular berry picking spot, and the Kinak-Kipnuk trail used to access hunting grounds runs through the southern end of the project area.

Although sport fishing in Kwigillingok is limited, local residents use the Kuskokwim Bay and nearby anadromous streams to catch fish including halibut, herring, salmon, whitefish, and Alaska blackfish.

No marine species inhabit the project area, which is nearly two miles north of the Kuskokwim Bay shoreline. Construction would not extend into the marine environment. However, equipment and material import operations would involve temporary barging operations within the marine environment.

6.4.1.1 Essential Fish Habitat

Essential Fish Habitat (EFH) is defined by Congress in 16 U.S.C. 1802(10) as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity”. Regulations for implementing the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) are at 50 CFR 600.905-930.

The *Anadromous Waters Catalog* shows the Kwigillingok River, located 0.36 miles east of the proposed project, listed as an anadromous fish stream (Stream No. 335-40-15950) (ADF&G, 2013). The unnamed tributary stream immediately adjacent to the airport is not listed as an anadromous fish stream on the online Atlas. However, ADF&G’s response letter to the scoping letter indicates that the unnamed tributary “may also contain anadromous whitefish” (January 2012). ADF&G also commented that resident fish likely present in the slough and surrounding lakes include Alaska blackfish, stickleback, and possibly slimy sculpin.

The National Oceanic & Atmospheric Administration (NOAA) database does not designate Kwigillingok River as EFH (NMFS, 2013). In addition, no Habitat Areas of Particular Concern (HAPCs) were identified in or around Kwigillingok River. The Kuskokwim Bay is EFH, but barging is the only project activity to occur in the bay.

6.4.1.2 Threatened and Endangered Species

Per Section 7 of the ESA, DOT&PF initiated consultation with the USFWS and requested a list of wildlife species that may be affected by the proposed action.

On April 3, 2013, the USFWS indicated that the Alaska breeding population of Steller’s eider (*Polysticta stelleri*) and the spectacled eider (*Somateria fischeri*) may be found in the project area. The letter also indicated:

- The intertidal and marine habitat near the project area is **critical habitat for Steller’s eiders** (generally occurring in the nearshore marine waters in April, May, August, and September).
- The wetlands and uplands surrounding Kwigillingok are within the **breeding range of the spectacled eider** (generally occupied between May 5 and July 25 each year).

6.4.1.3 Migratory Birds and Eagles

The Y-K Delta is known to be an excellent habitat for migratory birds, especially waterfowl and shorebirds. The delta has abundant habitat to sustain large populations of non-listed migratory birds.

No bald eagle nests are known to exist in the vicinity of the proposed action. The treeless environment makes this area highly unlikely to have bald eagle nests.

6.4.1.4 Invasive Species

A review of the *Alaska Exotic Plants Information Clearinghouse* data portal and ADF&G *Nonnative Species* webpages indicated that there are no known or mapped invasive plant or animal species within the project vicinity. During a 2011 field trip by the DOT&PF and PDC project team, no invasive species were noted in the existing airport and proposed project areas.

6.4.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *For federally-listed species: Has the USFWS or the National Marine Fisheries Service (NMFS) determined the proposed action would likely jeopardize a species' continued existence or destroy or adversely affect a species' critical habitat?*
- *For non-listed species: consider information on population dynamics, sustainability, reproduction rates, natural and artificial mortality (aircraft strikes) and the minimum population size needed to maintain the affected population.*

Factors to Consider from FAA Order 1050.1E

- *Does the alternative risk a reduction of the quality or quantity of spawning, rearing, and migratory habitat for residential or anadromous fish species or Essential Fish Habitat?*
- *Have the appropriate agencies been consulted to determine if an area sufficient to sustain species commonly found in the affect area would remain if the alternative were implemented?*
- *Has coordination been completed with the USFWS and ADF&G to determine the presence of threatened or endangered (T&E) species?*
- *Are considerations given to migratory birds and eagles?*
- *Does the alternative risk introducing or spreading invasive species?*

Table 5 – Environmental Consequences: Subsistence, Fish, Wildlife, and Plants

Impact Category	Proposed Action	No Action
Subsistence	The area immediately surrounding the airport was not identified by the residents as an important subsistence area for hunting. In 2004, village elders stated that the area to the southeast of the runway (where a new apron would be constructed as part of the proposed action) was used for berry picking. But, during the 2011 public meeting, the proposed apron location was discussed and of the 63 attendees, no residents expressed opposition to the proposed action. The Kinak-Kipnuk trail will be re-aligned around the project as part of the proposed action.	The No Action Alternative not result in a change to existing subsistence, plant, fish and wildlife communities in the project area.

Impact Category	Proposed Action	No Action
Fish	<p>No direct impacts to fish will likely result from the stream realignment. Because the existing channel is being replaced by a stream channel of equal capacity (merely offset by approximately 250 feet), no permanent loss of habitat is expected. The channel realignment will occur during winter and is therefore not expected to affect fish movement.</p> <p>There will be no adverse effect to EFH in the Kuskokwim Bay.</p> <p>Pursuant to Sections 305(b)(2) and 305(b)(4)(B) of the MSFCMA, there would be no adverse effects to EFH from the proposed action. See Section 6.3 for short-term impacts during construction. DOT&PF determined that the National Marine Fisheries Service (NMFS) does not need to be consulted because no potentially adverse effects were identified.</p>	
Wildlife	<p>On September 19, 2013, DOT&PF sent a letter to the USFWS including an evaluation of potential biological impacts. The letter concluded that the proposed project is not anticipated to cause direct or long term impacts on ESA-listed species or their critical habitat and the project is not likely to adversely affect the Steller’s eider or the spectacled eider or their critical habitats. On November 7, 2013, the USFWS concurred with the decision that the project is not likely to adversely affect the listed species.</p> <p>No permanent impacts to migratory birds or eagles are anticipated as a result of the proposed action. Because of the abundance of habitat available in the Y-K Delta, the loss of 128 acres would have a negligible effect on the sustainability and production rates of migratory birds.</p>	
Plants	<p>Due to the treeless environment, any impact to plants would be limited to species associated with wetlands. Permanent loss of these plants will be, in part, replaced by grasses and sedges used to vegetate the embankment slopes. Thus, the effect of the loss on wetland plants will be minimal.</p>	

6.4.3 Minimization and Mitigation

The majority of mitigation efforts need to be addressed during construction in order to prevent long-term impacts. These measures are outlined in Section 6.3.3 and include DNR revegetation guidelines, a safe barging window to protect migrating Steller’s eiders, and USFWS guidelines for vegetation clearing to protect migratory waterfowl. Most of the construction will likely occur during winter when the ground is frozen enough to support heavy equipment, thereby reducing wildlife impacts. The stream channel realignment will occur in the winter to limit impacts to fish. The rerouting of the Kinak-Kipnuk trail will allow local residents to maintain vital access to hunting grounds and nearby villages.

6.5 Floodplains

6.5.1 Affected Environment

Kwigillingok is not one of the 32 communities currently participating in the National Flood Insurance Program. According to the Federal Emergency Management Agency (FEMA) online

Flood Insurance Rate Maps (FIRM), floodplains for the vicinity of Kwigillingok are not mapped. However, flooding is known to occur as a result of runoff from precipitation events and/or storm surges.

To determine the hydrologic characteristics of the Kwigillingok River and to study several design alternatives for protecting the runway embankment from erosion due to floods and tides, a hydrologic and hydraulic analysis was completed (Appendix I). The characteristics of the Kwigillingok River were modeled. Results included flood discharges based on precipitation events for both the tidally influenced channel adjacent to the runway and for the Kwigillingok River (see Table 6).

Table 6 – Kwigillingok Flood Discharges Based on Precipitation Events

Flood Recurrence Interval	Tidal Channel (cfs)	Kwigillingok River (cfs)
2 years	35	510
5 years	59	745
10 years	77	909
25 years	100	1120
50 years	119	1280
100 years	138	1440
200 years	158	1610

Source: DOT&PF Final Hydrologic and Hydraulic Report, 2014

Floods in the Kwigillingok area result from one of two causes: runoff from precipitation events or coastal storm surges. An analysis of both types of floods found that the dominant 100-year flood results from high tides and storm surges rather than precipitation runoff. The 100-year storm surge flood elevation is at 18.3 feet; the recommended minimum build elevation is 19.3 feet, allowing one foot of tolerance for freeboard. Though many coastal studies in the past have relied on the 1981 Wise report on storm surge forecasting, we utilized the most up-to-date storm surge prediction study for the western coast of Alaska (USACE, 2009) which incorporated a much newer storm data set. Flooding may become a greater issue for coastal communities like Kwigillingok due to sea level rise, decreased sea ice extent, and the increased intensity of storm surges and heavy precipitation as a result of climate change. Quantitative estimates of these future impacts are not readily available for most Alaska communities.

6.5.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Does the action have the potential to cause notable adverse impacts on natural and beneficial floodplain values as per US Department of Transportation (DOT) Order 5650.2, Floodplain Management and Protection?*

Factors to Consider from FAA Order 1050.1E

- *Does the proposed action have the potential to result in significant encroachment on the floodplain?*

Table 7 – Environmental Consequences: Floodplains

Impact Category	Proposed Action	No Action
Floodplains	<p>The proposed action includes design to raise the runway to a level above the 100-year flood elevation of 18.3 feet. As a result, the runway would be available for evacuation or other uses during flood events.</p> <p>The proposed action would not cause a change of the base flood elevation.</p>	<p>The No Action Alternative would not result in a change from current conditions and flooding of the runway would result in loss of air access to the village. Runway flooding would also result in erosive losses of the embankment.</p>

6.5.3 Minimization and Mitigation

According to the Alaska Department of Commerce Community and Economic Development (DCCED), no local flood hazard permit is required, as Kwigillingok does not participate in the National Flood Insurance Program.

6.6 Hazardous Materials, Pollution Prevention, and Solid Waste

6.6.1 Affected Environment

6.6.1.1 Hazardous Materials

A Phase I Preliminary Site Investigation (PSI) Report was completed for this project. The Phase I PSI report includes a site investigation, review of historical aerial photography, personal interviews, a review of land use records, and recommendations for further investigation. The Phase I PSI report is available at DOT&PF.

The site investigation and historic use review (including historic photos and interviews) indicated some potential for minor contaminated soils associated with the existing SREB. Soil staining and improper storage and disposal practices were identified.

As part of the PSI, a land use and record review was conducted. An Environmental Data Resources, Inc. (EDR) Report was acquired for the Kwigillingok area on July 22, 2011. The EDR report was designed to assist parties seeking to evaluate environmental risk and to meet the search requirements of 40 CFR 312 and the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments. The report concluded that no mapped hazardous material sites were located at the Kwigillingok Airport or within a two-mile search radius centered on the airport. A search of the ADEC Contaminated Sites Program database on February 22, 2013, indicates that there are four known contaminated sites in Open Status and one former contaminated site with a Cleanup Complete Status within the community of Kwigillingok. None of the five known sites is at the Kwigillingok airport. The closest contaminated site to the airport is a pipeline rupture near the washeteria, located approximately 1,000 feet from the nearest proposed construction. Further detail is provided in the Phase I PSI.

A known area of historic dumping is in the vicinity of the channel realignment. The presence of small scrap metal, domestic waste, glass bottles, and a rusted, dented 55-gallon drum have been documented. The presence of hazardous contamination is unknown and undetermined.

6.6.1.2 Solid Waste

Solid waste generated in Kwigillingok is currently disposed of at an ADEC-permitted Active Rural Class III landfill located approximately 1.5 miles southeast of the airport. A new landfill, currently under construction, is approximately 1.2 miles south of the airport.

6.6.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Does the action involve a property on or eligible for the National Priority List (NPL)?*

Factors to Consider from FAA Order 1050.1E

- *Would the airport-generated solid waste exceed available landfill or incineration capacities or require extraordinary effort to meet applicable solid waste permit conditions?*
- *Would the action generate, disturb, transport, treat, or dispose of hazardous wastes?*
- *Does the action have the potential to violate applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management?*
- *Does the action have the potential to adversely affect human health and the environment?*

**Table 8 – Environmental Consequences:
 Hazardous Materials, Pollution Prevention, and Solid Waste**

Impact Category	Proposed Action	No Action
Hazardous Materials	The proposed action does not involve a property on the NPL, and hazardous waste generation is not anticipated. Based on the findings of the site visit, further examination of records, and the undeveloped nature of the land proposed for airport expansion, the risk of encountering environmental contamination (aside from the SREB materials) is low. The potential to encounter contamination in the historic dumping ground is likewise low. The channel realignment project has been designed to avoid the historic dumping ground.	The No Action Alternative would result in contamination still remaining within the SREB.
Solid Waste	No measurable increase in solid waste disposal is expected as a result of the proposed action. The airport-generated solid waste is not expected to exceed available landfill capacities. The proposed action will not generate any more solid waste than the existing airport. Temporary construction impacts are discussed in Section 6.3.	No change.

6.6.3 Minimization and Mitigation

The construction-related mitigation for hazardous materials and solid waste are discussed in Section 6.3.

6.7 Historical, Architectural, Archaeological, and Cultural Resources

6.7.1 Affected Environment

Yup'ik Eskimos have occupied the Kwigillingok region for thousands of years. The first record of a permanent village at Kwigillingok was in 1927 (DCCED, 2012).

The Area of Potential Effect (APE) defines the affected environment. It includes the construction footprint identified in Figure 2, the proposed airport boundary, and the proposed material sources.

No field investigations for cultural resources have been conducted. In accordance with Section 106 of the National Historic Preservation Act, DOT&PF initiated consultation with the State Historic Preservation Office as part of the identification efforts. The Alaska Heritage Resources Survey (AHRS) database was reviewed on August 28, 2013, to identify cultural resources in the project area. No known sites are located within Kwigillingok or the surrounding area. The area has a low potential for encountering cultural resources due to the flat, low, coastal topography and the numerous sloughs, lakes, and wetlands found throughout the surrounding area.

In addition to dialogue with the Office of History and Archaeology (OHA), government-to-government consultation with the Native Village of Kwigillingok, Kwik Incorporated, Calista Corporation, the Bureau of Indian Affairs, and the Association of Village Council Presidents in Bethel was initiated to determine the presence (if any) of significant cultural resources. No positive results were found.

Copies of correspondence are provided in Appendix F.

6.7.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Will the proposed action adversely affect a protected property? Is there information provided from SHPO or THPO that requires further study?*

Factors to Consider from FAA Order 1050.1E

- *Has coordination been completed with the SHPO and village and tribal organizations?*
- *Has information been made available that indicates significant scientific, prehistoric, historic, archeological, or paleontological resources would be lost or destroyed or that the qualities possessed by the property would be changed by the action?*

**Table 9 – Environmental Consequences:
 Historical, Architectural, Archaeological, and Cultural Resources**

Impact Category	Proposed Action	No Action
Historical, Architectural, Archaeological, and Cultural Resources	<p>Pursuant to 36 CFR 800.4(d)(1), DOT&PF, on behalf of FAA, determined that no historic properties would be affected by the proposed action. SHPO concurred with this finding. This determination was achieved through the following correspondence:</p> <ul style="list-style-type: none"> • January 25, 2012 – DOT&PF, in cooperation with FAA, sent a “No Historic Properties Affected” letter to the SHPO • February 9, 2012 – SHPO sent DOT&PF a concurrence letter • March 22, 2013 – DOT&PF sent SHPO a project update identifying changes to the previously submitted project description; DOT&PF included a “No Historic Properties Affected” determination • April 5, 2013 – SHPO concurred with DOT&PF’s finding • September 5, 2013 – DOT&PF sent a project update letter to SHPO outlining changes to the project since March 21, 2013 • September 19, 2013 – DOT&PF received a concurrence letter from SHPO stating that no historic properties would be affected by the updated project 	<p>The No Action Alternative would not directly affect historical, archaeological or cultural resources.</p>

6.7.3 Minimization and Mitigation

No long-term mitigation for cultural resources is required. For construction-related mitigation, see Section 6.3.

6.8 Light Emissions and Visual Impacts

6.8.1 Affected Environment

Lighting at the airport is currently limited to portable runway lighting available only upon request for emergency use. Because the region is known for low cloud cover and fog conditions under visual flight rules (VFR), this lighting is deficient. The community is concerned about the limited value of the emergency lighting system and is ready for reliable runway lighting.

6.8.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Does the alternative risk creating an annoyance or interfere with normal activities?*
- *Have any agency representatives stated that the visual effect of the proposed action is objectionable?*

Factors to Consider from FAA Order 1050.1E

- *None established.*

Table 10 – Environmental Consequences: Light Emissions and Visual Impacts

Impact Category	Proposed Action	No Action
Light Emissions and Visual Impacts	<p>The proposed action will appreciably improve the lighting by providing MIRL and a rotating beacon will have three lighting settings—off, on, and automatically on after dark—set by the airport operator. The new lights would be radio controlled and only on when planes are using the runway (unless otherwise set to full “on” position by the airport operator). The beacon would be mounted on top of the SREB and angled upward in such a manner that lights would not shine into residential windows.</p> <p>The new lighting is not anticipated to create an annoyance to residents or interfere with normal airport activities.</p>	<p>The No Action Alternative would not have light emissions or visual effects. The current deficiency of the runway lighting would still exist.</p>

6.8.3 Minimization and Mitigation

No adverse impact is anticipated for light emissions; long-term mitigation will not be required. For construction-related mitigation, see Section 6.3.

6.9 Secondary (Induced) and Cumulative Impacts

6.9.1 Affected Environment

The nearest communities are Kipnuk (approximately 30 miles west of Kwigillingok) and Kongiganak (approximately 12 miles northeast of Kwigillingok). These villages are not accessible via road from Kwigillingok except by winter trail.

No sudden influx of funding or population increase is expected in the village. Each past, present, and future project is intended to benefit the entire community. For example, the community boardwalk was recently improved to benefit the community by providing safer access. In addition, construction is currently under way for the relocation of the community landfill. Future planning efforts and actions are expected to be similar to those in other communities that are not on the road system, e.g., airport upgrades, school and housing improvements, and community sanitation facility improvements necessary to support the community.

The physical environmental effects of development over time have incrementally affected the natural environment. Wetlands, floodplains, water quality, and wildlife are the primary affected resources.

6.9.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *None established.*

Factors to Consider from FAA Order 1050.1E

- *Does the potential exist for shifts in patterns of populations’ movement and growth?*
- *Public service demands?*
- *Changes in business and economic activity due to the development?*

**Table 11 – Environmental Consequences:
 Secondary (Induced) and Cumulative Impacts**

Impact Category	Proposed Action	No Action
Secondary and Cumulative Impacts	Airport improvements at Kwigillingok are not expected to cause shifts in population or community growth, as the neighboring communities have their own community-class airports. No significant changes to public services needs or changes in economic activities are foreseen from providing improvements to Kwigillingok Airport. No significant cumulative impacts are expected to result from the proposed action.	The No Action Alternative would have negative impacts on the community of Kwigillingok. The cost of air travel would rise due to the insufficient supply of aircraft capable of safely landing at the existing airport. Additional secondary impacts include an increase in transportation delays for patients who require emergency medical treatment not available in Kwigillingok. The No Action Alternative would have a cumulative impact to Kwigillingok due to the loss of investment from both the state and the community. Also, residents would continue to contend with the difficulties associated with a substandard airport. Lack of reasonably reliable air service can have a direct impact on population shift. “Out-migration” or “stunted growth” is reported in rural communities where unreliable and unsubstantial service exists.

6.9.3 Minimization and Mitigation

No mitigation or minimization is required for this impact category.

6.10 Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks

6.10.1 Affected Environment

Kwigillingok is an unincorporated Native village governed by a federally recognized village council. The village does not belong to a formal borough and does not have local taxes. Kwigillingok has a population of approximately 317, according to the 2012 Alaska Department of Labor estimate. It is a traditional Yup’ik Eskimo village, and according to the 2010 census approximately 95 percent of the population is Alaska Native. Employment is primarily with the school and commercial fishing. In 2010, the unemployment rate in Kwigillingok was nearly 23 percent and the percentage of workers not in the labor force was over 50 percent. More than 24 percent of residents had incomes below the poverty level (DCCED, 2013).

6.10.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Would the proposed action cause extensive relocation without sufficient replacement housing?*
- *Would the proposed action cause extensive relocation of community businesses that would cause severe economic hardship for affected communities?*

- *Would the action disrupt local traffic patterns that substantially reduced the Levels of Service of roads serving the airport and its surrounding communities*
- *Would the proposed action cause a substantial loss in community tax base?*
- *Would the action cause disproportionately high and adverse human health or environmental effects on minority and low-income populations?*
- *Would the action cause a disproportionately high risk to children?*

Factors to Consider from FAA Order 1050.1E

- *Does the alternative involve relocation of residences or businesses?*
- *Does the action alter surface transportation?*
- *Divide or disrupt established communities or planned development?*
- *Create a change in employment?*

Table 12 – Environmental Consequences: Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks

Impact Category	Proposed Action	No Action
Socioeconomic, Environmental Justice, and Children’s Environmental Health and Safety Risks	<p>The proposed action is anticipated to have a positive socioeconomic impact on the community. Economic advantages would arise from real estate transactions. Approximately 39.7 acres will be needed for the material sites and their access. This is in addition to the approximately 285 acres of land needed for the airport. Some property will be purchased, while other land use authorization may take the form of easements or permits with a royalty paid to the landowner. Property will be acquired in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.</p> <p>No relocations will be required. The community tax base will not be affected.</p> <p>No disproportionately high or adversely negative effects to low-income or minority populations are expected. The proposed action would have a beneficial effect on the residents, who are primarily a minority race (95% of residents are Alaska Natives or part Native).</p> <p>A positive socioeconomic impact of the project is that the proposed action will bring safer travel and access to medical evacuation for all residents, including children and low-income minorities.</p> <p>The airport runway would remain open during construction but minor airport delays could occur during construction.</p>	<p>The No Action alternative would have a negative impact on Kwigillingok. Residents would continue to contend with the difficulties associated with a substandard airport, including limited opportunities for safe travel.</p>

6.10.3 Minimization and Mitigation

See Section 6.3 for construction-related mitigation.

6.11 Water Quality

6.11.1 Affected Environment

The water quality around Kwigillingok is variable, as moving waters are tidally influenced and heavily laden with sediment from natural erosion.

The village of Kwigillingok derives domestic freshwater from local surface water. A storage water reservoir is located approximately 0.3 miles northeast of the airport. Piped surface water from the reservoir to the pumping stations provides the community with domestic water. Pumping stations are available at the washeteria and the school. No ADEC-registered groundwater wells exist in Kwigillingok. In addition, no ADEC-designated impaired water bodies exist in the project area.

No water quality standards or stormwater thresholds exist for the project area.

6.11.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Would the proposed action contaminate public drinking water supplies in a manner that public health may be adversely affected?*
- *Would the proposed action meet water quality standards?*

Factors to Consider from FAA Order 1050.1E

- *What features, mitigation, or controls are proposed to assure state/federal water quality standards are met?*
- *Has consultation with regulators taken place to identify the required permits?*
- *Are water resources, including wetlands, affected?*

Table 13 – Environmental Consequences: Water Quality

Impact Category	Proposed Action	No Action
Water Quality	<p>The proposed action would have no effect on the public drinking water supply or on a sole source aquifer.</p> <p>The water quality of the receiving waters within the project area is expected to have a net-zero change after construction of the proposed action. The realignment of the stream will provide a drainage route farther away from the runway. The channel will be constructed using surface materials similar to those that make up the existing channel. The new stream would maintain similar flows and velocities as the previous channel; thus, similar sediment loads can be expected. Construction impacts to water quality are identified in Section 6.3. Wetlands impacts are addressed in Section 6.11.</p> <p>Consultation with ADEC and USACE is ongoing (Appendices D and E).</p>	<p>The No Action Alternative would result in the existing bank erosion. The effect on water quality would remain unchanged.</p>

6.11.3 Minimization and Mitigation

Minimization and mitigation of temporary water quality impacts during construction are discussed in Section 6.3.

6.12 Wetlands

6.12.1 Affected Environment

Wetlands are widespread and common throughout the Kwigillingok area. The broad, flat Y-K Delta is dominated by wetlands, and few, if any, natural uplands occur in the Kwigillingok area.

The USFWS National Wetlands Inventory (NWI) mapper, reviewed on February 28, 2011, depicts wetlands within the proposed project area. The NWI data available for Kwigillingok is at a relatively low resolution and out of date. In May 2013, preliminary desk delineation was conducted using the most currently available aerial photography. According to the 2013 delineation, the most common wetland type found at Kwigillingok is palustrine emergent, primarily associated with low-lying flat areas surrounding rivers and open water. Most of these wetlands are seasonally flooded with snowmelt in the spring and during periods of regular rains. See Appendix C for further information on the NWI data and the 2013 delineation.

Wetlands surrounding Kwigillingok function to improve water quality in the Kwigillingok River because of their ability to retain sediments and pollutants. The wetlands also function as a habitat for birds.

6.12.2 Environmental Consequences of the Alternatives

Significance Thresholds from FAA Order 1050.1E

- *Would the action adversely affect a wetland’s function to protect the public water supply? Protect the ability to retain floodwaters? Protect the wildlife and fish habitat?*

Factors to Consider from FAA Order 1050.1E

- *Does the alternative affect wetlands? Has the alternative avoided long and short term adverse impacts to the extent possible? Is there a practicable alternative?*

Table 14 – Environmental Consequences: Wetlands

Impact Category	Proposed Action	No Action
Wetlands	<p>Approximately 128 acres of wetlands would be needed for fill and dredging activities under the Proposed Action. A summary of the proposed wetland fill is presented below in Tables 15 and 16. Some of those 128 acres would receive permanent fill, some would undergo a transfer of wetland type, and some would be subject to temporary impacts. Excavation at the proposed airport material site may convert some palustrine wetlands to open water, as water may fill the excavated site. The remaining portion of the material site would remain a wetland, albeit disturbed. In summary, wetlands impacts will include:</p> <ul style="list-style-type: none"> • Loss (fill): 51.5 acres • Conversion from PEM to PEM and/or OW: 40 acres • Disturbed PEM (overburden stockpiles and reclaimed material sites): 16.8 acres • Temporary impact (buffers): 19.7 acres <p>The proposed action is not expected to change the drainage patterns’ ability to affect or retain the floodwaters.</p>	<p>The No Action Alternative would not result in a change from current conditions on wetlands in the area.</p>

Table 15 – Wetlands Impacts – Proposed Action

		Wetland Type	Area of Wetland Impact (ac)	Total Fill (cy)
Fill and Temporary Impact (Buffer)	Primary Runway <i>Including PAPI Pads</i>	OW	4.1	31,500
		PEM	21.2	166,900
		R	2.4	19,500
	Taxiway	OW	0.1	300
		PEM	1.6	10,200
	Apron <i>Including Segmented Circle</i>	OW	0.1	1,100
		PEM	6.1	50,600
	Haul Route	OW	0.9	3,300
		PEM	8.2	27,600
		R	0.1	300
Access Road	OW	0.2	1,100	
	PEM	1.6	4,600	
Staging	PEM	7.2	52,000	
PEM to OW/PEM Conversion	Material Sources A & B <i>Excavation Impacts and Temporary Overburden Stockpile</i>	PEM	56.8	97,000
	Fill Channel	PEM	4.0	40,000
R		4.1	41,000	
PEM/R to OW/PEM/R Conversion	New Channel	OW	1.3	0
		PEM	7.6	0
		R	0.6	0
TOTALS			128	547,000

OW = Open Water; PEM = Palustrine Emergent Wetlands; R = Riverine

Note: A uniform 20-foot buffer around the entire perimeter of impacted areas was included in the calculations to account for temporary impacts as a result of equipment maneuvering and sedimentation at the toe of the embankment.

Table 16 – Total Impacted Area by Wetland Type

PEM Palustrine Emergent Wetlands	114.2 ac
OW Open Water	6.7 ac
R Riverine	7.2 ac
Total Impact (rounded)	128.0 ac

6.12.3 Minimization and Mitigation

It is not possible for the proposed project to avoid wetlands. Virtually the entire area and region are wetlands, with the exception of existing infrastructure such as the runway and barge landing. To minimize the extent of impacts to wetlands, at least 20 feet outside constructed embankments and stockpile toes would be permitted as a vegetative buffer. While wetlands in the buffer area would not be directly filled, adverse wetlands impacts are anticipated from incidental track walking on embankment slopes and installation of other BMPs for temporary and permanent erosion and sediment control. The 20-foot buffer would be retained for treating storm water runoff after the facility is operational. Sedimentation in the buffer area is expected to be minimal.

Approximately 19.7 acres would be permitted for the 20-foot buffer area; this is included in the total wetlands impacts in Table 16 above.

A USACE individual permit will be obtained for wetland fill. Concurrent with the Section 404 process, an ADEC Section 401 Water Quality Certification will also be obtained. All stipulations and special conditions of the permits will be followed.

Avoidance and minimization measures that have been incorporated into the design of this project include:

- Expansion of the existing airport embankments, as opposed to disturbing an entirely new site by relocating the airport
- Planning the shortest route possible to the airport from the community
- Use of the existing access road (already disturbed) for the proposed haul route
- The ESCP calls for specific construction timing which emphasizes winter earthwork on undisturbed sites
- Using the excavated material from the proposed channel realignment to fill the old channel, as opposed to leaving the old channel open
- Minimizing the potential for sediment transport off the project site by providing a vegetated buffer around the airport footprint and using appropriate BMPs that will be identified in the SWPPP
- Including a provision in the construction specifications requiring the contractor to re-vegetate side slopes during the first growing season after the embankment is placed

The total area of fill could not be minimized by steepening the side slopes. Due to the poor quality of local embankment material, constructing fill slopes steeper than normal to minimize impacts to wetlands is problematic. Previous DOT&PF experience has shown that using steeper side slopes with the type of material available in Kwigillingok and on soils similar to those in Kwigillingok would likely result in sloughing material, slope erosion, and embankment failure(s).

Compensation for unavoidable impacts to 128 acres of wetlands will be provided in accordance with USACE Regulatory Guidance Letter (RGL) ID No. 09-01, which requires a mitigation plan based on the functions and values of the affected wetlands, and compensatory mitigation for federally-funded projects. A compensatory mitigation plan will be established during the permitting process and may include an in-lieu fee. Other options for mitigation may include local efforts grouped with other projects going on in the community.

For example, discussions with local residents indicated that a community kayak pond has been established; its preservation is a local option for mitigation.

DOT&PF has examined other potential enhancement and protection options within the community. Another example of this is the mitigation option of improving the existing 17(b) trail from the barge landing to the airport. Presently, this trail is used by four-wheelers. As some areas of the trail become boggy, four-wheelers maneuver around the mud hole to new/undamaged

ground, thus impacting new wetlands. Further, the damaged areas are left unvegetated and unprotected from rain and stormwater, resulting in transport of sediment into surrounding wetlands. A gravel road for long-term community use will protect the wetlands from future damage of this type. Trail improvements are a potential mitigation option that will be considered during the USACE permitting process.

7 COORDINATION

Coordination and public involvement for the Kwigillingok Airport Improvements project has been ongoing since 1995. An environmental assessment (EA) and finding of no significant impact (FONSI) was completed in 1996 and 2004. Communications have included newsletters, community meetings, consultations with local, state, and federal agencies, and an agency scoping meeting to present the project and identify concerns. Specific scoping activities conducted for this EA are described below. Copies of meeting notes, the newsletters, public/agency comments, and correspondence related to develop this EA in accordance with the National Environmental Policy Act (NEPA) are presented in Appendix E.

7.1 Public Meeting Correspondence

A public meeting was held in the Albert Beaver Sr. Community Building in the village of Kwigillingok on June 7, 2011. DOT&PF, FAA, PDC, and public residents were in attendance. Sixty-three people signed the meeting roster. The meeting was announced and publicized with a newsletter sent to all boxholders of the community.

The community is in support of the airport improvements and the meeting was well received. See Appendix E for the meeting minutes and attendance comment sheets.

In February 2013 and June 2014, newsletters were sent to all box holders summarizing the project updates. These newsletters were also electronically distributed to community stakeholders.

7.2 Agency Correspondence

7.2.1 Scoping Letter

On December 12, 2011, DOT&PF, in cooperation with FAA, sent an agency scoping letter soliciting comments and information on the proposed action. The letter was sent to ADEC, ADF&G, DNR, SHPO, FAA, Air Carriers, BLM, USACE, USCG, USFWS, and local city, village, and borough entities. Four scoping letter responses were received from DNR-MLW Water Resources Section, BLM, Kwik Incorporated, and ADF&G representatives. None objected the proposed action.

On December 15, 2011, the **DNR-MLW Water Resources Section** responded with the following comments:

- Water Resources has no objection to the proposed project.

- A Temporary Water Use Permit will be required for the channel realignment work, construction activities, and dust control and compaction.

On January 7, 2012, the **BLM responded** with the following comment:

- “It is anticipated that the BLM will have few concerns and little input to your proposed project.”

On January 23, 2012, **Kwik Incorporated responded** with full support of the project.

- “This project is one of the important projects needed for the community and we are willing to work with you in settling various factors that delayed the project in the past.”

On January 23, 2012, **ADF&G responded** with the following comments:

- The Kwigillingok River has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 12.05.871(a). The river is known to support whitefish.
- The unnamed tributary adjacent to the airstrip may also contain anadromous whitefish.
- Resident fish that are likely present in the slough and surrounding lakes include Alaska blackfish, stickleback and slimy sculpin.
- Whitefish and blackfish may be used for subsistence.
- An ADF&G Fish Habitat Permit will be required for the channel realignment.

8 LIST OF PREPARERS

The people primarily responsible for development or review of this Environmental Assessment are listed below in Table 17.

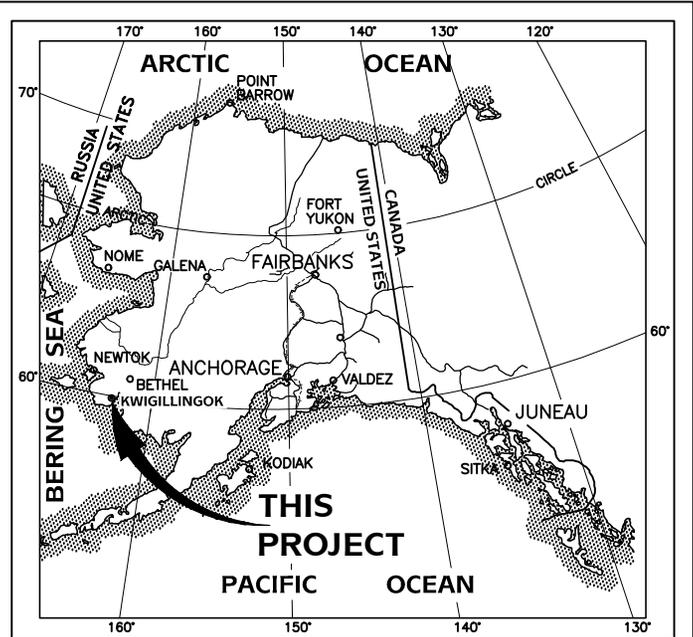
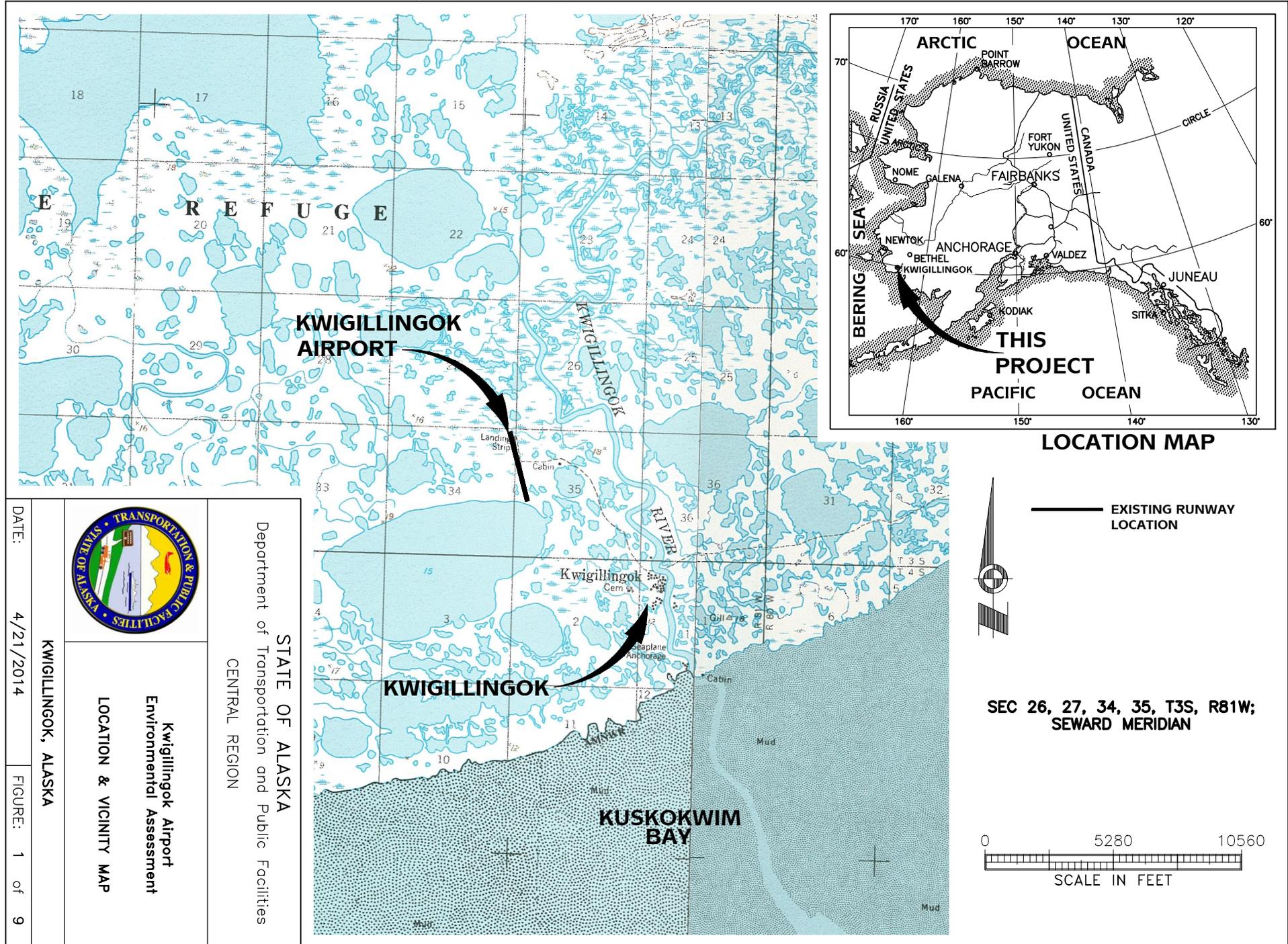
Table 17 – List of Preparers

Name	Title and Role	Relevant Experience
Barbara Beaton, P.E.	DOT&PF Project Manager	16 years engineering experience
Brian Elliott	DOT&PF Environmental Manager	12 years environmental impact analysis experience
TaraLyn Stone	DOT&PF Environmental Impact Analyst II	3 years environmental impact analysis experience
Royce Conlon, P.E.	PDC, Inc. Engineers Project Manager	27 years airport planning and engineering experience
Ken Risse, P.E.	PDC, Inc. Engineers Design Engineer	20 years engineering experience
Valerie Webb, MS	PDC, Inc. Engineers Lead Environmental Analyst	13 years environmental analysis experience
Heather Dorsett	PDC Inc. Engineers Technical Editor	13 years technical editing experience

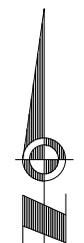
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FIGURES



LOCATION MAP



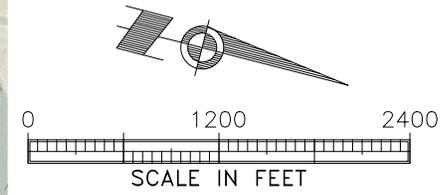
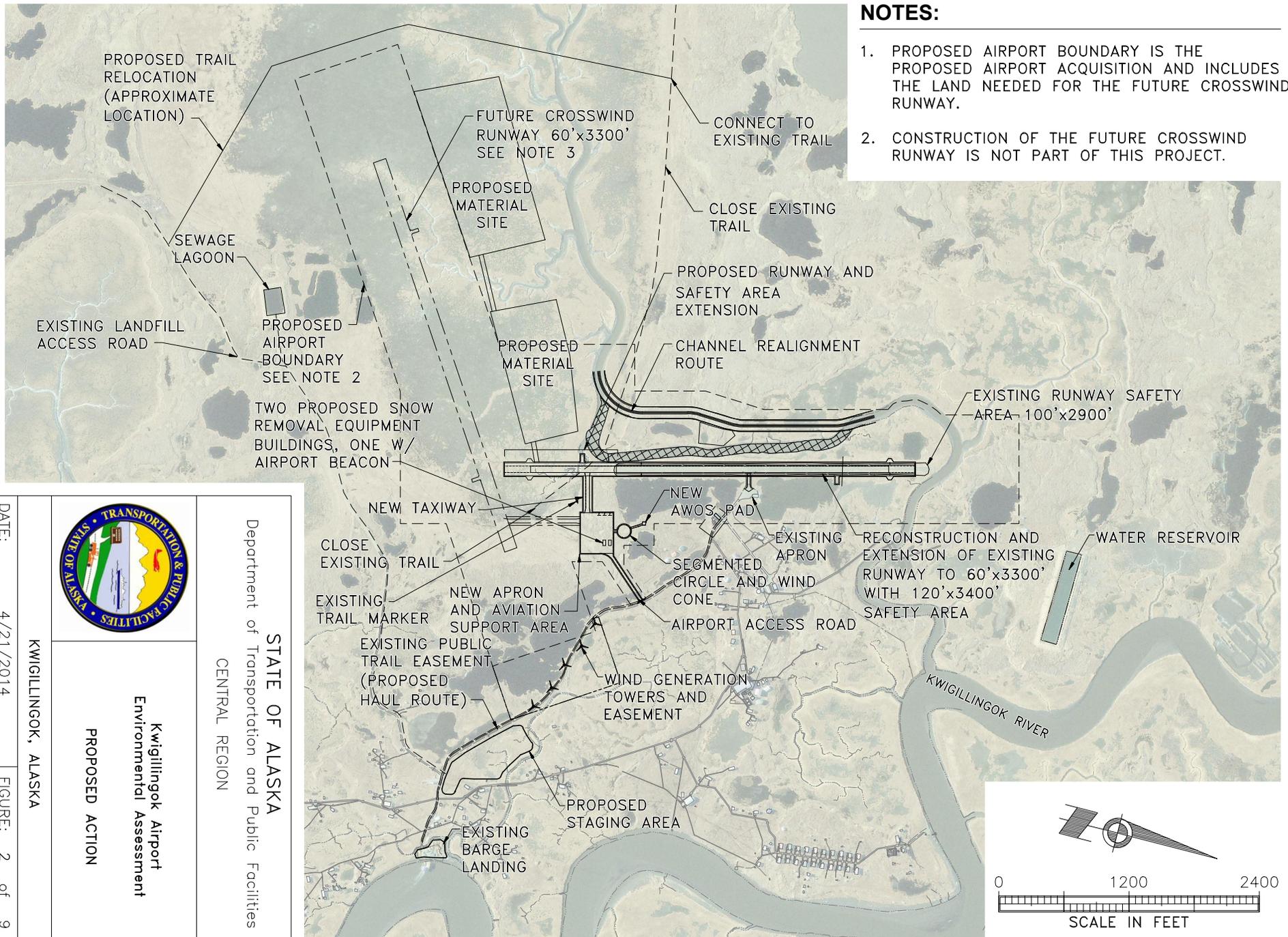
EXISTING RUNWAY LOCATION

**SEC 26, 27, 34, 35, T3S, R81W;
SEWARD MERIDIAN**

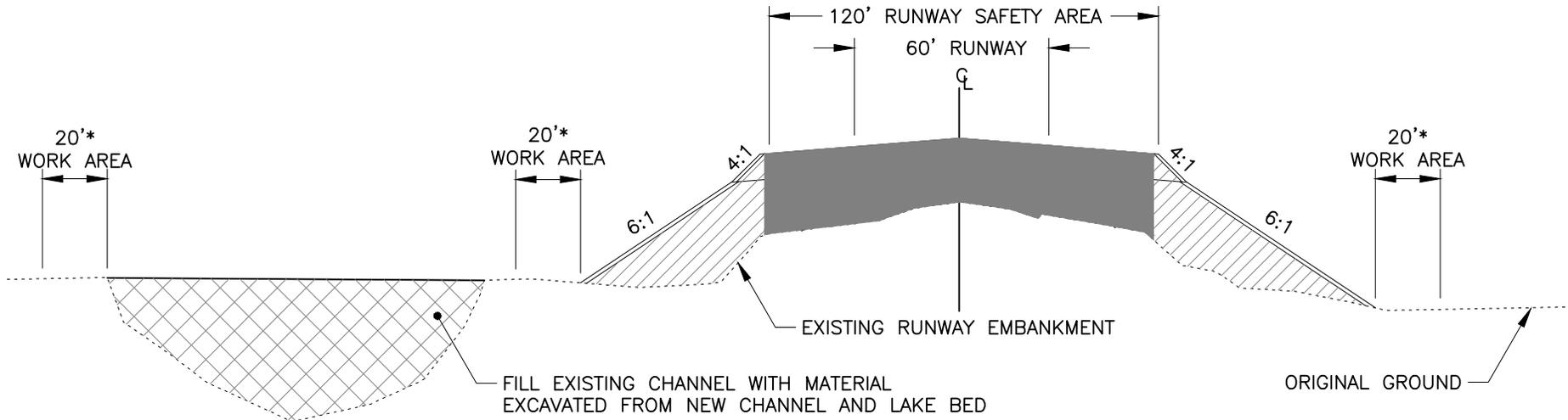


NOTES:

1. PROPOSED AIRPORT BOUNDARY IS THE PROPOSED AIRPORT ACQUISITION AND INCLUDES THE LAND NEEDED FOR THE FUTURE CROSSWIND RUNWAY.
2. CONSTRUCTION OF THE FUTURE CROSSWIND RUNWAY IS NOT PART OF THIS PROJECT.



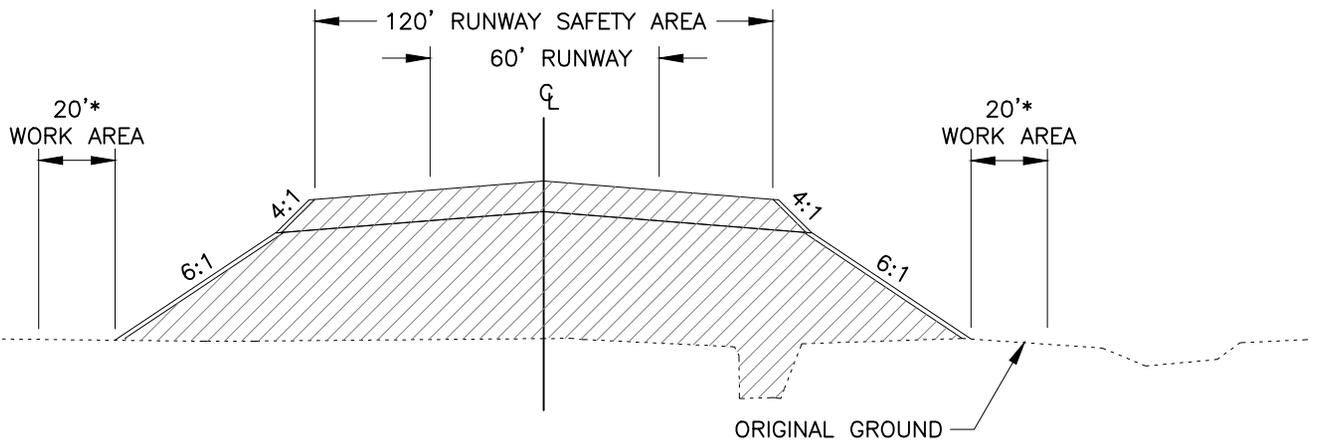
	STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION
	Kwigillingok Airport Environmental Assessment PROPOSED ACTION
DATE: 4/21/2014 KWIGILLINGOK, ALASKA	FIGURE: 2 of 9



EXISTING RUNWAY RECONSTRUCTION TYPICAL SECTION

- FILL IN CHANNEL
- FILL IN WETLANDS
- FILL IN UPLANDS

* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.

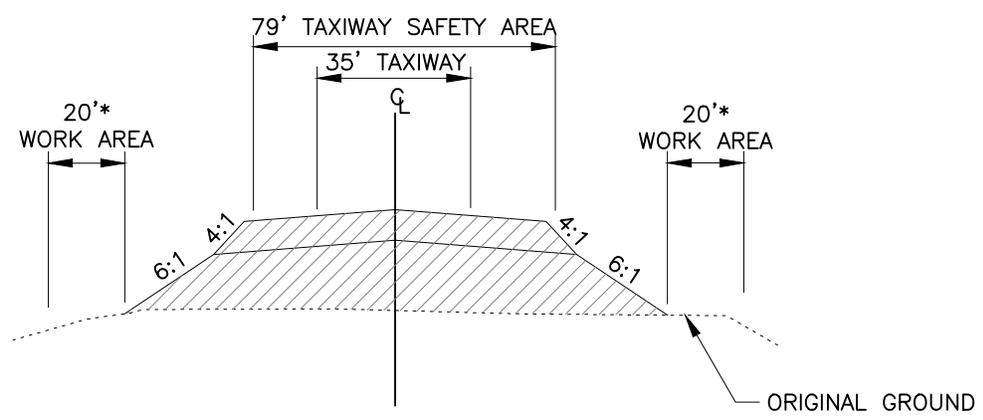


RUNWAY EXTENSION TYPICAL SECTION

- FILL IN WETLANDS

DATE: 4/21/2014		STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION
KWIGILLINGOK, ALASKA		Kwigillingok Airport Environmental Assessment TYPICAL SECTION RUNWAY
FIGURE: 3 of 9		

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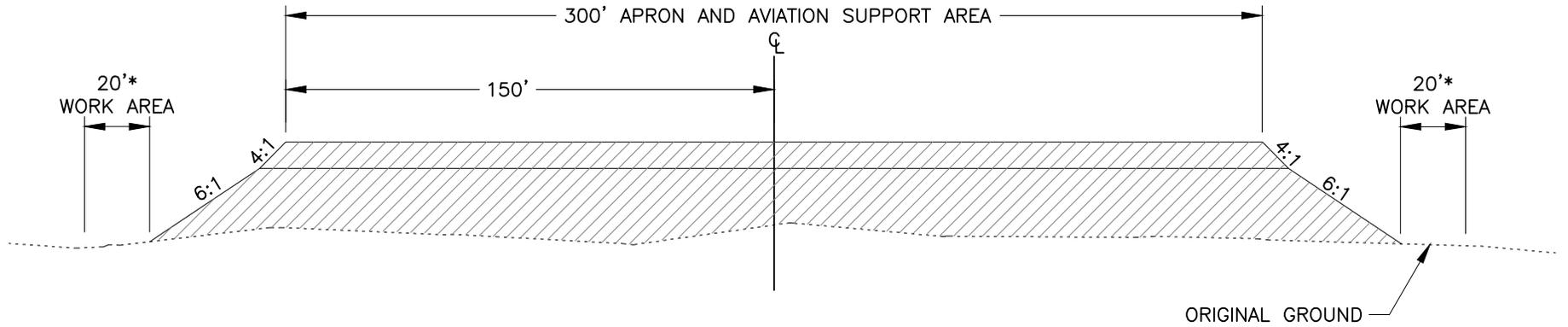


TAXIWAY TYPICAL SECTION

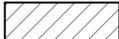
 FILL IN WETLANDS

* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.

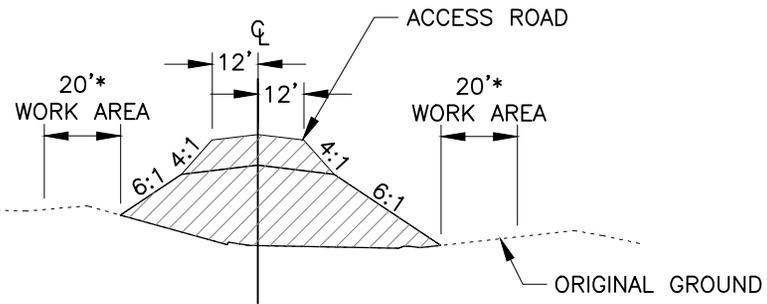
STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION	
	Kwigillingok Airport Environmental Assessment TYPICAL SECTION TAXIWAY
KWIGILLINGOK, ALASKA	
DATE:	4/21/2014
	FIGURE: 4 of 9



APRON TYPICAL SECTION

 FILL IN WETLANDS

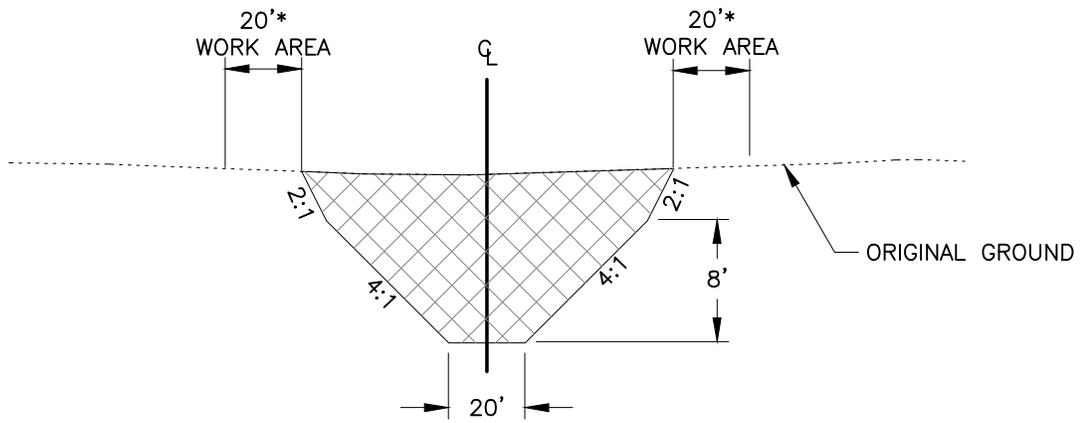
* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.



AIRPORT ACCESS ROAD TYPICAL SECTION

 FILL IN WETLANDS

DATE:	4/21/2014		STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION
			Kwigillingok Airport Environmental Assessment TYPICAL SECTION APRON & ACCESS ROAD
		KWIGILLINGOK, ALASKA	



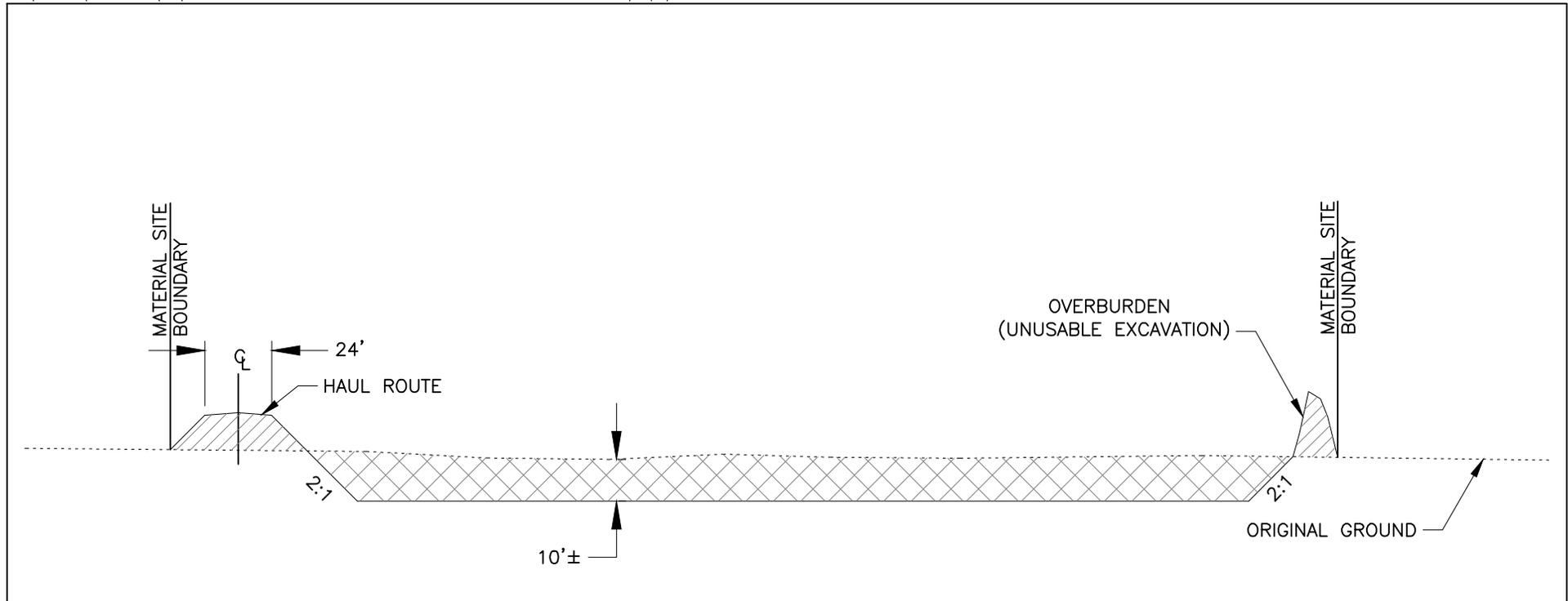
CHANNEL TYPICAL SECTION



EXCAVATION

* WORK AREA 20' BEYOND EXCAVATION LIMIT IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.

<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport Environmental Assessment</p> <p>TYPICAL SECTION CHANNEL RE-ROUTE</p>
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	4/21/2014
FIGURE:	6 of 9



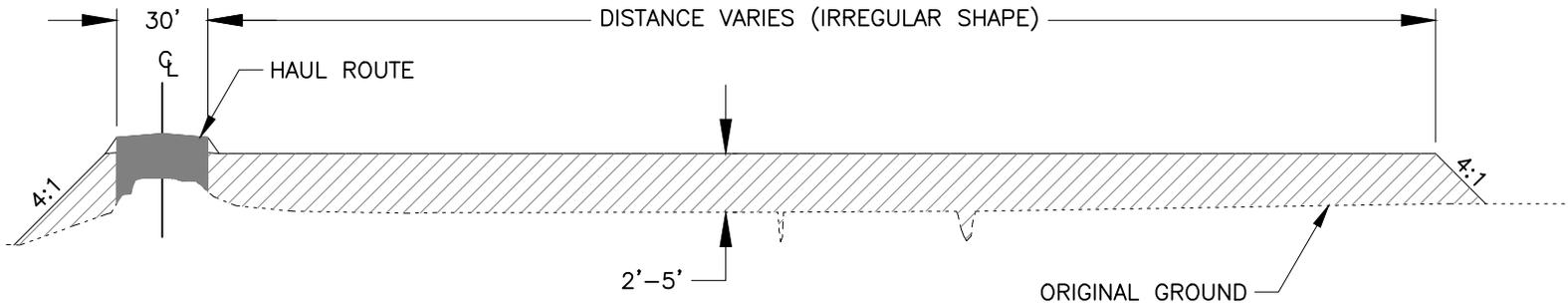
MATERIAL SITE AND HAUL ROUTE TYPICAL SECTION



FILL IN WETLANDS

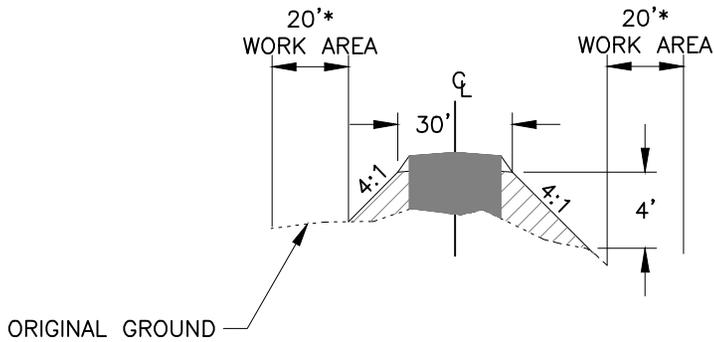
EXCAVATION IN WETLANDS

DATE: 4/21/2014 FIGURE: 7 of 9		STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION
		Kwigillingok Airport Environmental Assessment TYPICAL SECTION MATERIAL SITES A & B



HAUL ROUTE AND STAGING AREA TYPICAL SECTION

-  FILL IN WETLANDS
-  FILL IN UPLANDS



HAUL ROUTE TYPICAL SECTION

-  FILL IN WETLANDS
-  FILL IN UPLANDS

* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.

DATE:	4/21/2014		STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION
	KWIGILLINGOK, ALASKA		
FIGURE:	8 of 9		

APPENDIX A

EXISTING AIRPORT DEFICIENCIES AND AVIATION FORECAST

APPENDIX A

Existing Airport Deficiencies and Aviation Forecast for the Kwigillingok Airport

1 AIRPORT DEFICIENCIES

The Alaska Department of Transportation and Public Facilities (DOT&PF) designs airports to meet criteria identified in the Alaska Statewide Transportation Plan and current Federal Aviation Administration (FAA) design standards. The *Yukon-Kuskokwim Delta Transportation Plan* (DOT&PF, 2002), one of the six area plans incorporated into the Statewide Transportation Plan, defines needs to meet projected demands for airports in the Yukon-Kuskokwim (Y-K) Delta area up until 2020. In addition, the Alaska Aviation System Plan identifies design standards for aviation demands.

The existing Kwigillingok Airport consists of:

- 1,835-foot by 40-foot gravel surface runway within a 2,900-foot long Runway Safety Area (RSA)
- 200-foot by 90-foot gravel apron with 175-foot-long by 25-foot-wide taxiway
- A road grader, Caterpillar model 140G, for snow removal
- One snow removal equipment building (SREB)
- Portable lighting available only in the case of emergency upon request

The existing airport does not meet current standards for a Design Group I Community Class Airport. The runway length and width are deficient; the aircraft parking apron is deficient in minimum service level size; the surface course material is insufficient; the runway is unlit; and the airport lacks current navigational and approach lighting aids. The deficiencies of the existing airport are further described below.

Table 1: Facility Deficiencies and Requirements

Airport Component	Existing Facility	Facility Requirements (FAA or SOA)	Deficiency
Runway Length	1,835 feet	3,300 feet (SOA)	1,465 feet
Runway Width	40 feet	60 feet (FAA)	20 feet
Runway Safety Area Width	100 feet	120 feet (FAA)	20 feet
Runway Safety Area Length	2,900 feet	3,780 feet (FAA+SOA)	880 feet
Taxiway Width	25 feet	35 feet (FAA)	10 feet
Taxiway Safety Area Width	40 feet	79 feet (FAA)	39 feet
Apron Area and Aviation Support Area	18,000 sf	112,200 sf (FAA+SOA)	94,200 sf*
Lighting	Portable runway lighting available upon request for emergency use only	MIRL (SOA)	MIRL
Navigational Aids	Unreliable windsock, deteriorated segmented circle	Rotating beacon, wind cone and segmented circle (FAA)	Rotating beacon, wind cone and segmented circle

* The AASP lists a facility requirement of 60,000 sf for the apron. An aviation support area is needed to generate revenue per FAA grant assurances.

The purpose of the proposed action is to improve safety at the airport by bringing the airport up to current State of Alaska (SOA) and FAA design standards. The purpose of the project is to correct the following deficiencies:

- DOT&PF does not have adequate property interest. The airport lease expired in 1999.
- The existing runway length and width do not meet current state and federal standards.
- The runway and safety area surfaces are soft, with potholes, dips, swales, and ruts.
- The windsock is unreliable, and the segmented circle is deteriorated and unusable.
- The wind coverage is inadequate (planes are unable to land in strong crosswinds).
- The SREB penetrates airspace.
- Not enough aircraft parking spaces and tie-downs are available.
- The airport lacks current navigational aids and airport lighting.
- The adjacent unnamed tidal channel is eroding the runway safety area.
- The apron is too close to the runway.

1.1 Design Standards

1.1.1 Runway Length/Width and Safety Area

The airport's RSA is substandard and does not meet FAA or SOA requirements. The existing RSA is 20 feet narrower than the RSA required by the design aircraft using the airport.

A runway width of 60 feet is required for Design Group I aircraft, which are the type of aircraft typically using the Kwigillingok Airport. (Design Group I aircraft have a wingspan up to but not including 49 feet.) The present runway is deficient in width for Design Group I aircraft.

The deteriorated condition of the runway and RSA has resulted in reduced runway lengths and unusable RSAs.

1.1.2 Apron Dimensions

The Alaska Aviation System Plan (AASP) requires a minimum apron size of 60,000 square feet for a community class airport. An additional 52,200 square feet is needed for aviation support areas (lease lots and aprons). Per grant assurances, the airport sponsor is required to maintain and operate the facilities safely and efficiently; this includes providing sufficient apron space. The existing apron at the Kwigillingok Airport is 90 feet by 200 feet (18,000 square feet), which is deficient in size for forecast operations.

Pilots report that a larger apron is needed, particularly after periods when flying is not possible due to weather, when mail, cargo, and passengers get backed up. During these times, as many as five planes have reportedly been on the ground at the same time.

1.1.3 Taxiways

The design standard taxiway is intended to provide safe separation between aircraft parked on the apron, including passenger and freight handling activities, and the active runway. FAA standard minimum width for Group I aircraft is 25 feet. However, a wider taxiway (35 feet wide) and RSA (79 feet wide) are desired to accommodate snow storage in the winter and occasional use by larger aircraft.

1.1.4 Lighting and Navigational Aids

Airport lighting is considered a high priority for all airports in Alaska. Non-precision instrument (NPI) requirements dictate Medium Intensity Runway Lighting (MIRL) for Kwigillingok Airport.

Aircraft operating at Kwigillingok rely on VFR (visual flight rules) procedures because the airport does not have sufficient runway length or electronic navigation facilities.

The airport does not have runway or taxiway lighting. The only existing lighting is portable lights that are only available in an emergency. The lack of runway lighting restricts aircraft operations to daylight hours. This is particularly limiting in winter when daylight hours are shortened. Reflective cones line the runway, but many of them are missing.

1.1.5 Operational Surfaces

The present operational surfaces do not meet the design standards of Advisory Circular (AC) 150/5300-13A. The airport suffers from inadequate surfaces rutted by ponding, ruts, and unevenness. The AC requires each operational surface to have an adequate crown or grade to assure proper drainage to prevent ponding. In addition, each surface is required to be adequately compacted and sufficiently stable to prevent rutting by aircraft, or the loosening or buildup of surface material which could impair directional control or cause damage to an aircraft.

1.1.6 Navigational Aids and Runway Approach

FAA design standards require airports to have a rotating beacon, a wind cone, and a segmented circle. The existing Kwigillingok Airport has an unreliable wind sock and a deteriorated segmented circle. A rotating beacon, wind cone, and segmented circle are needed.

1.2 Non-Design Standards

1.2.1 Parking and Circulation

There is no FAA or SOA standard for these facilities. Residents pick up or drop off passengers by parking next to the SREB on the apron, which is undersized for the aircraft it serves. Parked aircraft are not adequately separated from incoming and outgoing aircraft while loading or unloading on the undersized apron.

1.2.2 Lease Lot Space

There is no FAA or SOA design standard for these criteria. However, landside development is critical to a community to ensure accessibility and accommodations for airport uses. Grant assurances provide mandates for revenue generated at airports.

No lease lot space is available to aid in providing basic transportation service. Lease lots would provide the opportunity for aviation-related economic development.

1.2.3 Buildings

There are no passenger facilities at Kwigillingok Airport. The only building is the SREB. The SREB is wind-damaged and part of the roof is missing. Inside, the dirt floor is in poor condition and has standing water. In order to protect equipment and stored sand, a new SREB is needed.

The airport currently does not have more than 1,000 or more annual jet departures (“non-propeller aircraft”) and therefore FAA guidance regarding deicing fluid discharge does not apply. AC 150/5220-18A addresses “Building for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials; this AC is mandatory for aircraft deicing facilities, but for Kwigillingok, it can be used as guidance rather than a mandatory standard. According to Section 1-1 of AC 150/5220-18A, “airport operators use costly pieces of complex and technologically advanced equipment for the control of snow, slush, and ice on the Nation’s airports. To protect and service this expensive investment, specifically designed maintenance buildings with adequate storage areas are needed.”

In addition, grant assurances for airport sponsors require an airport to be run safely and efficiently.

2 AVIATION FORECAST

2.1 Total Annual Operations

The commercial aircraft operations for the years 2003-2013 were obtained from the T-100 database of the US DOT Research and Innovative Technology Administration, Bureau of Transportation Statistics. Operations were obtained from data that lists Kwigillingok as a destination or as an origin.

Table 2 – Commercial Operations (2003-2013)

Calendar Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Operations	6,390	5,821	6,029	5,818	5,560	5,297	5,529	5,773	5,635	5,206	5,494

Although the number of operations appears to be showing a downward trend for the years 2003 through 2013, this may have been influenced by the consolidation of carriers with the merger that occurred in 2009. The trend since that time is nearly level. Zero growth or decline was used to forecast the operations for Kwigillingok over the next 20 years. Discussions with the Bethel station manager of one of the major carriers on July 28, 2014, indicated there has been no reduction in scheduled flights between Bethel and Kwigillingok.

General Aviation (GA) operations were derived from the Alaska Aviation System Plan (AASP) estimate of aircraft operations, with a forecast of no growth or decline.

Table 3 – Operations Forecast

	2013 (Base Year)	2015	2025	2035
Commercial	5,494	5,494	5,494	5,494
General Aviation	40	40	40	40
Total	5,534	5,534	5,534	5,534

2.2 Annual Itinerant Operations by All Aircraft

Table 2 above shows the current and forecast operations. Because there are no aircraft based at Kwigillingok Airport, all operations are assumed to be itinerant.

2.3 Annual Itinerant Operations by Current Critical Aircraft

The aircraft operations are shown in Table 2, Operations Forecast. The current critical aircraft, the Cessna C-206/207, accounted for 72% of the departures in 2013. This aircraft has an approach speed less than 91 knots placing it in Aircraft Approach Category (AAC) A, and a wingspan under 49 feet placing it in Airplane Design Group (ADG) I. The AAC and ADG are combined and denoted as A-I.

2.4 Annual Itinerant Operations by Future Critical Aircraft

The Cessna C-206/207 (A-I) is also the future critical aircraft for serving Kwigillingok. It is likely the percentage of operations by the critical aircraft will decline when the runway is lengthened, as this will allow larger and faster aircraft to be added to the carrier fleets serving Kwigillingok. For example, the Piper Navajo (B-I) will likely be added to the fleet servicing Kwigillingok Airport when the near-term improvements are completed. The Navajo is faster and has more capacity for cargo and passengers than the Cessna 207. The T-100 statistics indicate that in 2013, two carriers were flying Navajos from Bethel to the nearby communities of Kongiganak, Eek, Tuntatuliak, Chefornak, and Quinhagak.

2.5 Based Aircraft

There are no based aircraft in Kwigillingok, and zero based aircraft are forecast through the year 2035.

2.6 Annual Instrument Approaches

The airport does not currently support instrument approaches. However, the near-term and ultimate runways will support non-precision instrument approaches using GPS to each end of the runway with one-mile visibility minimums. The operations forecast through 2035 is shown above in Table 2. The critical aircraft is the Cessna C-206/207, which is capable of a non-precision approach and accounted for 72% of the departures in 2013. Therefore, it can be expected that a large percentage of the aircraft operations in the forecast will be non-precision approaches.

2.7 Enplanements

For un-towered, rural airports such as Kwigillingok Airport, data is limited and the forecast relies on information reported to FAA by air carriers. Historical passenger enplanement information was extracted from the Air Carrier Activity Information System (ACAIS) and is shown in Table 3.

Table 4 – Historical Enplanement Data (2003–2013)

Calendar Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ACAIS Enplanements	2,841	3,412	3,708	3,859	3,476	3,083	3,203	3,692	3,625	3,340	3,602

Future enplanements were forecast based on linear regression of the historical enplanement data.

Table 5 – Enplanement Forecast

Calendar Year	2015	2020	2025	2030	2035
Forecast	3,609	3,730	3,851	3,972	4,093

The annual number of enplanements can play a role in recommendations for design aircraft for a facility. Typically, the more enplanements, the more efficient it becomes to fly larger planes if the runway length allows. However, other factors such as route structure and cargo/passenger splits also play into the aircraft utilization. Given the modest increase in enplanements expected over the next 20 years, passenger travel can be accommodated by the current fleet mix. The Navajo may be added, but this Design Group I aircraft will not impact the facility requirements.

2.8 Critical Aircraft

The AASP indicated the Cessna C-206/207 is the current and forecast future critical aircraft serving Kwigillingok. This is still the predominant aircraft serving Kwigillingok and will remain as the critical aircraft.

2.9 Runway Design Code (RDC)

The runway design group adds another element, visibility minimum (specific to each runway end), to the airport design code. The Kwigillingok Airport is planned for visibility minimums of one mile for each runway end.

Air carriers currently serving Kwigillingok indicated that if the runway were longer, they would likely add the Piper Navajo to the fleet serving Kwigillingok. The Piper Navajo aircraft has an approach speed of 100 knots, a wingspan of 40.7 feet, and a tail height of 13 feet. This falls into Approach Category B (91 to 121 knots) and Design Group I (wingspan less than 49 feet, tail height less than 20 feet).

The RDC selected for both runways at Kwigillingok is B-I-5000, to accommodate the Navajo and the forecast critical aircraft (C-206/207).

2.10 Runway Reference Code (RRC)

The Cessna C-206/207 falls into Approach Category A (less than 91 knots) and Design Group I (wingspan less than 49 feet, tail height less than 20 feet). This model accounted for 72% of the departures in 2013. Other lesser used aircraft listed in the AASP are the Cessna C-208 and the Aviocar Casa C-212.

APPENDIX B

ALTERNATIVES DROPPED FROM FURTHER CONSIDERATION

APPENDIX B Alternatives Dropped from Further Consideration

Per Order 5050.4B 706 (d)(7), an explanation and discussion is needed to explain why the sponsor or FAA eliminated an alternative from further consideration. Since the mid-1990s, the Alaska Department of Transportation and Public Facilities (DOT&PF) has examined numerous alternatives to address existing deficiencies and future needs at the Kwigillingok Airport. The physical environment at Kwigillingok presents great challenges for constructing and maintaining a community-class airport. Challenges taken into consideration included:

- Minimizing the amount of fill to be placed in wetlands, lakes, and other waterbodies
- Minimizing the amount of material to be hauled in
- Siting the airport to allow for a crosswind runway, minimizing economic and environmental impact
- Considering the amount and ownership of property to be acquired

Some of the alternatives considered to address these challenges had drawbacks that led to their elimination from further consideration before extensive analysis of their probable environmental impacts was required.

1 ALTERNATIVES ELIMINATED IN 1996

In 1996, an Environmental Assessment (EA) evaluated several alternatives and developed two (shown on Figures B-1 and B-2): *Alternative A: Proposed Action* (extend and widen the existing runway) and *Alternative B: Lengthen Existing Runway and Add New Crosswind Runway*. Alternative A was selected as the Preferred Alternative.

As described below, several other alternatives were considered during preparation of the 1996 EA but dismissed as unviable prior to submission of the EA to FAA for approval.

1.1 Closure of Kwigillingok Airport and Road Access to Kongiganak Airport

An alternative to connect Kwigillingok and Kongiganak (approximately nine air miles away) with a road was considered. Road construction of that magnitude is outside the jurisdiction of FAA, and obtaining FHWA funding for the new road did not seem feasible. Also, costs and impacts were thought to be greater than those for airport improvements. Therefore, this concept was dismissed from consideration.

1.2 Relocation

Relocating the airport to another site near Kwigillingok was also considered and rejected. Mapping efforts within the vicinity of Kwigillingok did not reveal uplands with an orientation to match prevailing winds.

1.3 Northward Extension of Existing Runway

Another alternative considered and rejected was to extend the runway to the north. This would have required blocking the eroding tidal channel north of the airstrip and allowing the drained lake to the west to refill. The unknown consequences of refilling the dry lake caused this alternative to be considered unfeasible. The community also indicated that while temporary filling of the lake might be acceptable, permanently refilling it was not.

2 ALTERNATIVE DEVELOPED IN 2004

Following the 1996 EA Finding of No Significant Impact (FONSI), the airport project was delayed due to difficulty in acquiring the land needed. In 2000, the Native Village of Kwigillingok pursued becoming the airport sponsor. Airport planning and design efforts were re-initiated and a Supplemental EA was prepared for which a FONSI was signed by the FAA on May 11, 2004.

The 2004 Supplemental EA carried forward the preferred alternative (Alternative A) from the 1996 EA with minor changes, such as increasing the runway requirements from Design Group I to Group II standards and reducing the length of the channel realignment. See Figure B-3 for a depiction of this alternative as presented in the 2004 Supplemental EA.

3 ALTERNATIVES ELIMINATED FROM 2010 TO 2014

In 2012, on behalf of DOT&PF, PDC Inc. Engineers (PDC) reviewed the alternatives evaluated in the 1996 EA and the 2004 Supplemental EA, as well as several possibilities considered and dismissed in earlier studies, and prepared the draft engineering scoping report in June 2012. At this time, PDC also developed two new alternatives (Alternatives B-2 and C) to explore ways of reducing or eliminating some of the engineering disadvantages of other alternatives. See Figures 4 through 7 for further detail on the alternatives considered and later eliminated.

In 2012, Alternative B (first presented in the 1996 EA) (Figure 2) was upgraded to Design Group II dimensional standards. The apron and taxiway were relocated to the south to reduce the area of filling into the existing lakes and in order to serve both the existing runway and the future crosswind runway more effectively. The original Alternative B was dropped from further consideration. The new alternative (adapted and modified from Alternative B) was named Alternative B-1 (Figure 5).

Due to funding in the foreseeable future (20 years), it was considered impractical to plan for a Design Group II alternative. Therefore, Alternative B-1 was revised to meet Design Group I standards. This is consistent with the current forecasts for the Alaska Aviation System Plan, which indicates the current and future central aircraft through the year 2030 is the Cessna 206/207 (a Design Group I aircraft). **Alternative B-1 modified to Design Group I dimensions is the alternative carried forward for this Environmental Assessment as the Preferred Alternative.** This modified alternative is presented as the proposed action in the body of this EA.

3.1 Alternative A-1

In 2012, Alternative A, the preferred alternative in previous environmental documents, was reconfigured and renamed A-1. The apron was moved to the south, where the embankment could be placed on existing land instead of filling in lakes. Unlike other alternatives considered, Alternative A-1 had no crosswind runway. FAA guidance calls for a crosswind runway when wind coverage from a single runway is less than 95%. The wind coverage (percent of time the crosswind speed and direction do not exceed the allowable limits for safe aircraft operations) is 75.22%. Even if the single runway were constructed to the standards for larger aircraft (Design Group II) with a greater tolerance for crosswinds, 95% coverage cannot be met. Therefore, Alternative A-1 was eliminated from further consideration.

3.2 Alternative B-2

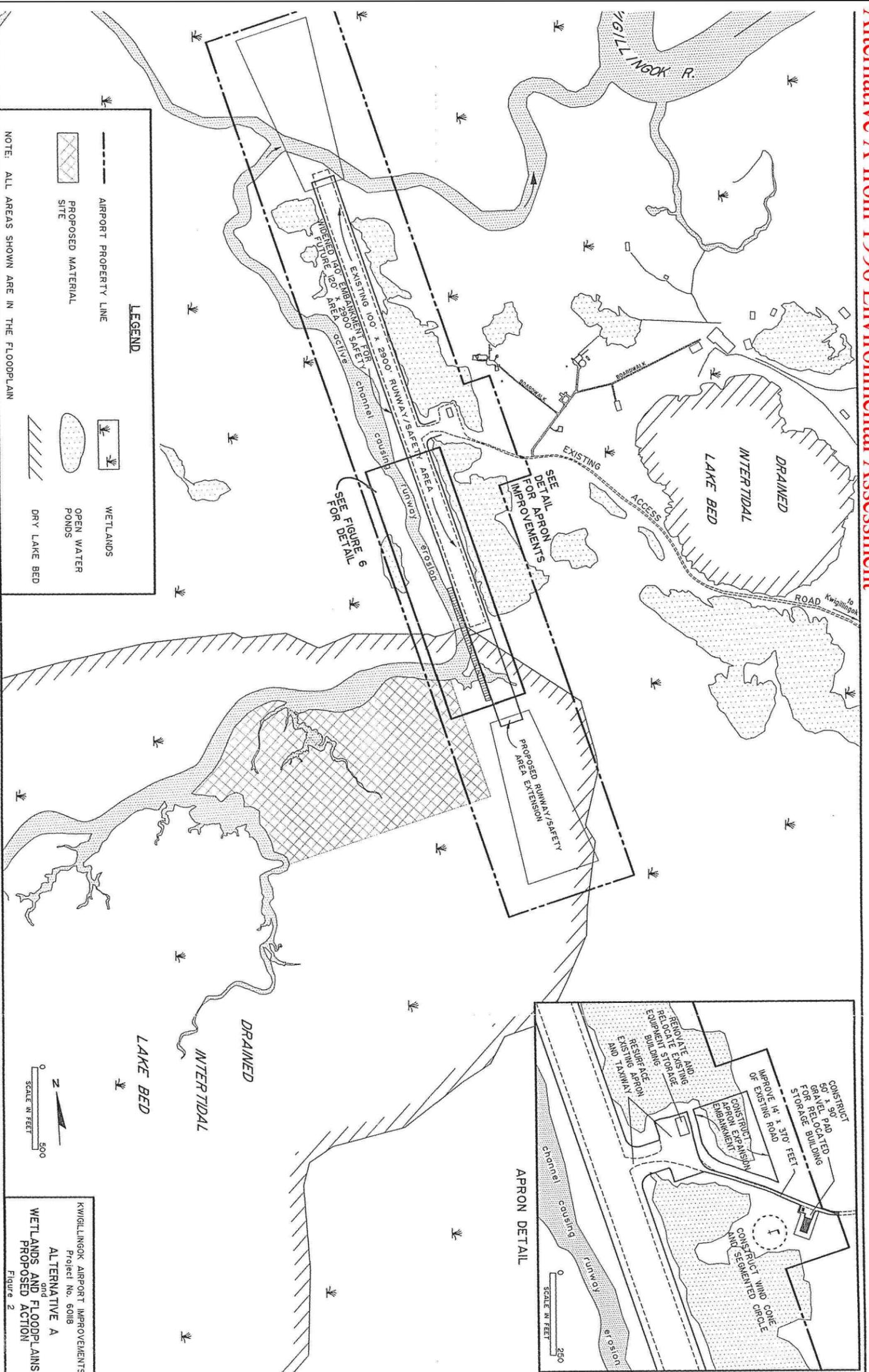
In February 2011, five wind towers were erected in Kwigillingok. The wind towers conflict with Alternative B-1's proposed crosswind runway. Thus, Alternative B-2, which would position the crosswind runway farther north in order to shift the approach away from the wind towers, was proposed. Alternative B-2 requires placement of more borrow material to construct the runway and places the crosswind runway closer to the active tidal channel. The only advantage of Alternative B-2 over B-1 was the avoidance of the wind towers. However, correspondence with the designer of the wind generation system indicated a likelihood that within the next 20 years the towers would be replaced at a different location. Due to the proximity of the tidal channel and the higher volumes of fill required, Alternative B-2 was eliminated from further consideration.

3.3 Alternative C

In an attempt to avoid placing fill into the eroding tidal channel flowing along the west side of the runway, Alternative C was proposed. This alternative rotated the existing runway from 165 degrees to 163 degrees and thereby avoided placing fill in the tidal channel. Instead, more fill would be placed in the adjacent lakes on the east side of the runway. Protection of the runway embankment from the tidal channel erosion would still be needed, as the channel is still actively eroding.

Embankments constructed of local materials in this region of Alaska take years to stabilize. During this period, the rotated runway would likely rest on unstable embankments. Alternative C was dropped from further consideration due to these geotechnical concerns.

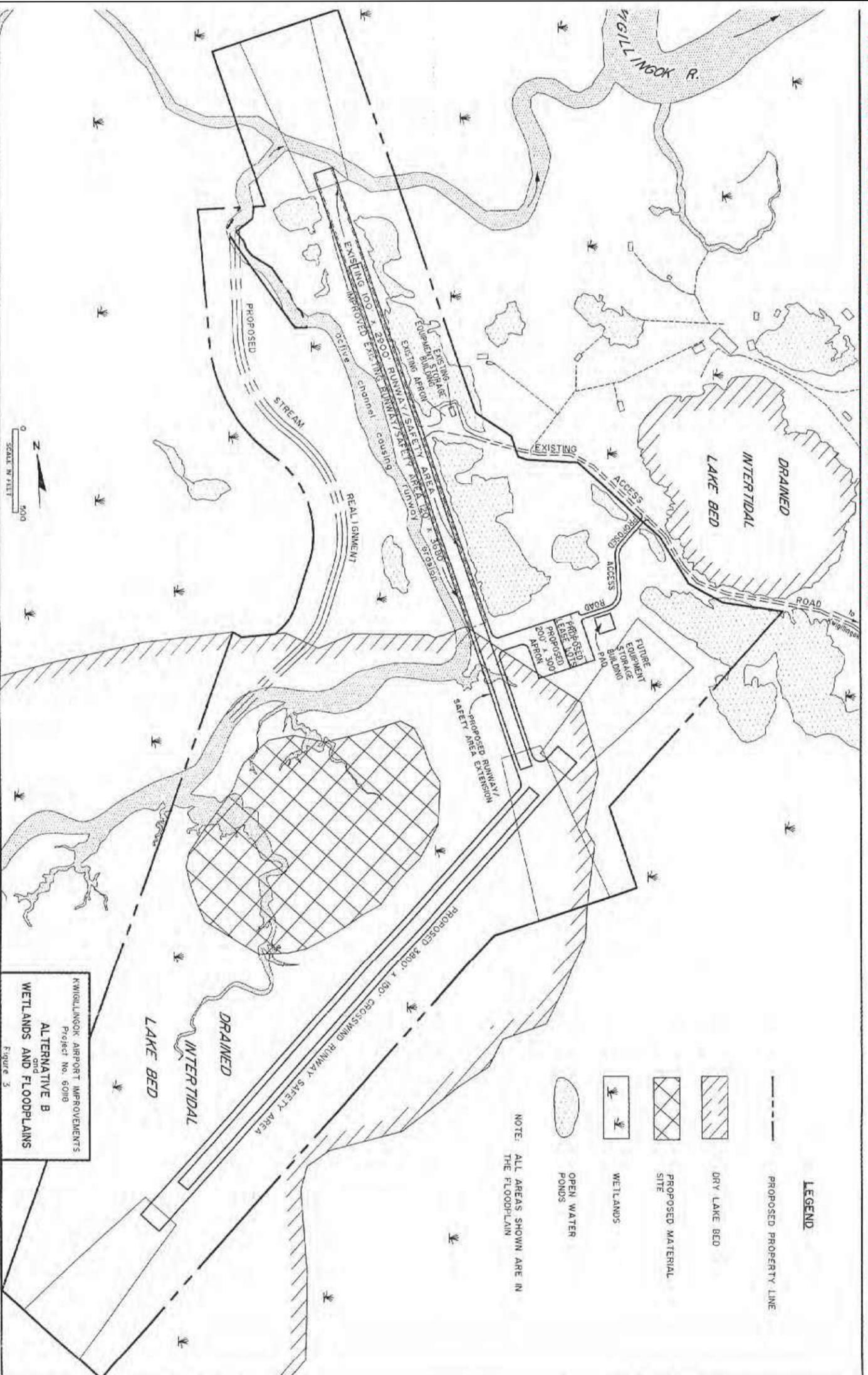
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Kwigillingok Airport
Appendix B
Figure 1
Alternative A from 1996
Environmental Assessment

KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 1 of 7



KWIGILLINGOK AIRPORT IMPROVEMENTS
Project No. 6018
ALTERNATIVE B
WETLANDS AND FLOODPLAINS
Figure 3

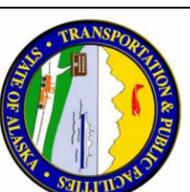


Figure 2
Alternative B from 1996
Environmental Assessment

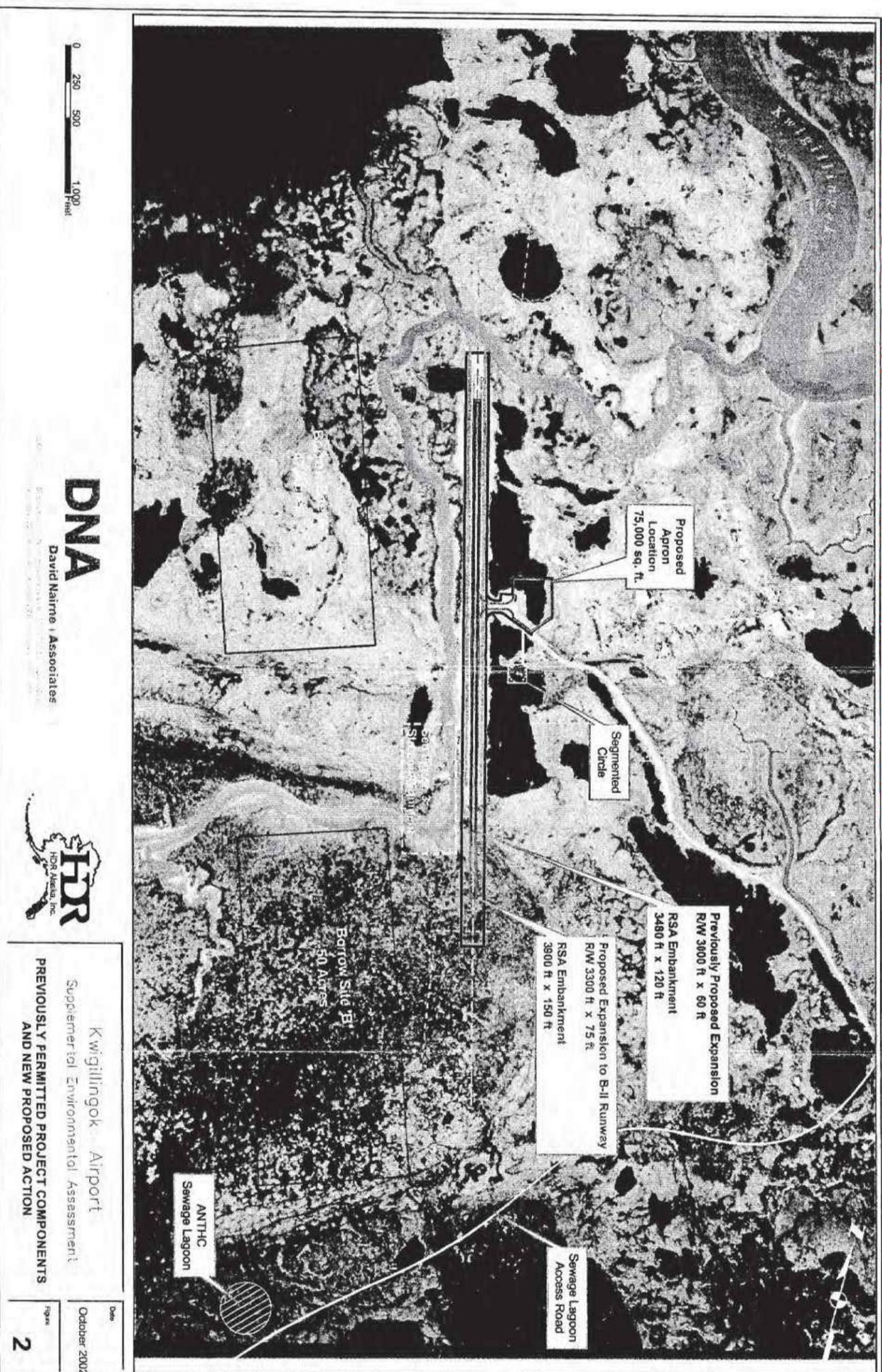
KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 2 of 7

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Kwigillingok Airport
Appendix B

Alternative B from 2004 Supplemental Environmental Assessment



Kwigillingok Airport
Supplemental Environmental Assessment
PREVIOUSLY PERMITTED PROJECT COMPONENTS
AND NEW PROPOSED ACTION

Date	October 2002
Figure	2

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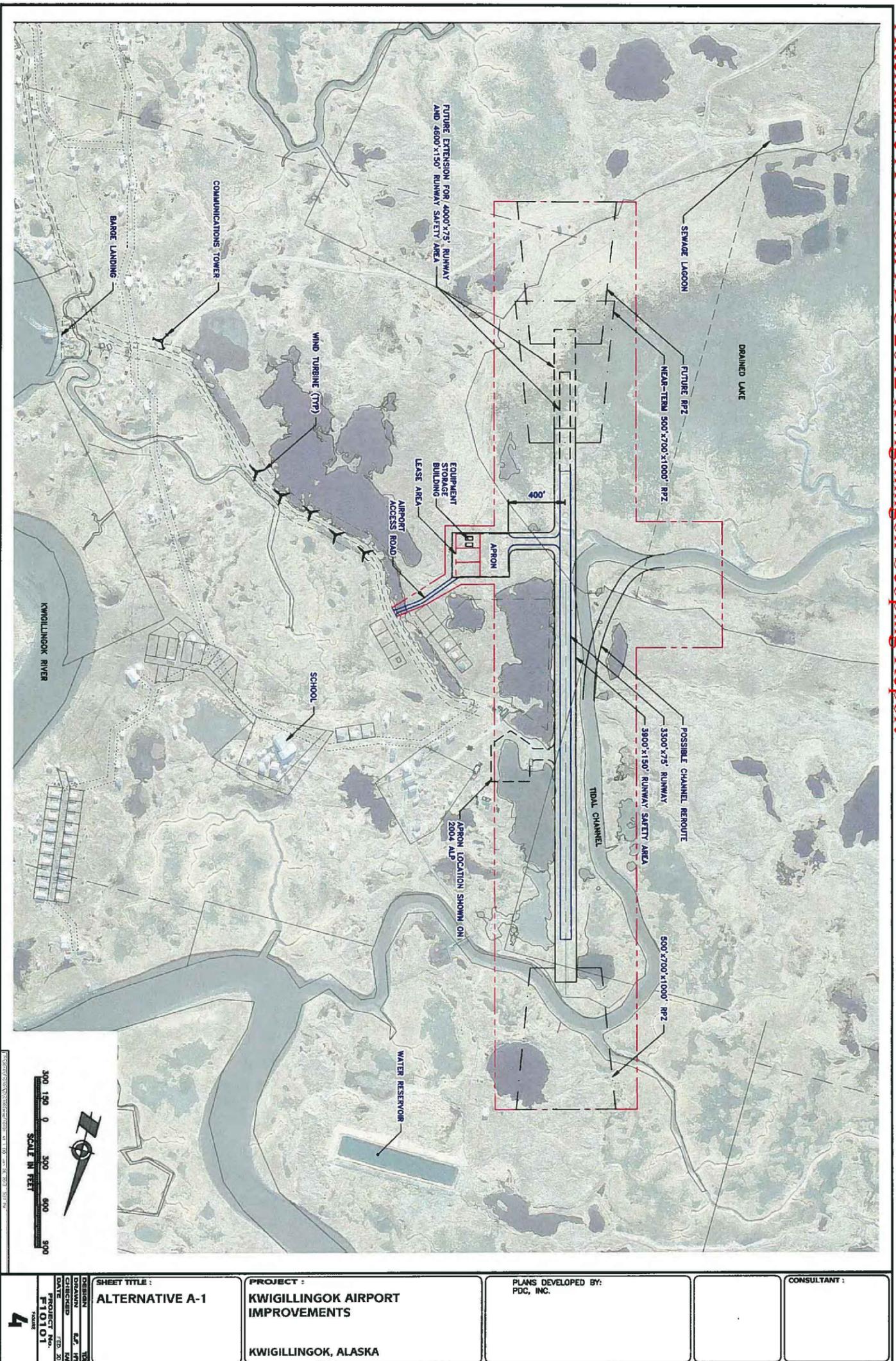
Kwigillingok Airport
Appendix B

Figure 3
Alternative B from 2004
Supplemental Environmental
Assessment

KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 3 of 7

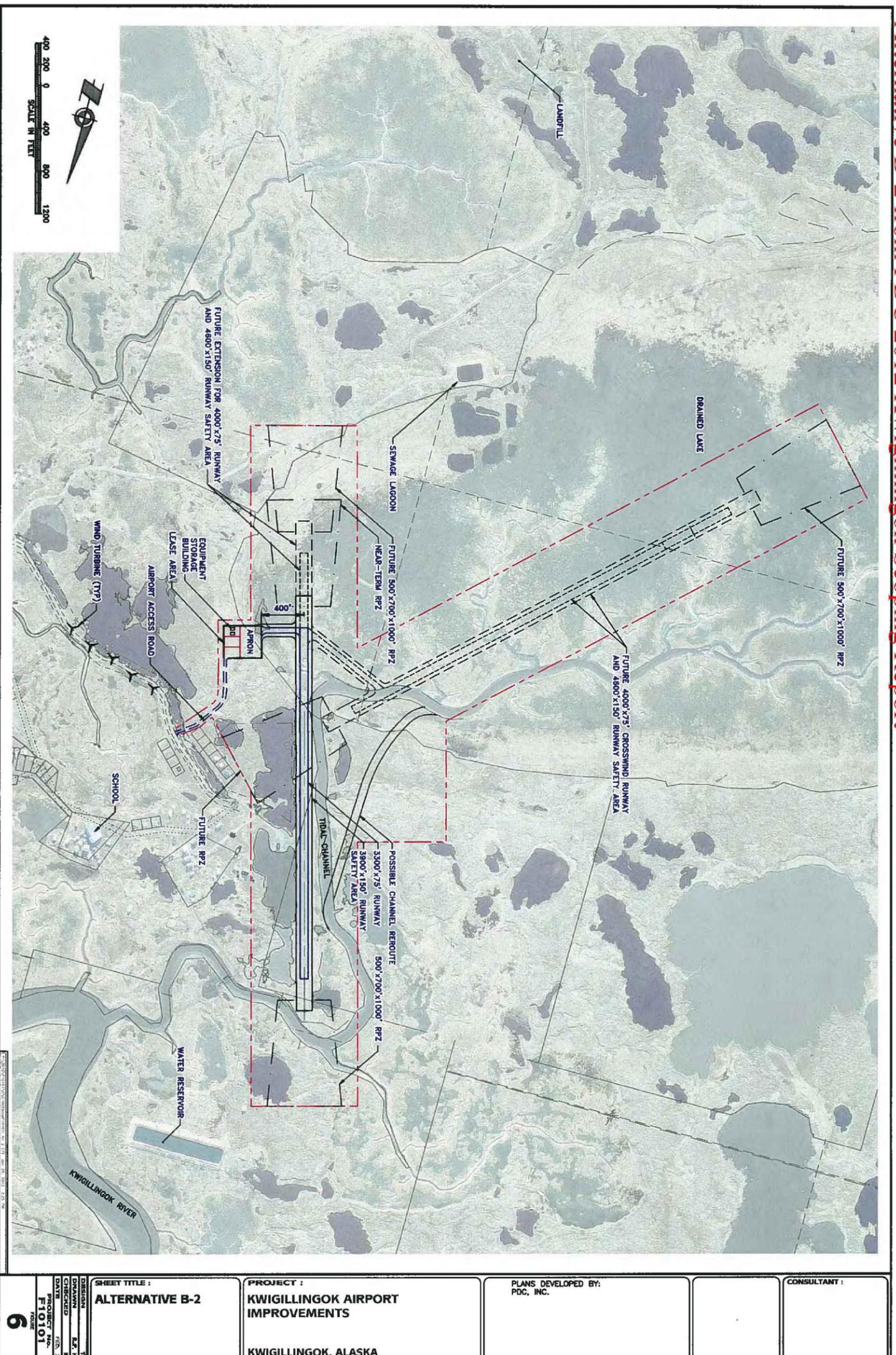




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**Kwigillingok Airport
Appendix B**
Figure 4
Alternative A-1 from PDC
2012 Kwigillingok Scoping Report

KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 4 of 7



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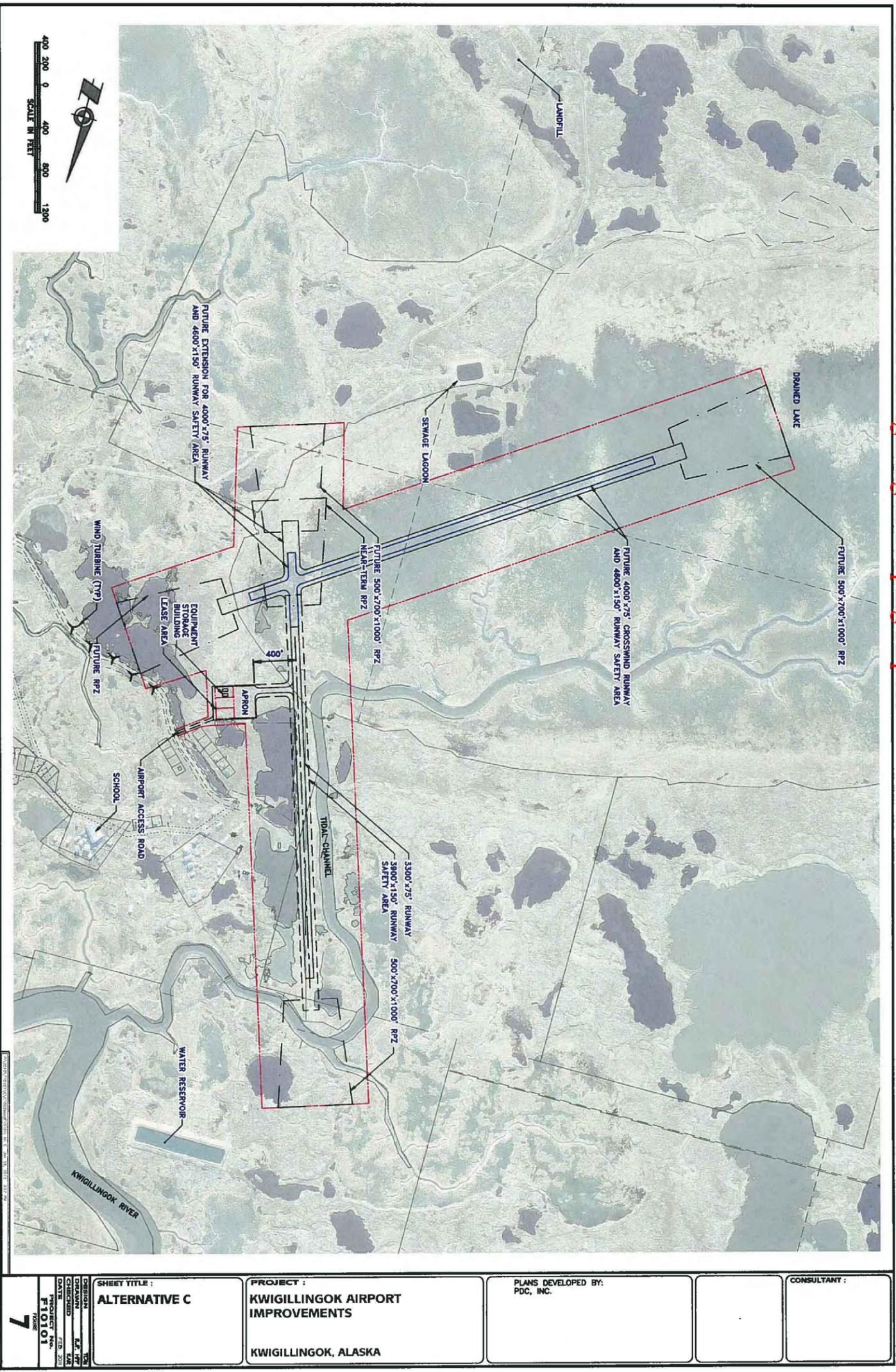
Kwigillingok Airport
Appendix B

Figure 6
Alternative B-2 from PDC
2012 Kwigillingok Scoping Report



KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 6 of 7



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Kwigillingok Airport
Appendix B

Figure 7
Alternative C from PDC
2012 Kwigillingok Scoping Report



KWIGILLINGOK, ALASKA

DATE: 2/28/2014 FIGURE: 7 of 7

APPENDIX C

WETLANDS DELINEATION AND PRELIMINARY JURISDICTIONAL DETERMINATION

APPENDIX C Wetlands Delineation and Preliminary Jurisdictional Determination

This report presents the results of the 2013 wetlands delineation for the Kwigillingok Airport Improvements Environmental Assessment (EA), developed by PDC Inc. Engineers (PDC) for the Department of Transportation and Public Facilities (DOT&PF) on behalf of the Federal Aviation Administration (FAA). The purpose of the delineation is to identify wetlands within the project area in compliance with the Clean Water Act. The delineation is also used in permit preparation and coordination with the U.S. Army Corps of Engineers (USACE).

1 LOCATION

Kwigillingok is located on the western shore of the Kuskokwim Bay near the mouth of the Kuskokwim River, 77 miles southwest of Bethel and 388 miles west of Anchorage. The Kwigillingok Airport is located west of the community, within the U.S. Geological Survey (USGS) Kuskokwim Bay (D-4) quadrangle, Seward Meridian, in Sections 26, 27, 34, 35, T3S, and R81W.

2 BACKGROUND

In 1996, the USACE provided a jurisdictional determination of the area in preparation for an EA prepared that same year. The map generated for the EA was low resolution and did not include wetlands characterization.

In 2004, a Supplemental EA was prepared for FAA by HDR Alaska, Inc. on behalf of the Native Village of Kwigillingok. It included a wetlands delineation consisting of four categories: Palustrine emergent, regularly flooded wetlands; Riverine Tidal/Lower Perennial wetlands; and uplands.

3 METHODS

In February 2013, PDC staff reviewed the National Wetlands Inventory (NWI) database for the Kwigillingok area (Figure 1). The study area was defined by the proposed action. After consultation with the USACE and DOT&PF, and due to the ubiquity of wetlands in the area, it was determined that a desktop wetland delineation was sufficient and a field delineation was not needed for the proposed project area.

The desktop delineation was conducted using aerial photography provided by ETERRA, LLC. site photographs, and the most currently available NWI maps provided by the U.S. Fish and Wildlife Service (USFWS). The photography was collected in June 2011 when DOT&PF and PDC staff travelled to the site and explored the existing landscape.

Wetland vegetation boundaries were digitized using ArcMap GIS 10.1 software. The project area was delineated in accordance with the *USACE Wetland Delineation Manual* along with the *2006 Alaska Regional Supplement*. See Figure 2.

4 WETLAND TYPES

Wetlands, including open water, are abundant in the Kwigillingok vicinity and region. The most common wetland type found at Kwigillingok consists of palustrine emergent, primarily associated with low lying flat areas surrounding rivers. Most of these wetlands are seasonally flooded after spring snowmelt and with summer rains. Some wetlands are also flooded by the twice-daily tides impacting the area. They are typically saturated on the surface with areas of open water.

The entire proposed project area is located in Palustrine Emergent Wetlands and open water with the exception of existing human disturbance delineated as Uplands. Uplands are mainly associated with the existing airport (runway, taxiway, apron, and access road). The trail between the existing barge landing at the mouth of the Kwigillingok River to the community also accounts for a portion of the uplands.

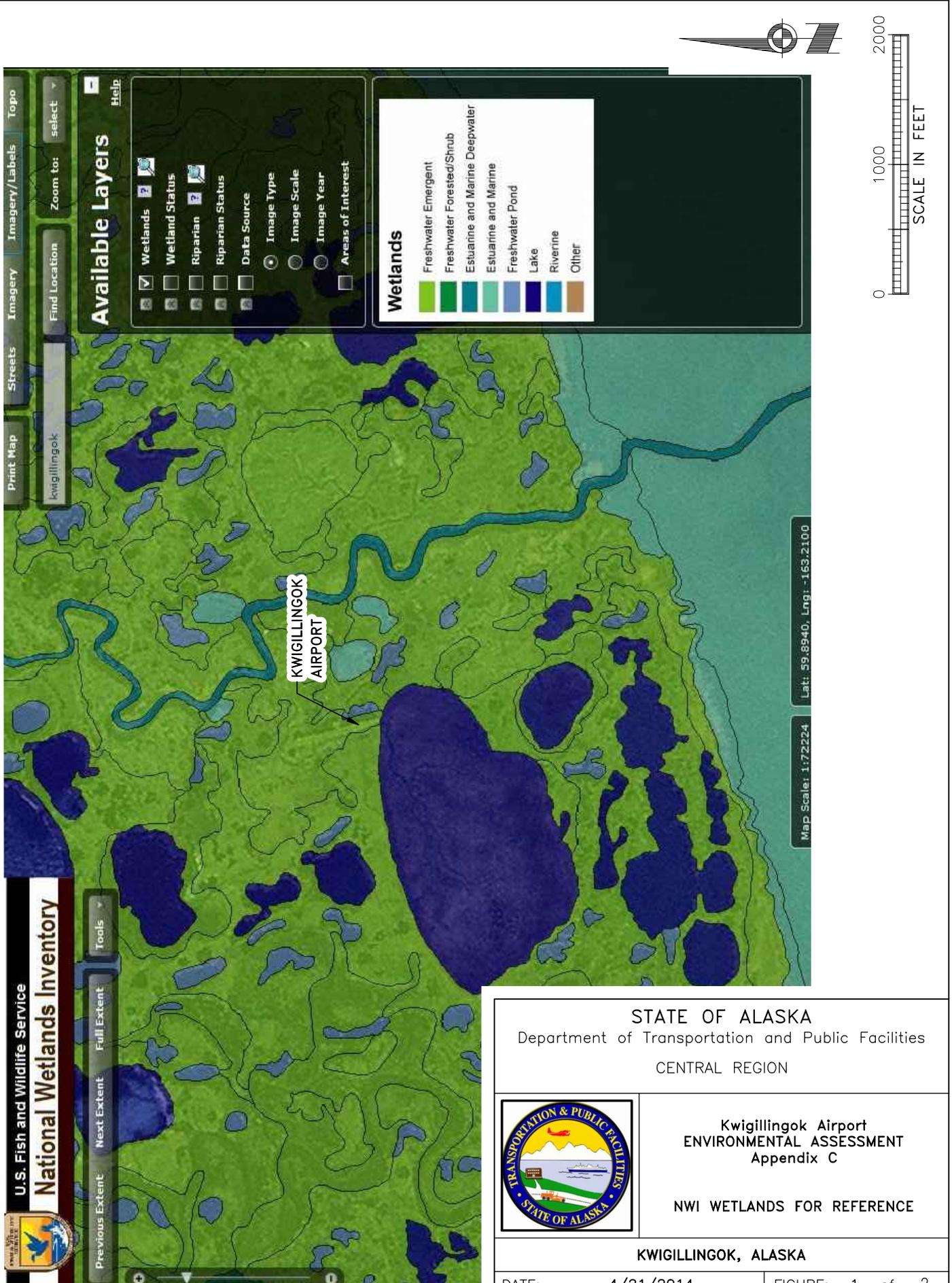
5 JURISDICTION

Based on the information documented in the determination, DOT&PF believes that the proposed project would affect wetlands and waters of the US under the regulatory jurisdiction of the USACE. There will be a request for the USACE to concur with this determination.

USACE authorization is required to place dredged and/or fill material into waters of the US, including wetlands. The USACE defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

6 FUNCTION AND VALUE

Wetlands surrounding Kwigillingok function to improve water quality in the Kwigillingok River because of their ability to retain sediments and pollutants. Wetlands also function to retain floodwaters resulting from heavy precipitation events and coastal storm surges. The wetlands also function as a habitat for birds and aquatic species.



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Kwigillingok Airport
 ENVIRONMENTAL ASSESSMENT
 Appendix C

NWI WETLANDS FOR REFERENCE

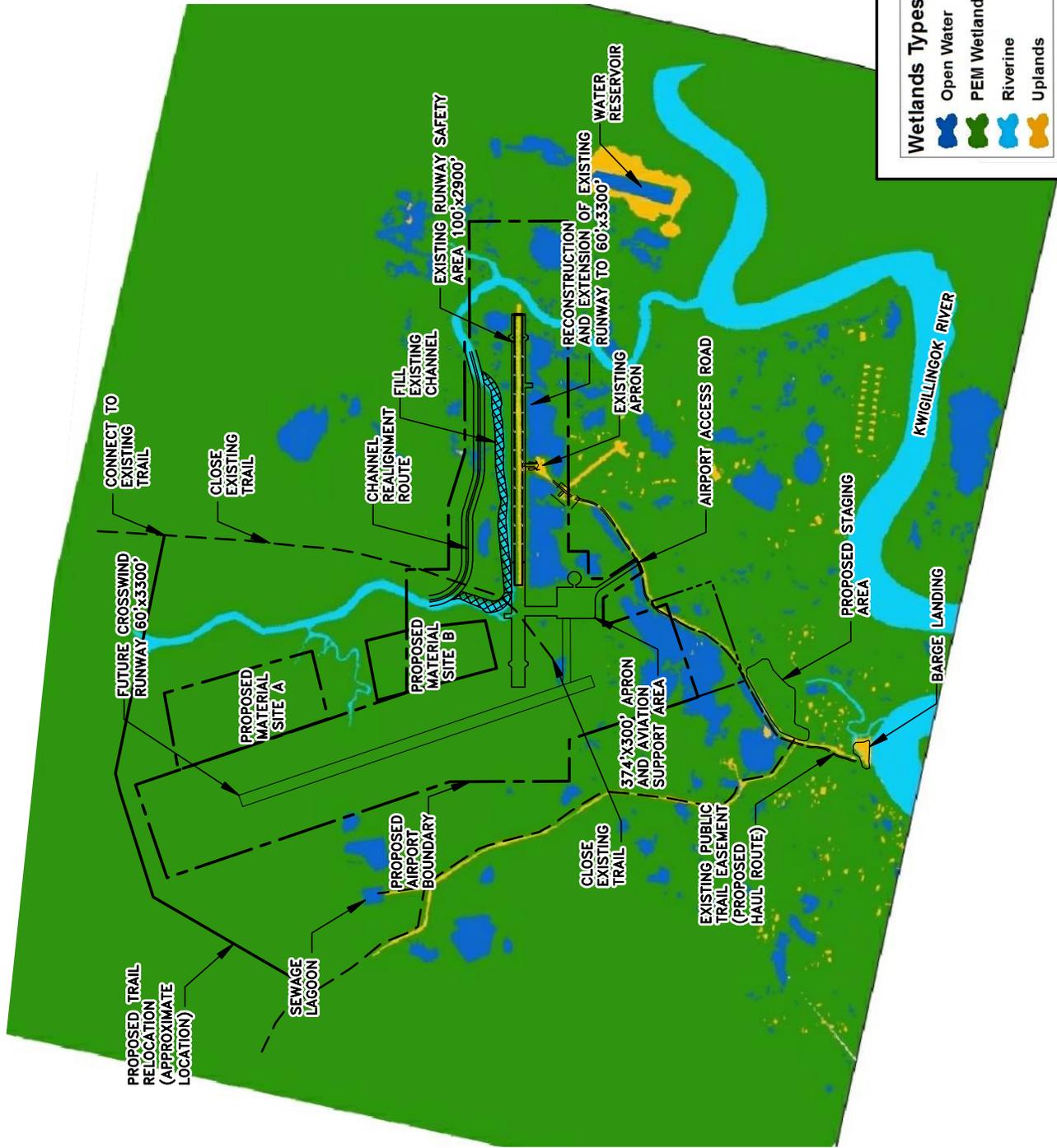
KWIGILLINGOK, ALASKA

DATE: 4/21/2014 | FIGURE: 1 of 2



NOTES:

1. THE 2013 WETLANDS DELINEATION WAS DEVELOPED USING ETERRA PHOTOGRAPHY, SITE PHOTOGRAPHS, AND THE MOST CURRENT AVAILABLE NWI MAPS PROVIDED BY THE U.S. FISH AND WILDLIFE SERVICE.



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	Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Appendix C
2013 WETLANDS DELINEATION SHOWING PROPOSED ACTION	
KWIGILLINGOK, ALASKA	
DATE:	2/28/2014
FIGURE:	2 of 2

APPENDIX D

PERMIT APPLICATIONS

Wetlands

Fish Habitat

Material Site Reclamation Plan

Temporary Water Use

Wetlands

U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
 33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
 EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Taralyn Middle - R Last - Stone Company - Alaska Department of Transportation & Public Facilities E-mail Address - taralyn.stone@alaska.gov	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -
6. APPLICANT'S ADDRESS: Address- PO Box 196900 MS-2525 City - Anchorage State - AK Zip - 99519 Country - USA	9. AGENT'S ADDRESS: Address- City - State - Zip - Country -
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax 907-269-0534	10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

 SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) Kwigillingok Airport Improvements	
13. NAME OF WATERBODY, IF KNOWN (if applicable) Unnamed tributary to the Kwigillingok River	14. PROJECT STREET ADDRESS (if applicable) Address N/A
15. LOCATION OF PROJECT Latitude: +N 59.875879 Longitude: +W 163.167675	City - Kwigillingok State- AK Zip- 99622
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Kwigillingok Section - 35 Township - 03 South Range - 81 West	

17. DIRECTIONS TO THE SITE

Fly to Bethel, regularly scheduled or charter flights to Kwigillingok are available. The Kwigillingok Airport is located immediately west of the Village of Kwigillingok.

18. Nature of Activity (Description of project, include all features)

The project includes constructing a 3,780 foot long by 120 foot wide lighted runway and safety area with a taxiway, apron, pads for navigational aids, 2 Snow Removal Equipment Buildings (one heated, one unheated), an access road, and a hauling road and staging area to import barged surface course (gravel) material for construction. Two areas near the airport are expected to be used (dredged/excavated) by the contractor to obtain unclassified embankment material. See Attachment for further details.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of the proposed project is to improve reliability and safety for air travel to Kwigillingok. To achieve this, airport deficiencies will be corrected to bring the airport up to current State and FAA design standards. See Attachment for further details.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Placement of material is required to enlarge the airport landing and parking areas and access roads to the airport. The entire airport property and region consists of or is surrounded by Palustrine, Riverine, and open water wetlands. Avoidance is not possible. See Attachment for further details.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
27,400 cy Surface Course	519,600 cy embankment	547,000 cy

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 128 acres
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See Attachment.

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Lena Atti (Native Allotment) Lot 4, U.S. Survey 10435, located in Bethel Recording District

City - Kwigillingok State - Alaska Zip - 99545

b. Address- Native Village of Kwigillingok P.O. Box 49

City - Kwigillingok State - Alaska Zip - 99622

c. Address- Heirs of Eva Friend (Native Allotment) Lots 2 & 8, U.S. Survey 10435, located in the Bethel Recording District

City - Kwigillingok State - Alaska Zip - 99545

d. Address- Calista Corporation 301 Calista Court, Suite A

City - Anchorage State - Alaska Zip - 99518

e. Address- State of Alaska Department of Natural Resources - 550 W. 7th Avenue

City - Anchorage State - Alaska Zip - 99501

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
SHPO Section 106	Finding of No Affect		Sept. 5, 2013	Sept. 19, 2013	
ADEC	401 Certification		Concurrent		
ADNR	TWUP		Concurrent		
ADFG	Fish Habitat Permit		Concurrent		

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

USACE Section 404 Individual Permit Application: Supplemental Information

1 PROJECT INFORMATION

The proposed action is to improve the existing airport to meet ADOT&PF and FAA standards for a Community Class airport. Due to the short-term safety needs, geotechnical considerations and funding constraints, construction for the project is anticipated to be staged. Stage I, proposed for construction starting in 2016 or 2017, depending on funding, would include placing silt embankment materials and raising the grade of the existing runway. The new embankments would be allowed to consolidate and settle. Stage II would place additional material on the new embankments and complete the proposed airport improvements.

Stage I would begin with summer mobilization of equipment by barge to Kwigillingok. The following winter material would be excavated and hauled to the airport. Embankment material would be placed on the new access road, apron, taxiway, and to widen and extend the runway. An ice road would be constructed to facilitate access to the work site for the channel realignment. The tidal channel would be realigned by excavating a new channel and the old channel filled in with the excavated material (Figure 2). The following summer (2017 or 2018), the existing runway surfacing would be completed.

The timing of Stage II would be determined by the success of the first stage and runway compaction rates, funding, and updating of the environmental documentation. This stage would barge in and place additional gravel and surfacing material on the runway, taxiway, apron and access road embankments. It would also include construction of the new Snow Equipment Removal Buildings (SREBs), airport lighting and navigational aids. This stage is anticipated to begin around 2021 (depending on funding and settlement rates).

For both stages, and for the permit coverage, the improvements would include the following components (Figures 1-8):

- Expand the existing runway to 3,300 feet long by 60 feet wide. The total runway and safety area dimensions would be 3,780 feet by 120 feet (typical section on Figures 2 and 3).
- Expand the taxiway to the apron to 35 feet wide (typical section on Figure 4). The total width of the taxiway safety area would be 79 feet (Airplane Design Group II, Taxiway Design Group 2; the larger safety area allows for snow removal and occasional operations by larger aircraft).
- Construct a new, 374-foot by 300-foot apron and aviation support area (typical section on Figure 5).
- Build two SREBs on the aviation support area (one heated and one for cold storage).
- Improve runway and taxiway lighting to include Medium Intensity Runway and Taxiway Lighting (MIRL), a pad for the Runway End Identifier Lights (REIL), a pad for the Automated Weather Observing System (AWOS), two pads for Precision Approach Path Indicator (PAPI) lights, and a segmented circle.
- Install wind cones, a segmented circle, and a rotating beacon to aid navigation.
- Build a 24-foot-wide access road between the apron and the main road connecting to the community.

- Acquire approximately 285 acres for the runway improvements, future crosswind runway, and access road.
- Install an overhead power line to power the new SREBs.
- Relocate the portion of the Kinak-Kipnuk trail that runs through the proposed runway extension.

See Figure 2 for further details of the proposed action.

In order to construct the proposed action, the contractor would need to develop two material sites (Material Sites A and B; Figure 6) and establish a connecting access road from the runway area to the material sites prior to construction. A haul route from the Kwigillingok River to the airport is needed; this can be provided by improving an existing public easement trail (typical section illustrated on Figure 7). Additionally, the contractor would need a staging area for imported gravel and surface course material. Timing on these methods is dependent on the contractor means and methods.

2 SECTION 404

Approximately 128 acres of wetlands would be affected by the project (Figure 2 and Table 1).

Table 1: Wetlands Impacts – Proposed Action

	Project Component	Wetland Type	Area of Wetland Impact (ac)	Total Fill (cy)
Fill and Temporary Impact (Buffer)	Primary Runway <i>Including PAPI Pads</i>	OW	4.1	31,500
		PEM	21.2	166,900
		R	2.4	19,500
	Taxiway	OW	0.1	300
		PEM	1.6	10,200
	Apron <i>Including Segmented Circle</i>	OW	0.1	1,100
		PEM	6.1	50,600
	Haul Route	OW	0.9	3,300
		PEM	8.2	27,600
		R	0.1	300
Access Road	OW	0.2	1,100	
	PEM	1.6	4,600	
Staging	PEM	7.2	52,000	
OW/PEM to OW/PEM Conversion	Material Sources A & B <i>Excavation Impacts and Temporary Overburden Stockpile</i>	PEM	56.8	97,000
PEM/R to OW/PEM/R Conversion	Fill Channel	PEM	4.0	40,000
		R	4.1	41,000
	New Channel	OW	1.3	0
		PEM	7.6	0
	R	0.6	0	
	TOTALS		128	547,000

OW = Open Water; PEM = Palustrine Emergent Wetlands; R = Riverine

Note: A uniform 20-foot buffer around the entire perimeter of impacted areas was included in the calculations to account for temporary impacts as a result of equipment maneuvering and sedimentation at the embankment toe.

Table 2 – Total Impacted Area by Wetland Type

PEM Palustrine Emergent Wetlands	114.2 ac
OW Open Water	6.7 ac
R Riverine	7.2 ac
Total Impact (rounded)	128.0 ac

3 AVOIDANCE OF IMPACTS

The project is being developed in accordance with the USACE Alaska District RGL 09-01. An ADEC Section 401 Water Quality Certification will be obtained. All stipulations and special conditions of the permits will be followed. Wetland fill has been avoided to the maximum extent.

Avoidance measures that have been incorporated in the project include:

- Expansion of the existing airport embankments as opposed to disturbing an entirely new location (for airport re-location) or rotation of the runway off the existing footprint.
- Use of an existing ATV trail for the proposed haul route.

4 MINIMIZATION OF UNAVOIDABLE IMPACTS

Minimization measures that have been incorporated in the project include:

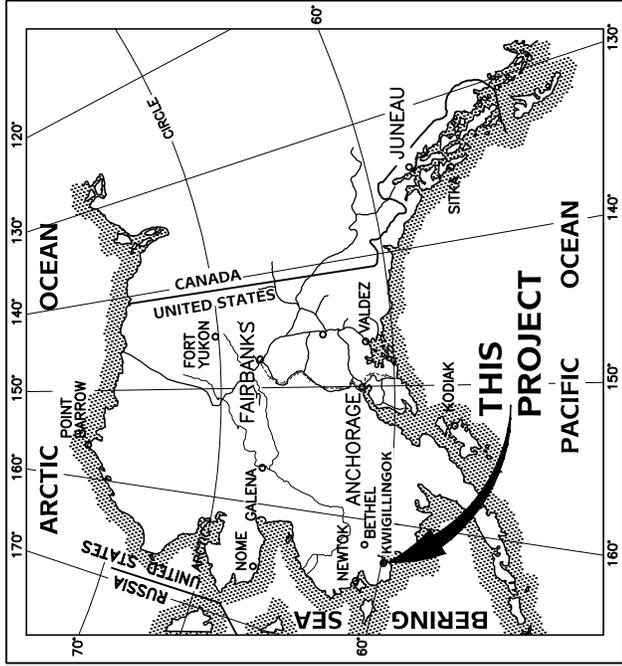
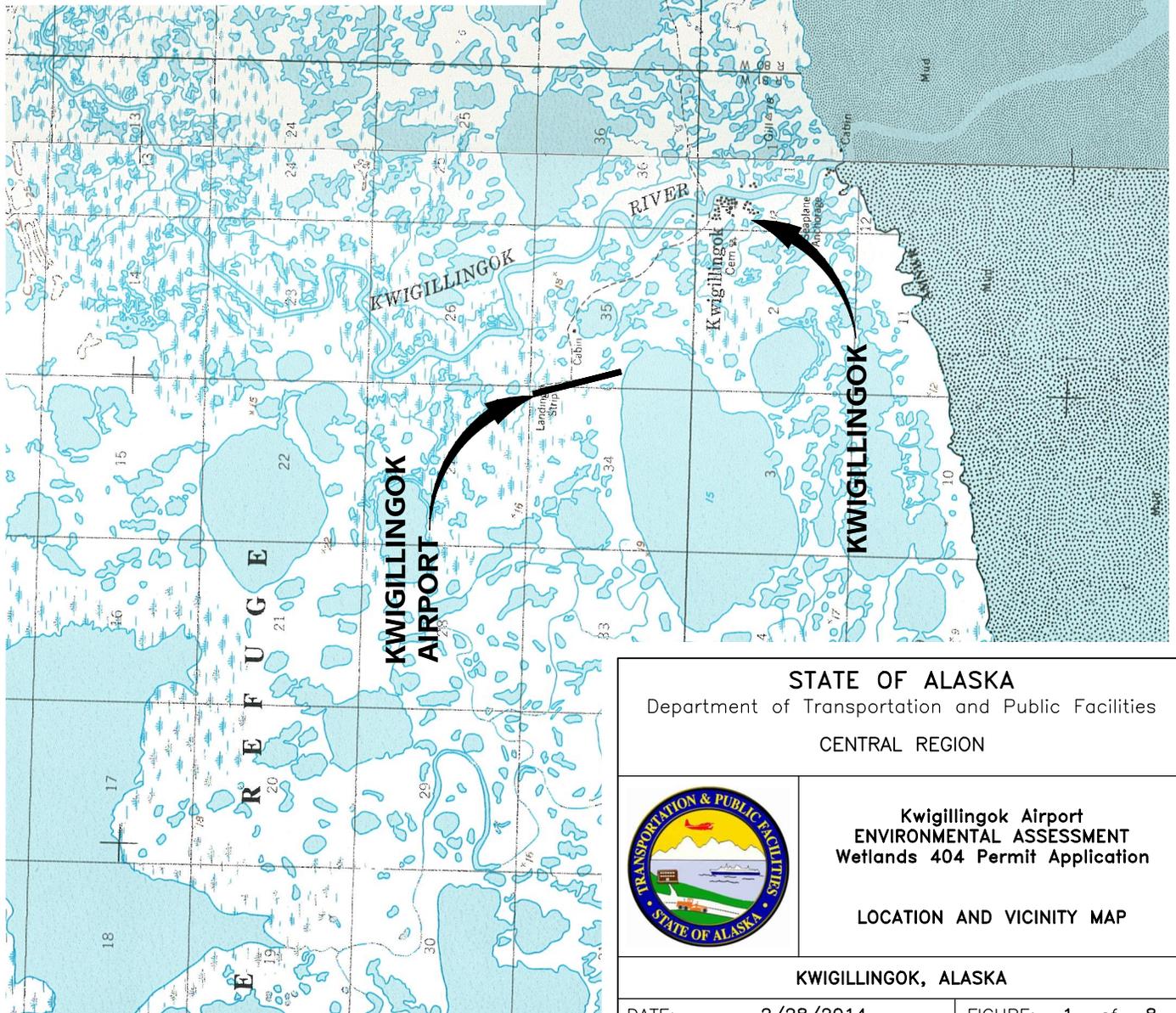
- Siting the apron in an area requiring the least embankment fill.
- The potential for sediment transport off the project site would be minimized by the use of a 20-foot vegetated buffer around the airport footprint, and implementing BMPs that will be identified in the SWPPP.
- Side slopes would be revegetated immediately after the embankment is placed.
- The majority of construction is anticipated to be scheduled during winter months, minimizing the effect on wetlands.
- Planning the shortest route possible to the airport from the community.

Due to the quality of local embankment material, constructing fill slopes steeper than normal is problematic. Previous DOT&PF experience has shown that using steeper side slopes with the type of material available in Kwigillingok and on soils similar to those in Kwigillingok would likely result in sloughing material, slope erosion, and embankment failure(s).

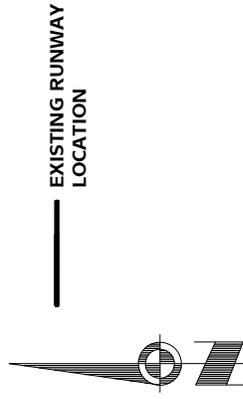
5 COMPENSATION

Compensatory mitigation for unavoidable impacts to 128 acres of wetlands shall be provided in accordance with USACE RGL ID No. 09-01, which requires a mitigation plan based on the functions and values of the affected wetlands, and compensatory mitigation for federally funded projects.

DOT&PF proposes in-lieu fee compensatory mitigation at a 2:1 ratio. As a result, the compensatory mitigation for this project must be sufficient to purchase and permanently preserve 256 acres of similar wetlands. Based on the 2013 AKILF Program Instrument's proposed fees, Southwest remote slope/flat/depressional wetlands have a mitigation rate of \$5,500 a credit. For Kwigillingok, a base mitigation rate of \$5,500 per acre was used to estimate the mitigation fee. The total in-lieu compensatory mitigation fee for this project would be \$1,408,000.



LOCATION MAP



SEC 26, 27, 34, 35, T3S, R81W;
SEWARD MERIDIAN

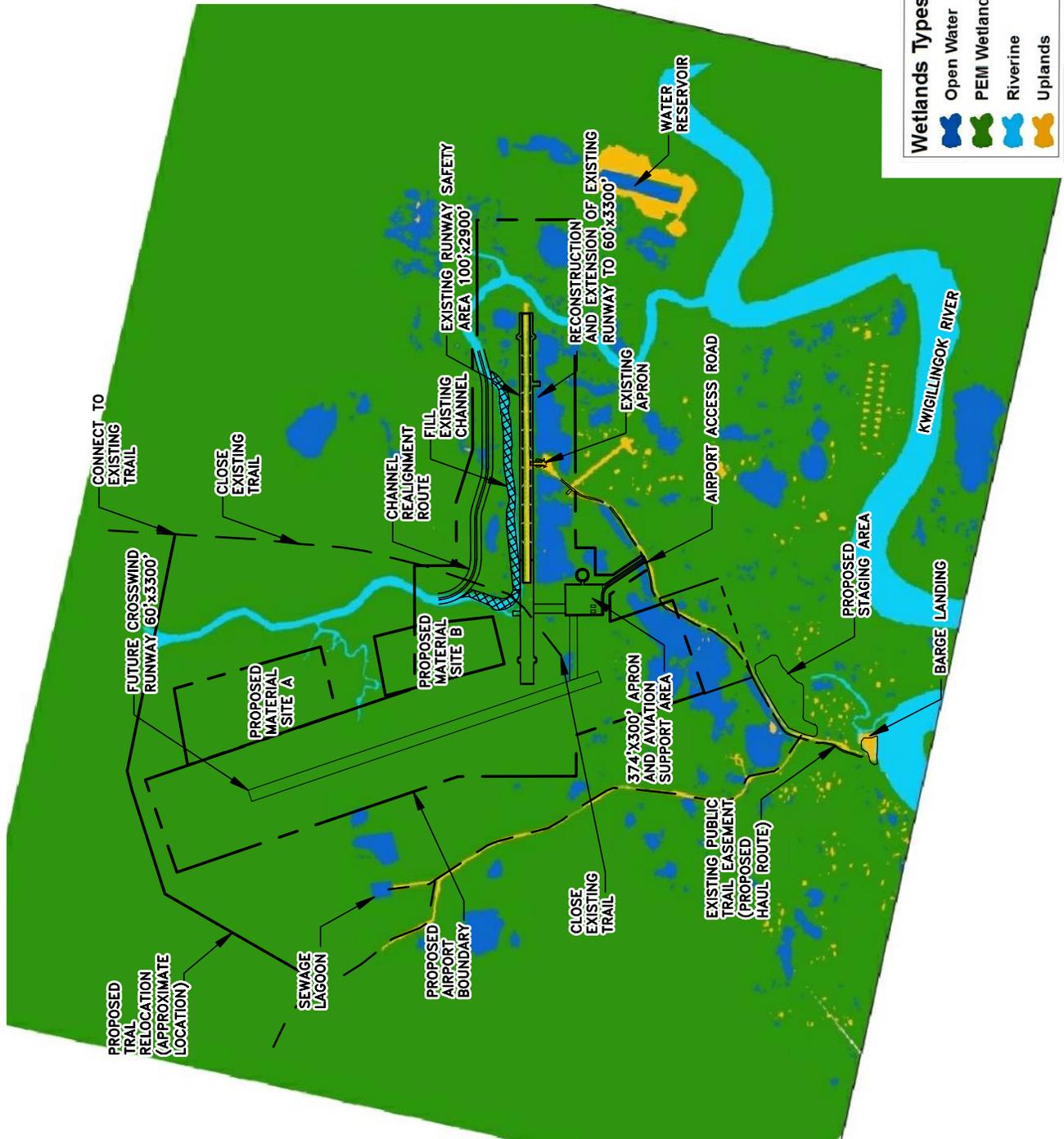


<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p> <p>LOCATION AND VICINITY MAP</p>
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	2/28/2014
FIGURE:	1 of 8

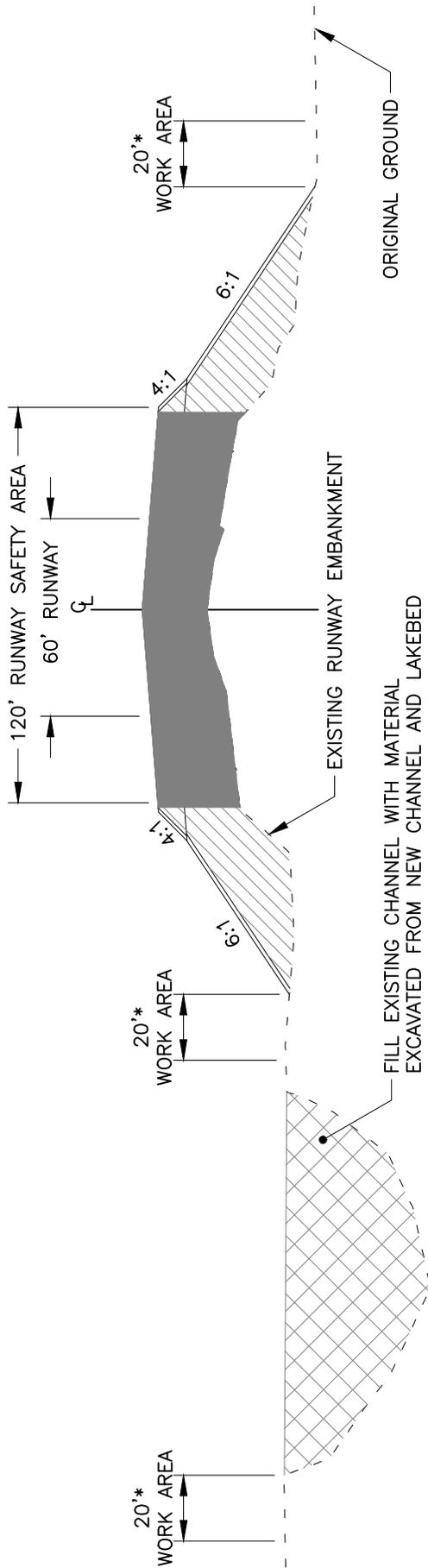


NOTES:

1. THE 2013 WETLANDS DELINEATION WAS DEVELOPED USING ETERRA PHOTOGRAPHY, SITE PHOTOGRAPHS, AND THE MOST CURRENT AVAILABLE NWI MAPS PROVIDED BY THE U.S. FISH AND WILDLIFE SERVICE.



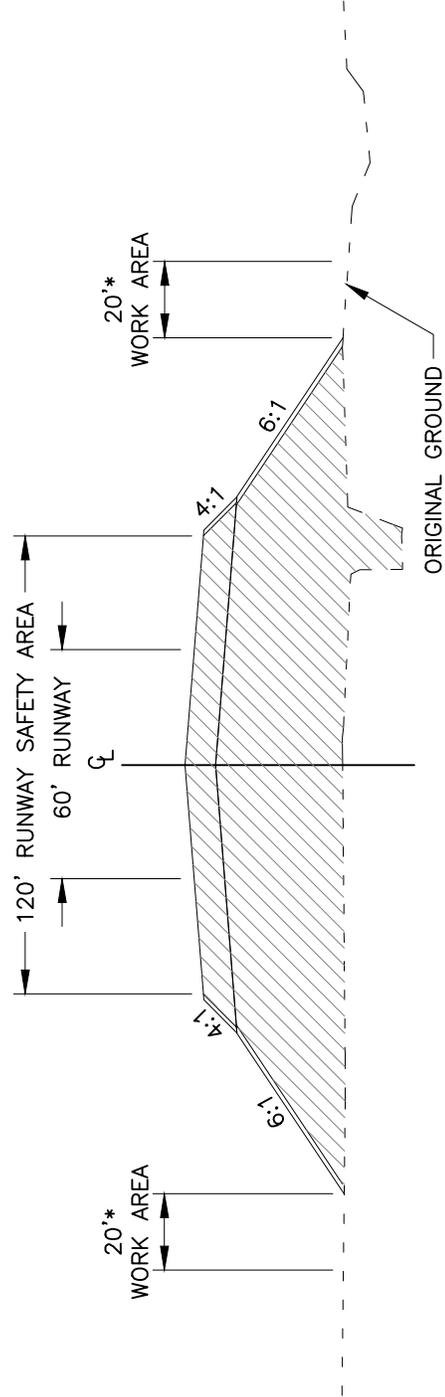
<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p>
<p>WETLANDS AND PROPOSED ACTION</p>	
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	2/28/2014
FIGURE:	2 of 8



EXISTING RUNWAY RECONSTRUCTION TYPICAL SECTION

- FILL IN CHANNEL
- FILL IN WETLANDS
- FILL IN UPLANDS

* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.

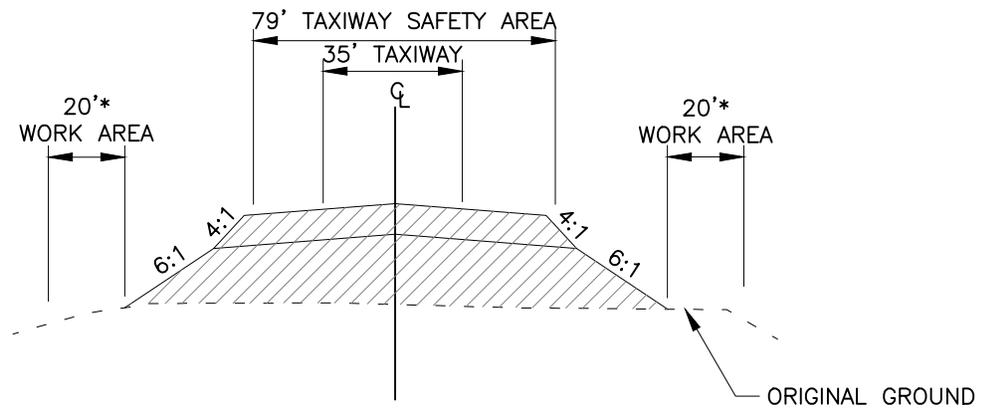


RUNWAY EXTENSION TYPICAL SECTION

- FILL IN WETLANDS

<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p> <p>TYPICAL SECTION TYPICAL SECTION OF RUNWAY</p>
<p>KWIGILLINGOK, ALASKA</p>	
<p>DATE: 2/28/2014</p>	<p>FIGURE: 3 of 8</p>

P:\2010\F10101\N\N1001\uceF10101: Typical Section of Taxiway Fri, 28/Feb/14 10:06 AM

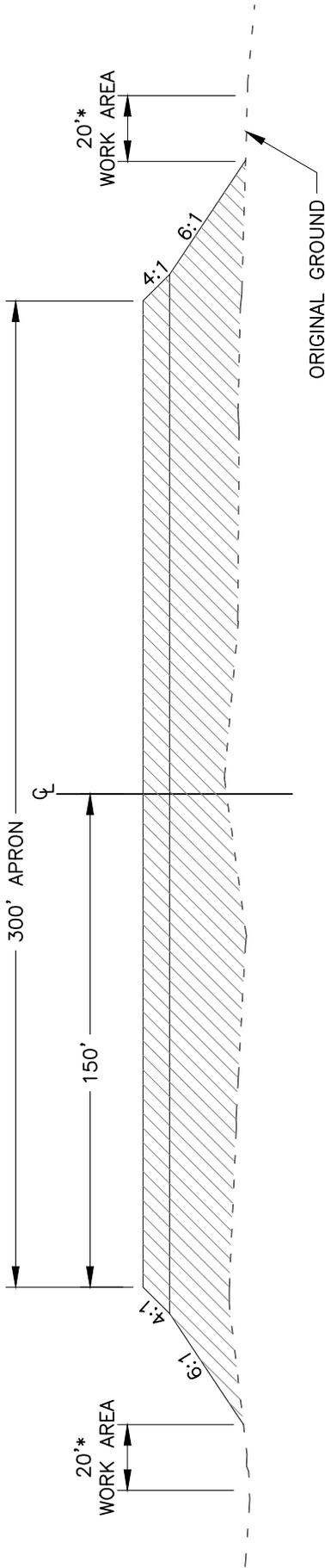


TAXIWAY TYPICAL SECTION

 FILL IN WETLANDS

* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.

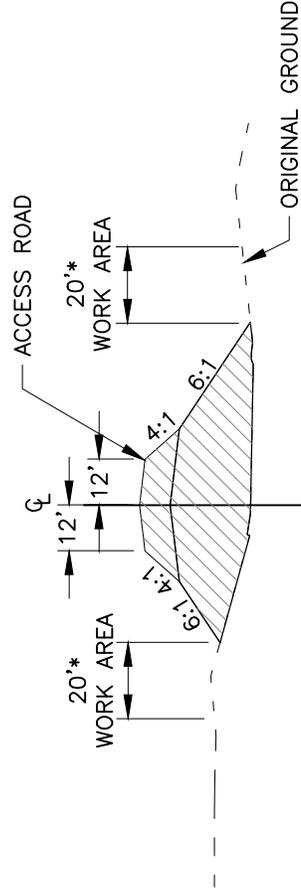
STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION	
	Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application TYPICAL SECTION TYPICAL SECTION OF TAXIWAY
KWIGILLINGOK, ALASKA	
DATE:	2/28/2014
	FIGURE: 4 of 8



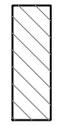
APRON TYPICAL SECTION

 FILL IN WETLANDS

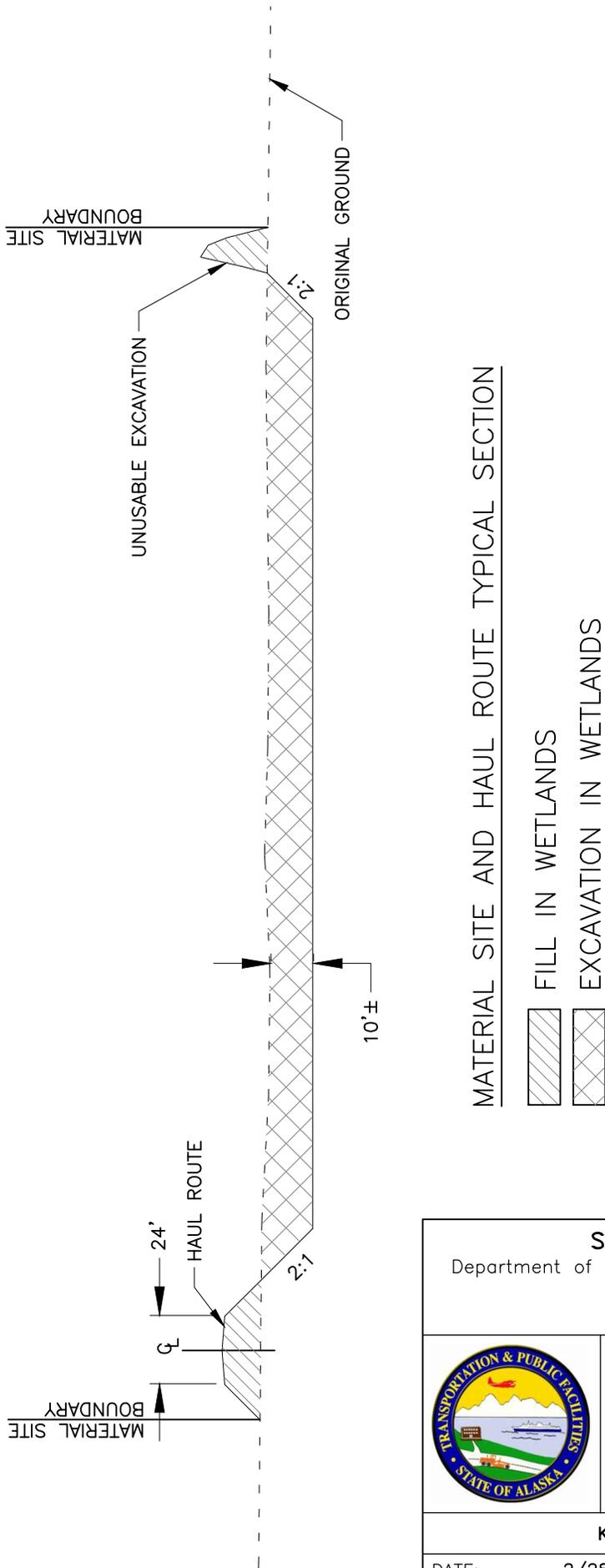
* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL.



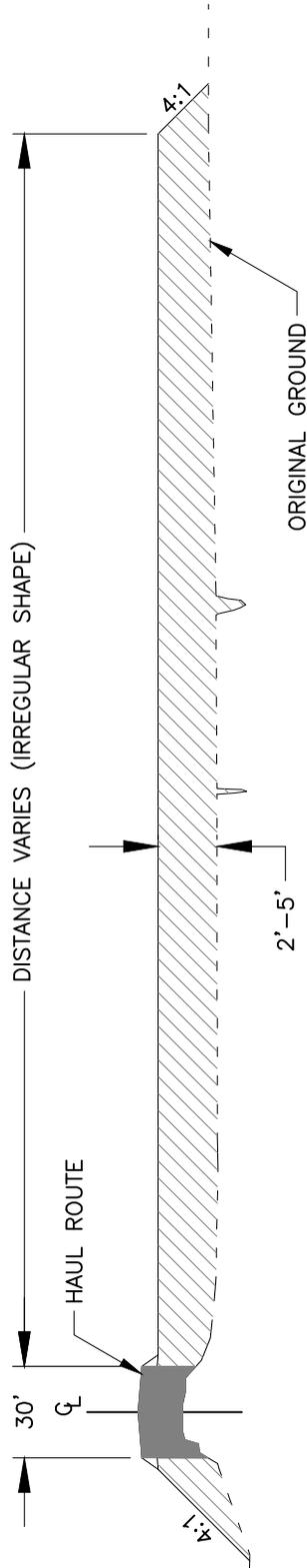
AIRPORT ACCESS ROAD TYPICAL SECTION

 FILL IN WETLANDS

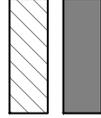
<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p> <p>TYPICAL SECTION TYPICAL SECTION OF APRON AND ACCESS ROAD</p>
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	2/28/2014
FIGURE:	5 of 8

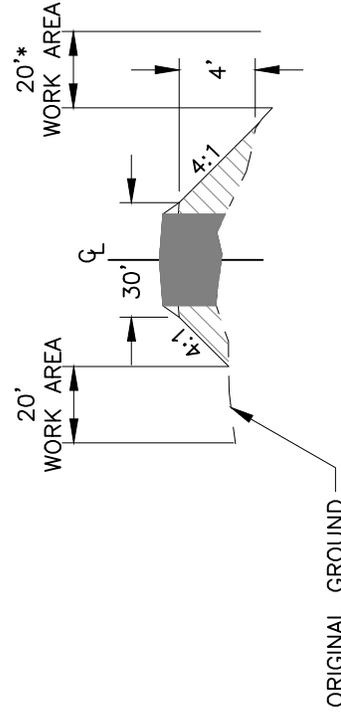


<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p> <p>TYPICAL SECTION MATERIAL SITES A AND B</p>
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	2/28/2014
FIGURE:	6 of 8

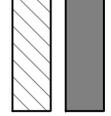


HAUL ROUTE AND STAGING AREA TYPICAL SECTION

-  FILL IN WETLANDS
-  FILL IN UPLANDS

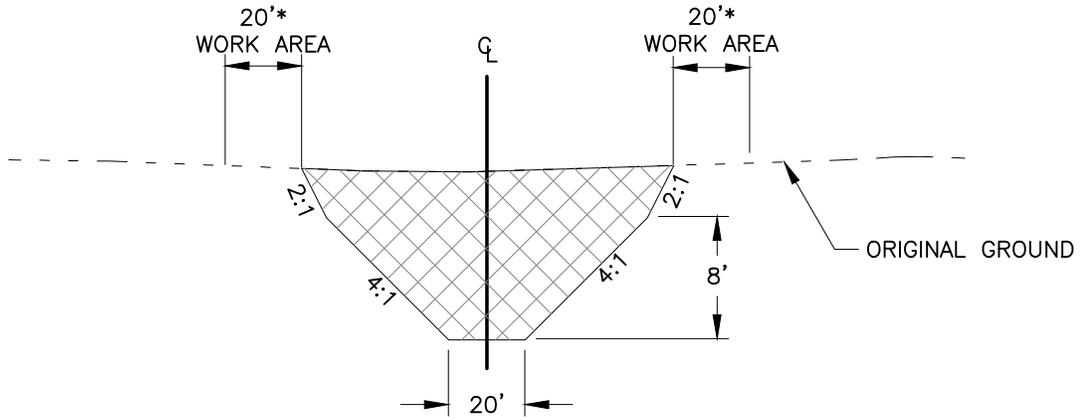


HAUL ROUTE TYPICAL SECTION

-  FILL IN WETLANDS
-  FILL IN UPLANDS

* WORK AREA 20' BEYOND FILL LIMITS IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL

<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p> <p>TYPICAL SECTION MATERIAL HAUL ROUTE TYPICAL SECTION</p>
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	2/28/2014
FIGURE:	7 of 8



CHANNEL TYPICAL SECTION

 EXCAVATION

* WORK AREA 20' BEYOND EXCAVATION LIMIT IS FOR A VEGETATIVE BUFFER TO PROVIDE EROSION CONTROL

<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Wetlands 404 Permit Application</p> <p>TYPICAL SECTION TYPICAL SECTION OF CHANNEL RE-ROUTE</p>
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	2/28/2014
FIGURE: 8	of 8

Fish Habitat



ALASKA DEPARTMENT OF FISH AND GAME FISH HABITAT PERMIT APPLICATION SPECIFIC INSTRUCTIONS

- NOTE:** Provide as much information as possible. If you need assistance, please contact the nearest ADF&G Division of Habitat office. The ADF&G reserves the right to require additional information for the proper protection of fish and game.
- Step A:** Provide your name, address, and telephone number and the name, address, and telephone number of the contractor who will be doing the work, if known.
- Step B:** Describe the type of project (e.g., bridge, culvert, utility line placement, impoundment structure, bank stabilization, channelization, low water crossing, log removal, etc.) and the purpose of the project. A brief description of alternatives considered would be useful but is not required. Attach additional sheets as necessary. [Back to Form](#)
- Step C:**
1. Name of the waterbody in or adjacent to which the project will occur.
 2. For Anadromous Stream numbers, refer to the [Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes](#).
 3. a. Provide plans (or field sketch) showing the following as a minimum: access to the site, plan view showing all project features and dimensions, or crossing/fording sites; material removal plans should also include, at a minimum, the following: 50' contour lines; nearby watercourses and lakes; location of facilities (i.e., screening, washing, and crushing plants, and commercial and private buildings); aliquot parts identified in order they are to be mined; site where fuel will be stored; a cross section view of the material site showing current land and water elevations and bank slopes and final excavation grades and slopes; and project expansion sites (scale no greater than 1 in. = 400 ft.)
 - b. Provide specifications, if available; and
 - c. Provide a current aerial photograph, if available. [Back to Form](#)
- Step D:** Indicate the time of year when project construction will occur. Is the project temporary or permanent?
- Step E:**
1. Provide information if applicable on how you will divert the stream.
 2. Indicate if channelization will occur.
 3. Provide information, if applicable, on how you will alter or modify the banks of the stream.
 4. List all vehicles or equipment by type and size that will be used in the stream.
 5. Provide information, if applicable, on what type and amount of material will be removed from the floodplain, bed, stream, or lake.
 6. Provide information, if applicable, on any material you will deposit in the floodplain, stream, or lake.

7. Provide information, if applicable, on any blasting you intend to do in the floodplain, stream, or lake.
8. Indicate if temporary fills will be required.
9. Indicate if ice bridges will be required.

Step F: What precautions will be taken to insure that fish and other aquatic organisms are protected from adverse impacts? Outline plan for restoring, rehabilitating, or re-vegetating the site if channel or bank alterations occur. What precautions will be taken to maintain State Water Quality Standards? [Back to Form](#)

Step G: Provide the waterbody characteristics at the site of the project.

Step H: Provide available hydraulic information for the types of projects indicated. For information on selecting a culvert size that will ensure fish passage, consult ADF&G permittees or references available at Division of Habitat offices.



FH# _____
(Office Use Only)

GENERAL WATERWAY/WATERBODY APPLICATION
ALASKA DEPARTMENT OF FISH AND GAME
Division of Habitat
Office Locations

A. APPLICANT

1. Name: Alaska Department of Transportation & Public Facilities
2. Address (Mailing): PO BOX 196900, Anchorage, AK 99519
 Email Address: taralyn.stone@alaska.gov
 Telephone: (907) 269-0534 Fax: _____
3. Project Coordinator/Contractor:
 Name: Taralyn Stone, Environmental Team Leader
 Address: DOT&PF
 Email Address: taralyn.stone@alaska.gov
 Telephone: (907)269-0534 Fax: _____

B. TYPE AND PURPOSE OF PROJECT: _____

ICE ROAD CONSTRUCTION/KWIGILLINGOK RIVER DEWATERING

The proposed project consists of airport improvements to the existing Kwigillingok Airport to bring deficiencies up to current State and FAA standards. Project components include: constructing a 3,780 foot long by 120 foot wide lighted runway and safety area with a taxiway, apron, navigational aids, 2 Snow Removal Equipment Buildings (one heated, one unheated) and an access road. Supplemental work includes: providing a haul road and staging area to import barged material for construction; and realignment of a channel currently eroding the embankment of the existing runway.

The purpose of the proposed project is to improve safety at the airport. This application covers dewatering activities for the winter construction of ice roads. It is the intent to be able to use both the Kwigillingok River main stream and its tributaries.

C. LOCATION OF PROJECT SITE

1. Name of River, Stream, or Lake: Kwigillingok River,
 or Anadromous Stream No: Kwigillingok River = Stream No. 335-40-15950
2. Legal Description: Township 03S Range 81 W
 Meridian SM Section 35 USGS Quad Map _____
3. Plans, Specifications, and Aerial Photograph. See specific instructions

D. **TIME FRAME FOR PROJECT:** Winter 2015 TO Winter 2017 (mm/dd/yy)

E. **CONSTRUCTION METHODS:**

1. Will the stream be diverted? Yes No

How will the stream be diverted? n/a

How long? n/a

2. Will stream channelization occur? Yes No

3. Will the banks of the stream be altered or modified? Yes No

Describe: n/a

4. List all tracked or wheeled equipment (type and size) that will be used in the stream (in the water, on ice, or in the floodplain): Water truck with intake line (on ice)

How long will equipment be in the stream? Only during construction, only during pumping.

5. a. Will material be removed from the floodplain, bed, stream, or lake? Yes No

Type: n/a

Amount: n/a

b. Will material be removed from below the water table? Yes No

If so, to what depth? n/a

Is a pumping operation planned? Yes No

6. Will material (including spoils, debris, or overburden) be deposited in the floodplain, stream, or lake? Yes No

If so, what type? n/a

Amount: n/a

Disposal site location(s): Only water will be deposited along designated Haul Routes.

7. Will blasting be performed? Yes No

Weight of charges: n/a

Type of substrate: n/a

8. Will temporary fills in the stream or lake be required during construction (e.g., for construction traffic around construction site)? Yes No

9. Will ice bridges be required? Yes No

F. **SITE REHABILITATION/RESTORATION PLAN:** On a separate sheet present a site rehabilitation/restoration plan. [See specific instructions](#)

G. **WATERBODY CHARACTERISTICS:**

Width of stream: 1000' Depth of stream or lake: TBD

Type of stream or lake bottom (e.g., sand, gravel, mud): silt and fine sands

Stream gradient: 0.06 % (0.0006 ft/ft)

H. **HYDRAULIC EVALUATION:**

1. Will a structure (e.g., culvert, bridge support, dike) be placed below ordinary high water of the stream? Yes No

If yes, attach engineering drawings or a field sketch, as described in [Step B](#).

For culverts, attach stream discharge data for a mean annual flood (Q=2.3), if available.

If applicable, describe potential for channel changes and/or increased bank erosion:

2. Will more than 25,000 cubic yards of material be removed? Yes No

If yes, attach a written hydraulic evaluation including, at a minimum, the following: potential for channel changes, assessment of increased aufeis (glaciering) potential, assessment of potential for increased bank erosion.

I HEREBY CERTIFY THAT ALL INFORMATION PROVIDED ON OR IN CONNECTION WITH THIS APPLICATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Signature of Applicant

Date

**Alaska Department of Fish and Game Division of Habitat
Fish Habitat Permit Application: Attachment**

Kwigillingok Airport Improvements

ICE ROAD CONSTRUCTION

F. SITE REHABILITATION/RESTORATION PLAN

As required by the application instructions (Step F), this plan outlines the precautions taken to insure that fish and other aquatic organisms are protected from adverse impacts. If channel or bank alterations occur, this plan outlines the steps to be taken to restore, rehabilitate, or re-vegetate the site. Finally, this plan also outlines the precautions to be taken to maintain State Water Quality Standards.

In order to ensure that **fish and aquatic organisms are protected from adverse impacts**, the project's work plan will include the following requirements:

1. In order to avoid entrainment or injury to fish, a properly sized and screened structure must surround the water intake. The intake screen will be monitored during operations to ensure the screening is functional and that no blockage by debris has occurred.
2. The streambed and bank of the river will not be excavated or altered in any manner to facilitate the water withdrawal.

If **channel or bank alterations occur**, the following steps will be taken to restore and rehabilitate the site:

- Stream banks will not be altered or disturbed to facilitate the ice road. Should an unexpected activity disturb the bank or channel, work will stop immediately. The ADFG Division of Habitat will be notified and consulted.

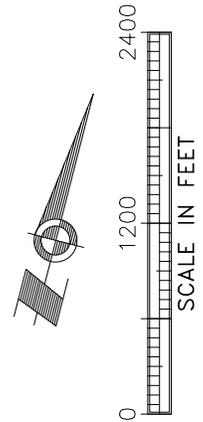
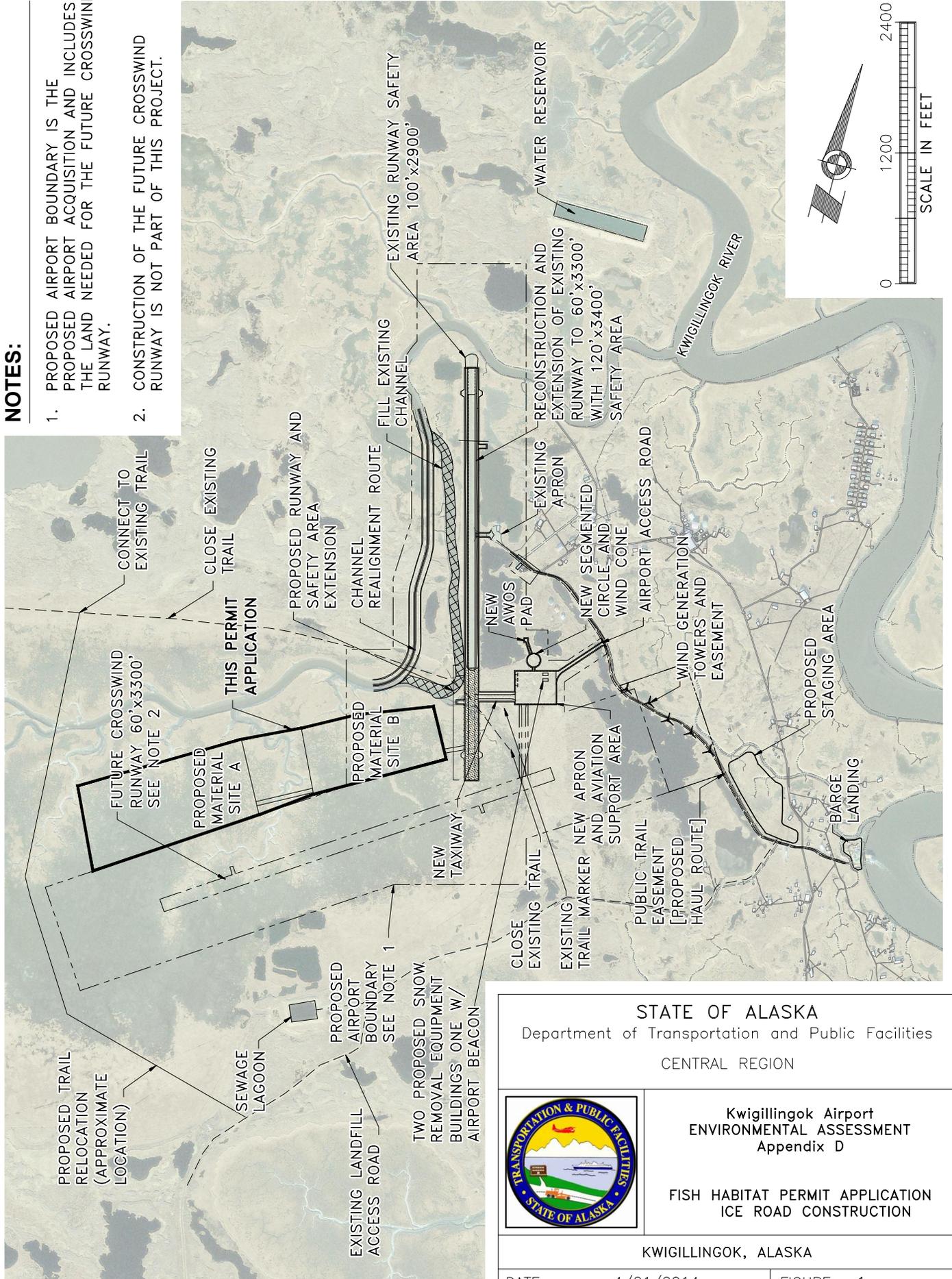
In order to **maintain State Water Quality Standards**, the following steps will be taken:

- Winter construction will avoid and minimize sediments from contributing to the turbidity of the channel.

As an added precaution, a copy of the pending permit will be kept on site. Should any unexpected activity arise, and work deviates from this plan, the ADF&G Division of Habitat will be notified. Work will be dependent on the receipt of written approval for the permit amendment before resuming work.

NOTES:

1. PROPOSED AIRPORT BOUNDARY IS THE PROPOSED AIRPORT ACQUISITION AND INCLUDES THE LAND NEEDED FOR THE FUTURE CROSSWIND RUNWAY.
2. CONSTRUCTION OF THE FUTURE CROSSWIND RUNWAY IS NOT PART OF THIS PROJECT.



<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Appendix D</p>
<p>FISH HABITAT PERMIT APPLICATION ICE ROAD CONSTRUCTION</p>	
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	4/21/2014
FIGURE:	1



ALASKA DEPARTMENT OF FISH AND GAME FISH HABITAT PERMIT APPLICATION SPECIFIC INSTRUCTIONS

NOTE: Provide as much information as possible. If you need assistance, please contact the nearest ADF&G Division of Habitat office. The ADF&G reserves the right to require additional information for the proper protection of fish and game.

Step A: Provide your name, address, and telephone number and the name, address, and telephone number of the contractor who will be doing the work, if known.

Step B: Describe the type of project (e.g., bridge, culvert, utility line placement, impoundment structure, bank stabilization, channelization, low water crossing, log removal, etc.) and the purpose of the project. A brief description of alternatives considered would be useful but is not required. Attach additional sheets as necessary. [Back to Form](#)

Step C: **1.** Name of the waterbody in or adjacent to which the project will occur.
2. For Anadromous Stream numbers, refer to the [Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes](#).

3. a. Provide plans (or field sketch) showing the following as a minimum: access to the site, plan view showing all project features and dimensions, or crossing/fording sites; material removal plans should also include, at a minimum, the following: 50' contour lines; nearby watercourses and lakes; location of facilities (i.e., screening, washing, and crushing plants, and commercial and private buildings); aliquot parts identified in order they are to be mined; site where fuel will be stored; a cross section view of the material site showing current land and water elevations and bank slopes and final excavation grades and slopes; and project expansion sites (scale no greater than 1 in. = 400 ft.)

b. Provide specifications, if available; and

c. Provide a current aerial photograph, if available. [Back to Form](#)

Step D: Indicate the time of year when project construction will occur. Is the project temporary or permanent?

Step E: **1.** Provide information if applicable on how you will divert the stream.
2. Indicate if channelization will occur.
3. Provide information, if applicable, on how you will alter or modify the banks of the stream.
4. List all vehicles or equipment by type and size that will be used in the stream.
5. Provide information, if applicable, on what type and amount of material will be removed from the floodplain, bed, stream, or lake.
6. Provide information, if applicable, on any material you will deposit in the floodplain, stream, or lake.

7. Provide information, if applicable, on any blasting you intend to do in the floodplain, stream, or lake.
8. Indicate if temporary fills will be required.
9. Indicate if ice bridges will be required.

Step F: What precautions will be taken to insure that fish and other aquatic organisms are protected from adverse impacts? Outline plan for restoring, rehabilitating, or re-vegetating the site if channel or bank alterations occur. What precautions will be taken to maintain State Water Quality Standards? [Back to Form](#)

Step G: Provide the waterbody characteristics at the site of the project.

Step H: Provide available hydraulic information for the types of projects indicated. For information on selecting a culvert size that will ensure fish passage, consult ADF&G permittees or references available at Division of Habitat offices.



FH# _____
(Office Use Only)

GENERAL WATERWAY/WATERBODY APPLICATION
ALASKA DEPARTMENT OF FISH AND GAME
Division of Habitat
Office Locations

A. APPLICANT

- Name: Alaska Department of Transportation & Public Facilities
- Address (Mailing): PO BOX 196900, Anchorage, AK 99519
 Email Address: taralyn.stone@alaska.gov
 Telephone: (907) 269-0534 Fax: _____
- Project Coordinator/Contractor:
 Name: Taralyn Stone, Environmental Team Leader
 Address: DOT&PF
 Email Address: taralyn.stone@alaska.gov
 Telephone: (907)269-0534 Fax: _____

B. TYPE AND PURPOSE OF PROJECT: _____

CHANNEL REALIGNMENT OF THE UNNAMED TRIBUTARY TO THE KWIGILLINGOK RIVER

The proposed project consists of airport improvements of the existing Kwigillingok Airport to bring deficiencies up to current State and FAA standards. Project components include: constructing a 3,780 foot long by 120 foot wide lighted runway and safety area with a taxiway, apron, navigational aids, 2 Snow Removal Equipment Buildings (one heated, one unheated), and an access road. Supplemental work includes: providing a haul road and staging area to import barged materials for construction; construction of an ice road during winter months to facilitate work, and realignment of a channel currently eroding the embankment of the existing runway.

The purpose of the proposed project is to improve safety at the airport.

This application covers channel reroute work for the channel currently eroding the existing runway. The channel is an unnamed tributary of the Kwigillingok River, anadromous stream number 335-40-15950.

C. LOCATION OF PROJECT SITE

- Name of River, Stream, or Lake: Unnamed Tributary to the Kwigillingok River,
 or Anadromous Stream No: Kwigillingok River = Stream No. 335-40-15950
- Legal Description: Township 03S Range 81 W
 Meridian SM Section 34 & 35 USGS Quad Map _____
- Plans, Specifications, and Aerial Photograph. See specific instructions

D. **TIME FRAME FOR PROJECT:** Winter 2015 TO Winter 2017 (mm/dd/yy)

E. **CONSTRUCTION METHODS:**

1. Will the stream be diverted? Yes No
How will the stream be diverted? In the winter, the new stream will be excavated and material will be relocated to fill in a section of the old channel.
How long? Permanently
2. Will stream channelization occur? Yes No
3. Will the banks of the stream be altered or modified? Yes No
Describe: The new channel is V shaped and designed to mimic the existing channel shape with a similar narrow bottom and a combination of 4:1 and 2:1 slopes.
4. List all tracked or wheeled equipment (type and size) that will be used in the stream (in the water, on ice, or in the floodplain): backhoe, excavator, grader, dozer
How long will equipment be in the stream? As needed to complete the work, ~ 3 months
5. a. Will material be removed from the floodplain, bed, stream, or lake? Yes No
Streambed material will likely be excavated. Wetlands along the proposed Channel
Type: Reroute will be excavated and relocated to fill in a section of the old channel.
Amount: 70,000 CY, removed and used to fill in old stream.
b. Will material be removed from below the water table? Yes No
If so, to what depth? 11 feet
Is a pumping operation planned? Yes No
6. Will material (including spoils, debris, or overburden) be deposited in the floodplain, stream, or lake? Yes No
If so, what type? fine sands, silt, embankment, and overburden material
Amount: 70,000 CY, enough to fill in the old channel section
Disposal site location(s): Old Channel Section
7. Will blasting be performed? Yes No
Weight of charges: TBD
Type of substrate: TBD
8. Will temporary fills in the stream or lake be required during construction (e.g., for construction traffic around construction site)? Yes No
9. Will ice bridges be required? Yes No

F. SITE REHABILITATION/RESTORATION PLAN: On a separate sheet present a site rehabilitation/restoration plan. [See specific instructions](#)

G. WATERBODY CHARACTERISTICS:

Width of stream: new = 100', existing= 120' Depth of stream or lake: new=11', existing=10'

Type of stream or lake bottom (e.g., sand, gravel, mud): silt and fine sands, gravel

Stream gradient: 0.06 % (0.0006 ft/ft)

H. HYDRAULIC EVALUATION:

1. Will a structure (e.g., culvert, bridge support, dike) be placed below ordinary high water of the stream? Yes No

If yes, attach engineering drawings or a field sketch, as described in [Step B](#).

For culverts, attach stream discharge data for a mean annual flood (Q=2.3), if available.

If applicable, describe potential for channel changes and/or increased bank erosion:

2. Will more than 25,000 cubic yards of material be removed? Yes No

If yes, attach a written hydraulic evaluation including, at a minimum, the following: potential for channel changes, assessment of increased aufeis (glaciating) potential, assessment of potential for increased bank erosion.

I HEREBY CERTIFY THAT ALL INFORMATION PROVIDED ON OR IN CONNECTION WITH THIS APPLICATION IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Signature of Applicant

Date

**Alaska Department of Fish and Game Division of Habitat
Fish Habitat Permit Application: Attachment**

Kwigillingok Airport Improvements

CHANNEL REALIGNMENT

F. SITE REHABILITATION/RESTORATION PLAN

As required by the application instructions (Step F), this plan outlines the precautions taken to insure that fish and other aquatic organisms are protected from adverse impacts. If channel or bank alterations occur, this plan outlines the steps to be taken to restore, rehabilitate, or revegetate the site. Finally, this plan also outlines the precautions to be taken to maintain State Water Quality Standards.

In order to ensure that **fish and aquatic organisms are protected from adverse impacts**, the project's work plan will include the following requirements:

1. Stream realignment work will be conducted in the winter to minimize impact to fish habitat.
2. Construction shall be conducted in a manner to avoid the introduction of sediments, contaminants, or other materials into the waters of the Kwigillingok River tributary (tidal channel) both during and after construction.
3. Should flowing water be discovered during construction, a barrier will be installed below the ordinary high water mark of the river to isolate flowing water from the work area.
4. Erosion prevention will include stabilization of the bank cuts, slopes and fills both during and after construction.
5. No fuel shall be stored along the banks of the Kwigillingok River. Similarly, no vehicles will be fueled or serviced along the banks.

If **channel or bank alterations occur**, the following steps will be taken to restore and rehabilitate the site:

1. Winter construction will allow sufficient prevention of bank or channel alteration. Should open water be discovered, efforts to install a barrier below the ordinary high water mark of the river will be made to isolate flowing water from the work area.
2. All bank cuts, slopes, fills or other exposed earthwork above the tidally flooded waterways will be stabilized to restore the site.
3. Following construction, the embankments and disturbed areas above the tidally flooded waterways will be revegetated with native seed to ensure the alterations are stabilized.

In order to **maintain State Water Quality Standards**, the following step will be taken:

- Winter construction will avoid and minimize sediments from contributing to the turbidity of the channel.
- Revegetation of the embankments, cuts and slopes will occur following construction.

As an added precaution, a copy of the pending permit will be kept on site. Should any unexpected activity arise, and work deviates from this plan, the ADF&G Division of Habitat will be notified. Work will be dependent on the receipt of written approval for the permit amendment before resuming work.

H. HYDRAULIC EVALUATION

As required by the application instructions (Step H), since more than 25,000 cubic yards of material is anticipated to be removed during the channel realignment work, at a minimum, the following need to be described in a hydraulic evaluation:

- Potential for channel changes
- An assessment of increased aufeis (glaciering) potential
- An assessment of potential for increased bank erosion

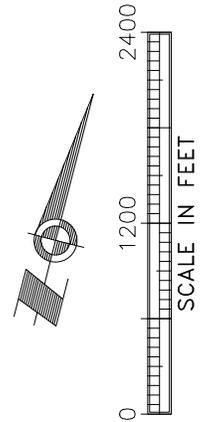
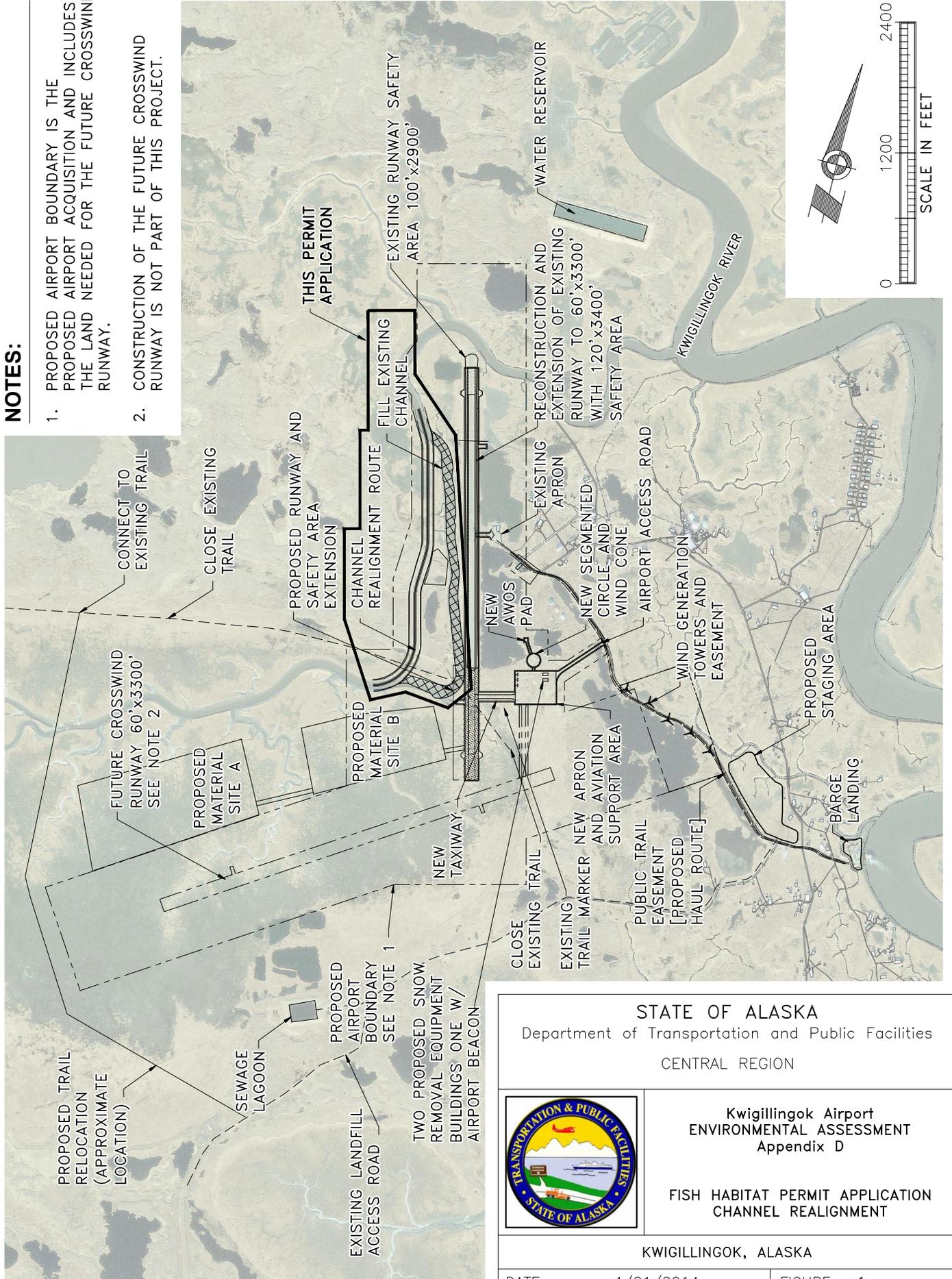
On behalf of the Department of Transportation and Public Facilities (DOT&PF), Hydraulic Mapping and Modeling hydraulic engineer Ken Karle (CE-9487) prepared a Hydrologic and Hydraulic Report for the Kwigillingok Airport Improvements project. The report describes hydrologic characteristics of Kwigillingok and includes a hydraulic analysis of the preferred design for runway embankment erosion protection.

Specifically, the hydrologist analyzed the reason for bank erosion along the tidal channel currently responsible for eroding the runway. Analyzing the erosion of the existing channel allows assessment of erosion protection along the new channel. Design recommendations for the new channel realignment and erosion protection are included in the report.

For further information and analysis, see the *Kwigillingok Airport Hydrologic and Hydraulic Analysis* (2014). The report is kept on file at DOT&PF and is available upon request.

NOTES:

1. PROPOSED AIRPORT BOUNDARY IS THE PROPOSED AIRPORT ACQUISITION AND INCLUDES THE LAND NEEDED FOR THE FUTURE CROSSWIND RUNWAY.
2. CONSTRUCTION OF THE FUTURE CROSSWIND RUNWAY IS NOT PART OF THIS PROJECT.



<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
 <p>Kwigillingok Airport ENVIRONMENTAL ASSESSMENT Appendix D</p>	
<p>FISH HABITAT PERMIT APPLICATION CHANNEL REALIGNMENT</p>	
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	4/21/2014
FIGURE:	1

Material Site Reclamation Plan

**STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER**

Northern Region
3700 Airport Way
Fairbanks, AK 99709
(907) 451-2740

Southcentral Region
550 W 7th Ave., Suite 900C
Anchorage, AK 99501-3577
(907) 269-8552

Southeast Region
400 Willoughby, #400
P.O. Box 111020
Juneau, AK 99801
(907) 465-3400

**MATERIAL SITE RECLAMATION PLAN OR
LETTER OF INTENT/ANNUAL RECLAMATION STATEMENT
AS 27.19.030 – 27.19.050**

Non-refundable filing fee for reclamation plan: \$100

In accordance with Alaska Statute 27.19, reclamation is required of all mining operations, including sand and gravel extraction. Completion of this form will meet the law's requirements for a **reclamation plan** (see below for filing requirements; due date: at least 45 days before mining is proposed to begin; requires approval by the Division of Mining, Land and Water). Completion of this form will also serve as a **letter of intent** for operations exempt from the plan requirement (due date: before mining begins). No approval is required for a letter of intent, but a miner who files a letter of intent must, before December 31, file an **annual reclamation statement** (Section 8 of this form).



Check applicable box:

A. RECLAMATION PLAN (REQUIRED if the operation will disturb five or more acres this year, OR 50,000 cubic yards, OR if the operation has a cumulative disturbed area of five or more acres)

C. LETTER OF INTENT (less than five acres to be disturbed AND less than 50,000 cubic yards AND less than five acres unreclaimed area)
NOTE: A miner who files a letter of intent is also required to file an annual reclamation statement at the end of the year.

B. RECLAMATION PLAN—VOLUNTARY (for an operation below limits shown in Box A but wanting to qualify for the statewide bonding pool)

THIS RECLAMATION PLAN/LETTER OF INTENT IS FOR CALENDAR YEAR 2015-2016.
(IF YOU CHECKED EITHER BOX A OR B ABOVE AND PROPOSE A MULTI-YEAR PLAN, STATE ALL YEARS COVERED.)

1. MINER INFORMATION (IF THERE IS MORE THAN ONE MINER, ATTACH A LIST OF THE NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF ALL OTHER OWNERS, OPERATORS, OR LEASEHOLDERS OF THE MINING OPERATION)

Alaska Department of Transportation and Public Facilities

NAME OF MINER WHO WILL SERVE AS AGENT FOR NOTICE PURPOSES

PO BOX 196900

ADDRESS (NOTIFY THE DEPARTMENT OF ANY LATER CHANGE OF ADDRESS)

Anchorage	AK	99519	907-269-0531
CITY	STATE	ZIP CODE	TELEPHONE

Kwik Inc., Calista Corporation, and Native Village of Kwigillingok

NAME OF LANDOWNER (IF OTHER THAN MINER) OR PUBLIC LAND MANAGEMENT AGENCY

N/A

FEDERAL OR STATE CASEFILE NUMBER (IF ANY) ASSIGNED TO THE SITE

2. LEGAL DESCRIPTION OF PROPOSED MINING SITE

Section 35	03 South	81 West	Seward
LEGAL SUBDIVISION/ SECTION/ QUARTER-SECTION	TOWNSHIP	RANGE	MERIDIAN

3. **DESCRIPTION OF THE MINING OPERATION** (IF YOU CHECKED BOX A OR B ON P. 1 OF THIS FORM AND ARE PROPOSING A MULTI-YEAR RECLAMATION PLAN, ATTACH SEPARATE SHEETS AS NEEDED SHOWING ACREAGE TO BE MINED, VOLUME TO BE MINED, AND EXISTING ACREAGE OF MINED AREA FOR EACH YEAR COVERED BY THE PLAN)

- a. 57 acres Total acreage to be mined or disturbed during the year.
- b. 520,000 cu. yds. Estimated total volume to be mined or disturbed, including overburden.
- c. Overburen tundra, sand, silt Type of material (sand, gravel, peat, etc.).
- d. 0 acres Existing acreage of mined area (disturbed area that has not yet been reclaimed, but counting only acreage disturbed after October 15, 1991)

4. DESCRIPTION OF THE RECLAMATION OPERATION

- a. The total acreage that will be reclaimed during the year (or each year, if for a multi-year reclamation plan) is:
57.
- b. Provide a list of equipment (type and quantity) to be used during the reclamation operation. backhoe, grader, hydroseeder, water for re-vegetation, dump truck
- c. A time schedule of reclamation measures shall be included as part of the plan.

The following measures must be considered in preparing and implementing the reclamation plan. Please mark those measures appropriate to your reclamation activity:

- Topsoil that is not promptly redistributed to an area being reclaimed will be separated and stockpiled for future use. This material will be protected from erosion and contamination by acidic or toxic materials and preserved in a condition suitable for later use.
- The area will be backfilled, graded and recontoured using strippings, overburden, and topsoil to a condition that allows for the reestablishment of renewable resources on the site within a reasonable period of time. It will be stabilized to a condition that will allow sufficient moisture to be retained for natural revegetation.
- Stockpiled topsoil will be spread over the reclaimed area to promote natural plant growth that can reasonably be expected to revegetate the area within five years.
- Stream channel diversions will be relocated to a stable location in the flood plain.
- Exploration trenches or pits will be backfilled. Brush piles, vegetation, topsoil, and other organics will be spread on the backfilled surface to inhibit erosion and promote natural revegetation.
- All buildings and structures constructed, used, or improved on land owned by the State of Alaska will be removed, dismantled, or otherwise properly disposed of at the completion of the mining operation.
- Any roads, airstrips or other facilities constructed to provide access to the mining operation shall be reclaimed (unless otherwise authorized) and included in the reclamation plan.
- Peat and topsoil mine operations shall ensure a minimum of two inches of suitable growing medium is left or replaced on the site upon completion of the reclamation activity.

- If extraction occurs within a flood plain, the reclamation activity shall reestablish a stable bed and bank profile such that river currents will not be altered and erosion and deposition patterns will not change.

NOTE: If you propose to use reclamation measures other than those shown above, or if the private landowner or public land manager of the site requires you to use stricter reclamation measures than those shown above, attach a list of those measures to this plan.

5. ALTERNATE POST-MINING LAND USE

- The mining site is public land. The land management agency's land use plan (if any) for post-mining land use is: _____.
- The mining site is public land. As allowed by AS 27.19.030(b), I propose to reclaim it to the following post-mining land use: _____.
- The mining site is private property. The private landowner plans to use it for the following post-mining land use: _____
No post-mining land use is known at this time.

6. ATTACHMENTS

- If the mining operation has additional owners, operators, or leaseholders not shown on p. 1 of this form, attach a list of their names, addresses, and telephone numbers.
- Attach a USGS map at a scale no smaller than 1:63,360 (inch to the mile) showing the general vicinity of the mining operation and the specific property to be mined. Option: If you checked Box C on the first page of this form and the mining site is adjacent to an airport or public highway, state the name of the airport or the name and milepost of the public highway.
- Attach a diagram of the mined area (this term includes the extraction site, stockpile sites, overburden disposal sites, stream diversions, settling ponds, etc.) and the mining operation as a whole (this term includes the roads you plan to build, your power lines, support facilities, etc.). Show and state the number of acres to be mined during the year. (If you checked Box A or B on the first page of this form and your plan covers more than one year, show each year's work.) Show the location corners or property boundaries of the site in relation to the reclamation work and any other areas affected by the operation.
- Attach a list of the equipment (type and quantity) to be used during the reclamation activity.
- A time schedule of events must be attached that includes dates and activities related to this reclamation plan.
- If the site is private land not owned by the miner, attach a signed, notarized statement from the landowner indicating the landowner's consent to the operation. The landowner may also use the consent statement to notify the department that the landowner plans a post-mining land use incompatible with natural revegetation and therefore believes that reclamation to the standard of AS 27.19.020 is not feasible.
- For those miners that are required to file an annual reclamation statement, attach photographs and/or videotapes dated and described as to location of the reclamation activity that was completed.
- If you propose to use reclamation measures other than those listed on this form, or if the private landowner or public land manager of the site requires you to use stricter reclamation measures, attach a list of those measures.

7. RECLAMATION BONDING (REQUIRED ONLY IF YOU CHECKED BOX A or B ON THE FIRST PAGE OF THIS FORM)

The total acreage of my mining operation that is subject to the bonding requirement for the current year is

57 acres (add acreages stated in Section 3(a) and 3(d) of this form).

The per-acre bond amount is \$750/acre or a total bond amount of \$_____.

Please check the appropriate bonding method that you will apply toward this reclamation plan:

- Participation in the statewide bonding pool.
- Posting a corporate surety bond.
- Posting a personal bond accompanied by a letter of credit, certificate of deposit, or a deposit of cash or gold.
- Posting a bond or financial guarantee with another government agency that has jurisdiction over the mining operation, as allowed by a cooperative management agreement between that agency and the Division of Mining, Land and Water.
- Posting a general performance bond with a state agency that meets the requirements of 11 AAC 97.400(4).

The above reclamation plan/letter of intent and all attachments are correct and complete to the best of my knowledge.

Signature of Miner

Date

AS 27.19.030 and AS 27.19.050 require a miner either to file a reclamation plan for approval or to file a letter of intent followed by an annual reclamation statement. **AS 38.05.035(a) authorizes the director to decide what information is needed to process an application for the sale or use of state land and resources. This information is made a part of the state public land records and becomes public information under AS 40.25.110 and 40.25.120 (unless the information qualifies for confidentiality under AS 38.05.035(a)(9) and confidentiality is requested). Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.**

8. **ANNUAL RECLAMATION STATEMENT—REQUIRED** IF YOU FILED A LETTER OF INTENT (CHECKED BOX C ON THE FIRST PAGE) FOR THIS OPERATION. DUE DATE: DECEMBER 31, _____. YOU MUST FILE EVEN IF THE MINING DESCRIBED IN YOUR LETTER OF INTENT DID NOT TAKE PLACE.

This _____ annual reclamation statement is for:
(year)

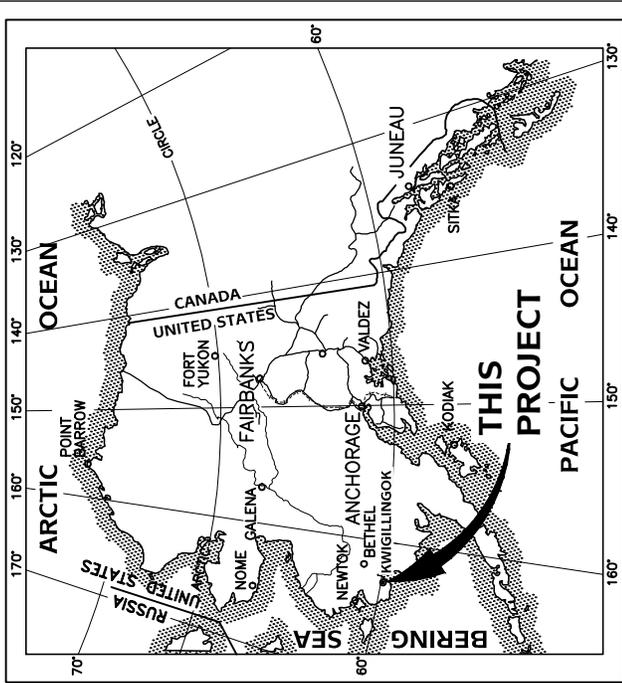
- a. _____ acres Total acreage mined.
- b. _____ cu. yds. Total volume mined or disturbed, including overburden.
- c. _____ acres Total acreage reclaimed.
- d. _____ acres Cumulative total of unreclaimed acreage.
- e. Reclamation measures that were used (check appropriate measures from Section 4, DESCRIPTION OF THE RECLAMATION OPERATION, and attach list of additional or stricter measures if applicable).

The above annual reclamation statement and all attachments are correct and complete to the best of my knowledge.

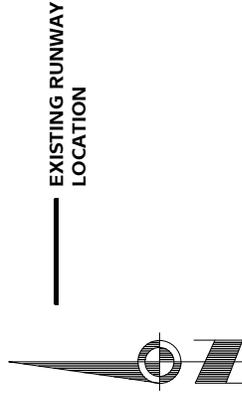
Signature of Miner

Date

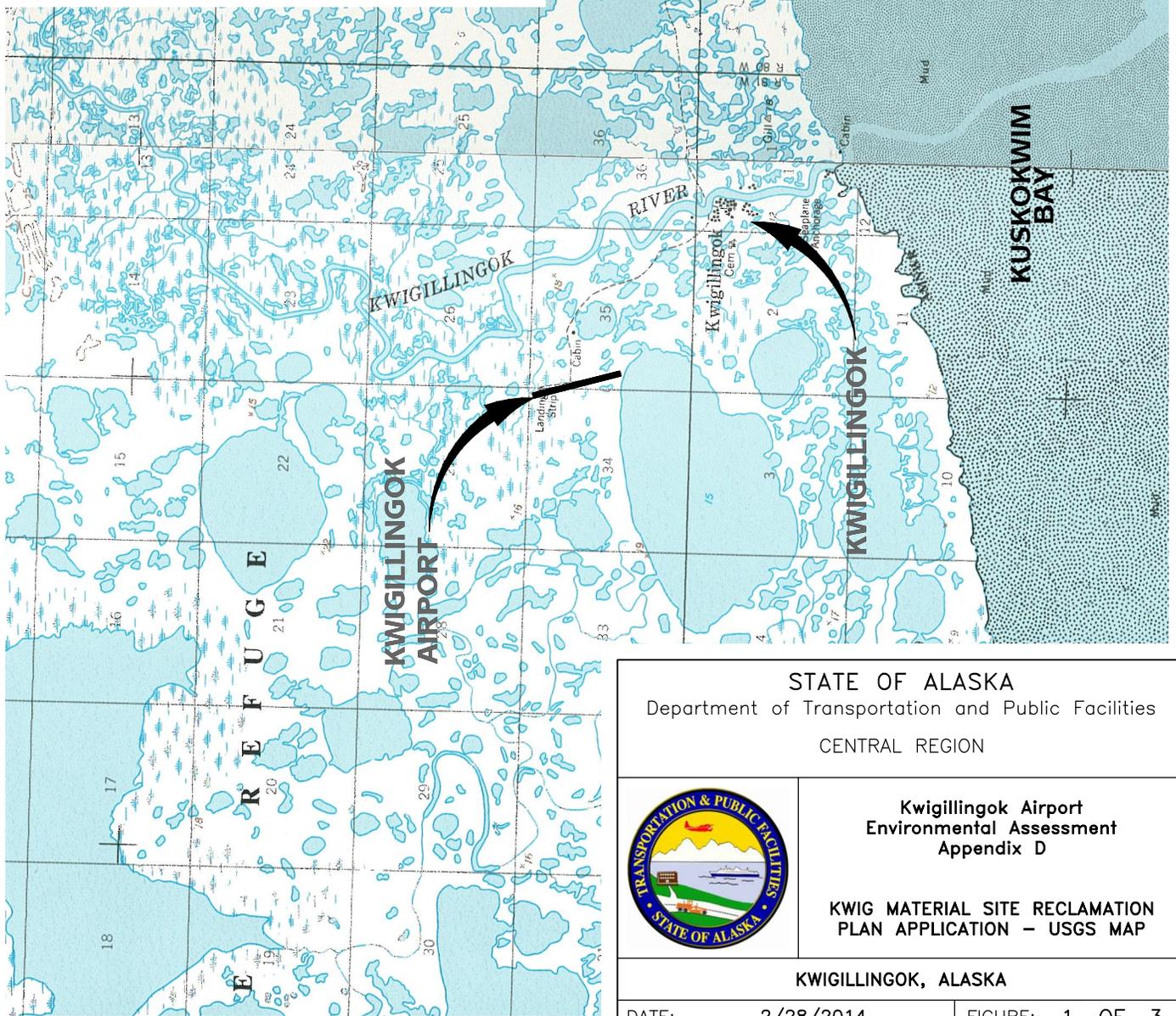
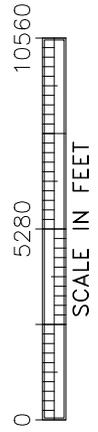
AS 27.19.030 and AS 27.19.050 require a miner either to file a reclamation plan for approval or to file a letter of intent followed by an annual reclamation statement. This information is made a part of the state public land records and becomes public information under AS 40.25.110 and 40.25.120 (unless the information qualifies for confidentiality under AS 38.05.035(a)(9) and confidentiality is requested). Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.



LOCATION MAP



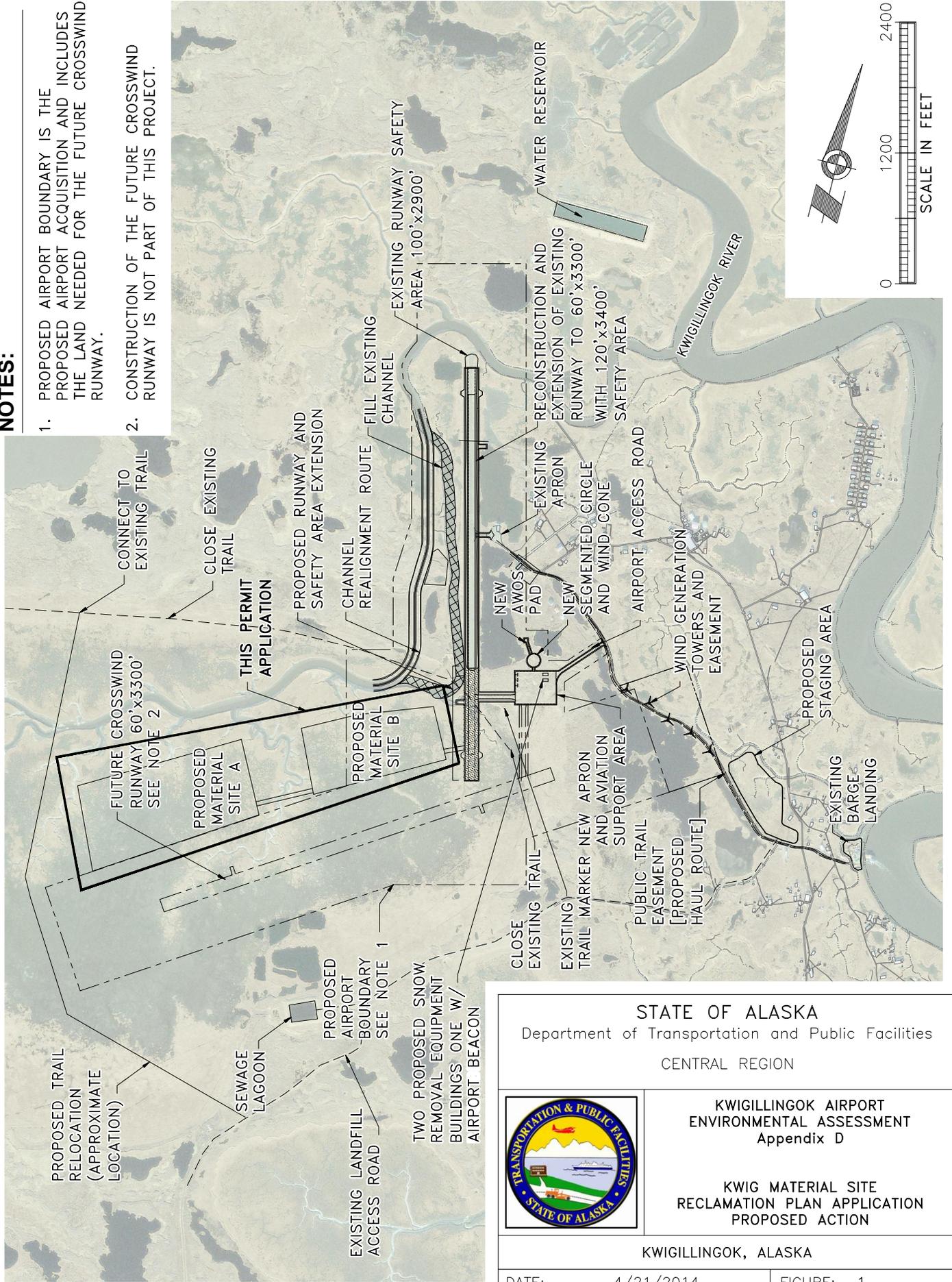
**SEC 26, 27, 34, 35, T3S, R81W;
SEWARD MERIDIAN**



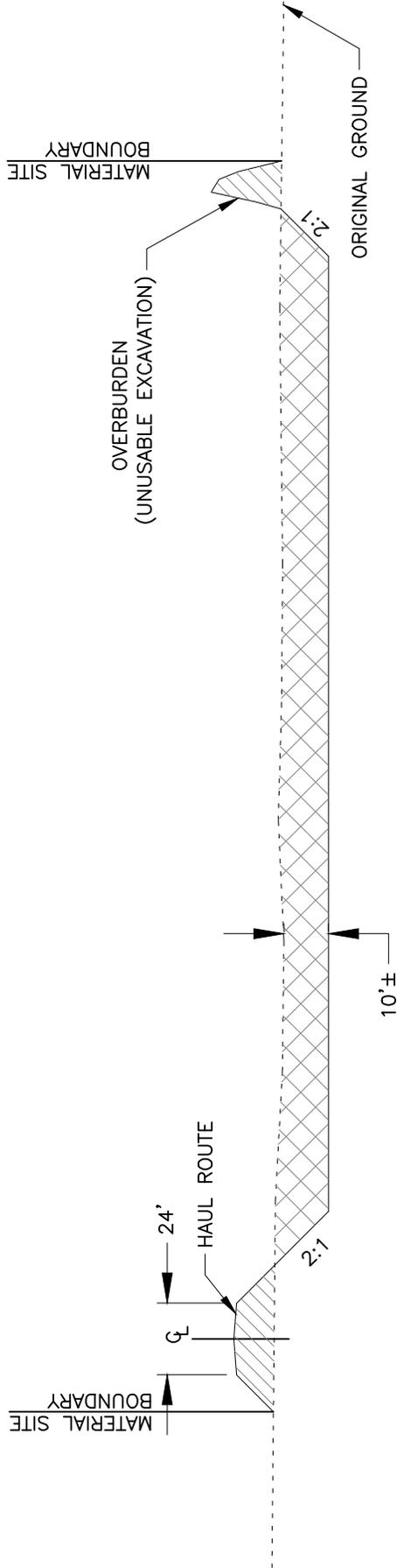
STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION	
	Kwigillingok Airport Environmental Assessment Appendix D
KWIGILLINGOK, ALASKA KWIG MATERIAL SITE RECLAMATION PLAN APPLICATION - USGS MAP	
DATE:	2/28/2014
FIGURE:	1 OF 3

NOTES:

1. PROPOSED AIRPORT BOUNDARY IS THE PROPOSED AIRPORT ACQUISITION AND INCLUDES THE LAND NEEDED FOR THE FUTURE CROSSWIND RUNWAY.
2. CONSTRUCTION OF THE FUTURE CROSSWIND RUNWAY IS NOT PART OF THIS PROJECT.



<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>KWIGILLINGOK AIRPORT ENVIRONMENTAL ASSESSMENT Appendix D</p>
<p>KWIG MATERIAL SITE RECLAMATION PLAN APPLICATION PROPOSED ACTION</p>	
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	4/21/2014
FIGURE:	1



MATERIAL SITE AND HAUL ROUTE TYPICAL SECTION

-  FILL IN WETLANDS
-  EXCAVATION IN WETLANDS

<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport Environmental Assessment Appendix D</p>
<p>TYPICAL SECTION MATERIAL SITES A & B</p>	
<p>KWIGILLINGOK, ALASKA</p>	
<p>DATE: 2/28/2014</p>	<p>FIGURE: 3 OF 3</p>

Temporary Water Use

DIVISION OF MINING, LAND AND WATER
WATER RESOURCES SECTION

www.dnr.state.ak.us/mlw/water/index.htm



Anchorage Office 550 West 7 th Avenue, Suite 1020 Anchorage, AK 99501-3562 (907) 269-8600 Fax: (907) 269-8947	Juneau Office PO Box 111020 400 Willoughby Avenue Juneau, AK 99811-1020 (907) 465-3400 Fax: (907) 586-2954	Fairbanks Office 3700 Airport Way Fairbanks, AK 99709-4699 (907) 451-2790 Fax: (907) 451-2703	For ADNR Use Only Date/Time Stamp
For ADNR Use Only TWUP #	For ADNR Use Only CID #	For ADNR Use Only Receipt Type WR	

APPLICATION FOR TEMPORARY USE OF WATER

INSTRUCTIONS
<ol style="list-style-type: none"> Complete one application for each project including up to five water sources (incomplete applications will not be accepted). Attach legible map that includes meridian, township, range, and section lines such as a USGS topographical quadrangle or subdivision plat. Indicate water withdrawal point(s), location(s) of water use, and point(s) of return flow or discharge (if applicable). Attach sketch, photos, plans of water system, or project description (if applicable). Attach driller's well log for drilled wells (if available). Attach copy of ADNR fish habitat permit (if applicable). Attach completed Coastal Project Questionnaire (if applicable - see page 4). Submit non-refundable fee (see page 4).

APPLICANT INFORMATION			

Project Name			
_____		_____	
Organization Name (if applicable)		Agent or Consultant Name (if applicable)	
_____		_____	
Individual Name (if applicable)		Individual Co-applicant Name (if applicable)	

_____	_____	_____	_____
Mailing Address	City	State	Zip Code
_____		_____	
Daytime Phone Number		Alternate Phone Number (optional)	

Fax Number (if available)		E-Mail Address (optional)	

<i>PROPERTY DESCRIPTIONS</i>						
Location of Water Use						
Project Area (e.g. milepost range, place name, survey number)	Meridian	Township	Range	Section	Quarter Sections	
					1/4	1/4
					1/4	1/4
Location of Water Source						
Geographic Name of Water Body or Well Depth	Meridian	Township	Range	Section	Quarter Sections	
					1/4	1/4
					1/4	1/4
					1/4	1/4
					1/4	1/4
					1/4	1/4
Location of Water Return Flow or Discharge (if applicable)						
Geographic Name of Water Body or Well Depth	Meridian	Township	Range	Section	Quarter Sections	
					1/4	1/4
					1/4	1/4

<i>METHOD OF TAKING WATER</i>	
Pump Pump Intake _____ Inches Pump Output _____ GPM	Hours Working _____ Hours/Day Length of Pipe _____ Feet (from pump to point of use)
Gravity Pipe Diameter _____ Inches Head _____ Feet	Length of Pipe _____ Feet (take point to point of use)
Ditch L _____ H _____ W _____ Feet	Diversion Rate _____ <input type="checkbox"/> GPM or <input type="checkbox"/> CFS
Reservoir L _____ H _____ W _____ Feet	Water Storage _____ Acre-feet
Dam L _____ H _____ W _____ Feet	Water Storage _____ Acre-feet

<i>AMOUNT OF WATER</i>					
Purpose of Water Use	Quantity of Water			Season of Use	
	Maximum Withdrawal Rate	Total Daily Amount	Total Seasonal Amount	Date Work Will Start	Date Work Will be Completed
Project Totals				Total years needed: _____	

<i>PROJECT DESCRIPTION</i>
What alternative water sources are available to your project should a portion of your requested diversion be excluded because of water shortage or public interest concerns?
Are there any surface water bodies or water wells at or near your site(s) that could be affected by the proposed activity? If yes, list any ground water monitoring programs going on at or near the sites, any water shortages or water quality problems in the area, and any information about the water table, if known.
Briefly describe the type and size of equipment used to withdraw and transport water, including the amount of water the equipment uses or holds.
Briefly describe what changes at the project site and surrounding area will occur or are likely to occur because of construction or operation of your project (e.g. public access, streambed alteration, trenching, grading, excavation).
Briefly describe land use around the water take, use, and return flow points (e.g. national park, recreational site, residential).
Will project be worked in phases? State reason for completion date.
Briefly describe your entire project: _____ _____ _____
(Attach extra page if needed.)

11 AAC 93.220 sets out the required information on the application and authorizes the department to consider any other information needed to process an application for a temporary use of water. This information is made a part of the state public water records and becomes public information under AS 40.25.110 and 40.25.120. Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.

SIGNATURE	
The information presented in this application is true and correct to the best of my knowledge. I understand that no water right or priority is established per 11 AAC 93.210-220, that the water used remains subject to appropriation by others, and that a temporary water use authorization may be revoked if necessary to protect the water rights of other persons or the public interest.	
_____ Signature	_____ Date
_____ Name (please print)	_____ Title (if applicable)

REFERENCES																																		
Measurement Units GPD = gallons per day CFS = cubic feet per second GPM = gallons per minute AF = acre-feet AFY = acre-feet per year (325,851 gallons/year) AFD = acre-feet per day (325,851 gallons/day) MGD = million gallons per day																																		
Conversion Table <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">5,000 GPD=</th> <th style="text-align: left; border-bottom: 1px solid black;">30,000 GPD=</th> <th style="text-align: left; border-bottom: 1px solid black;">100,000 GPD=</th> <th style="text-align: left; border-bottom: 1px solid black;">500,000 GPD=</th> <th style="text-align: left; border-bottom: 1px solid black;">1,000,000 GPD=</th> </tr> </thead> <tbody> <tr> <td>0.01 CFS</td> <td>0.05 CFS</td> <td>0.2 CFS</td> <td>0.8 CFS</td> <td>1.5 CFS</td> </tr> <tr> <td>3.47 GPM</td> <td>20.83 GPM</td> <td>69.4 GPM</td> <td>347. 2 GPM</td> <td>694.4 GPM</td> </tr> <tr> <td>5.60 AFY</td> <td>33.60 AFY</td> <td>112.0 AFY</td> <td>560.1 AFY</td> <td>1120.1 AFY</td> </tr> <tr> <td>0.2 AFD</td> <td>0.09 AFD</td> <td>0.3 AFD</td> <td>1.5 AFD</td> <td>3.1 AFD</td> </tr> <tr> <td>0.01 MGD</td> <td>0.03 MGD</td> <td>0.1 MGD</td> <td>0.5 MGD</td> <td>1.0 MGD</td> </tr> </tbody> </table>					5,000 GPD=	30,000 GPD=	100,000 GPD=	500,000 GPD=	1,000,000 GPD=	0.01 CFS	0.05 CFS	0.2 CFS	0.8 CFS	1.5 CFS	3.47 GPM	20.83 GPM	69.4 GPM	347. 2 GPM	694.4 GPM	5.60 AFY	33.60 AFY	112.0 AFY	560.1 AFY	1120.1 AFY	0.2 AFD	0.09 AFD	0.3 AFD	1.5 AFD	3.1 AFD	0.01 MGD	0.03 MGD	0.1 MGD	0.5 MGD	1.0 MGD
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0.01 MGD	0.03 MGD	0.1 MGD	0.5 MGD	1.0 MGD																														
Fee required by regulation 11 AAC 05.010(a)(8) <ul style="list-style-type: none"> • \$350 for all uses of water from up to five water sources Make checks payable to "Department of Natural Resources".																																		
Coastal Zone If this appropriation is within the Coastal Zone, and you are planning to use more than 1,000 GPD from a surface water source or 5,000 GPD from a subsurface water source, you need to submit a completed Coastal Project Questionnaire with this application. For more information on the Coastal Zone, contact the Office of Project Management and Permitting; Anchorage 269-7470, Juneau 465-3562, www.dnr.state.ak.us/acmp/ .																																		

PROJECT DESCRIPTION For Temporary Water Use Permit Application

The proposed action is to improve the existing airport to meet DOT&PF and FAA standards for a Community Class airport. The improvements would include the following components, as illustrated on Figure 1:

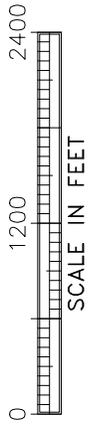
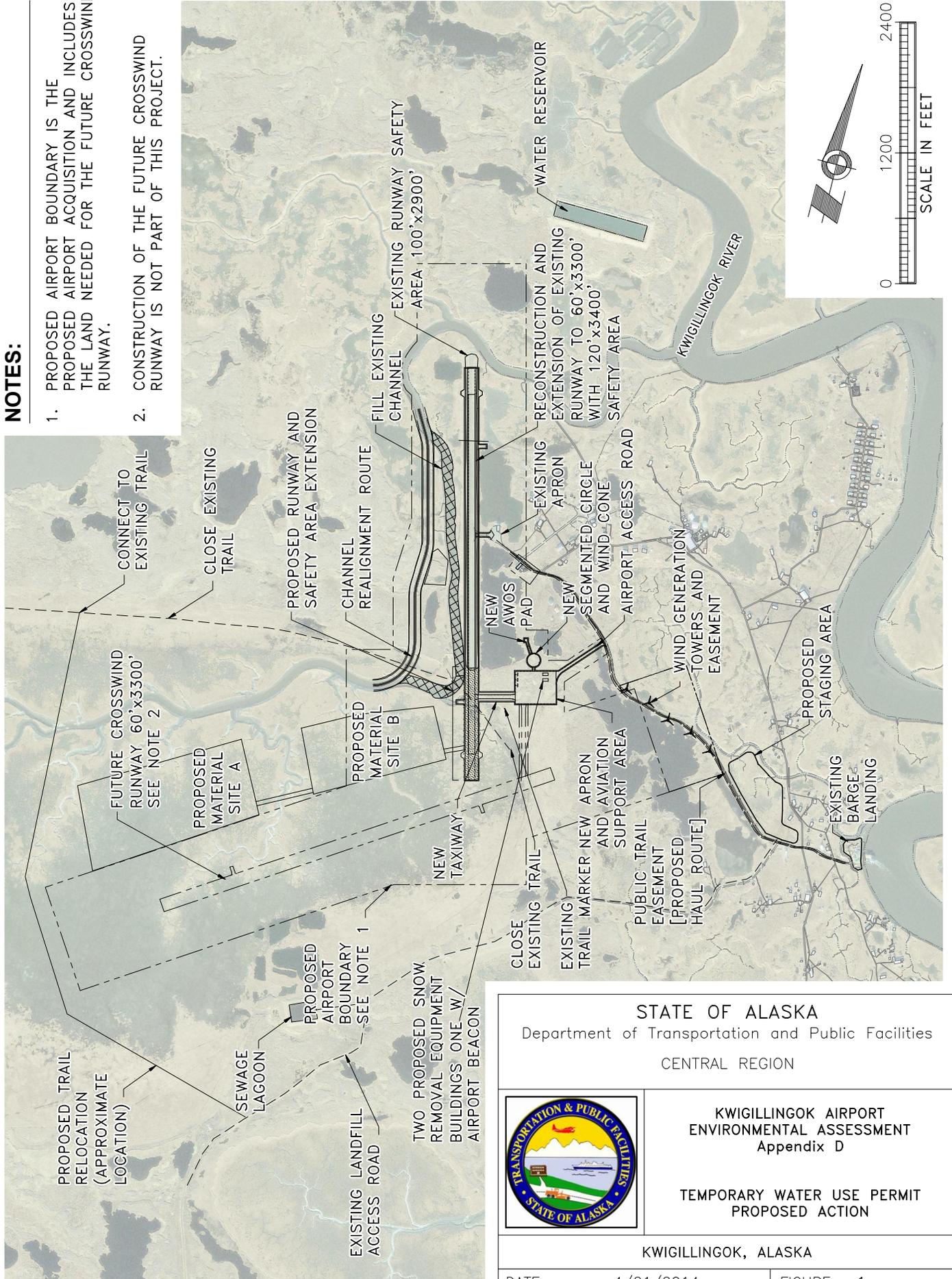
- Expand the existing runway to 3,300 feet by 60 feet. The total runway and safety area dimensions would be 3,780 feet by 120 feet.
- Construct a 35-foot wide new taxiway to the apron. The total width of the taxiway safety area would be 79 feet (Airplane Design Group II, Taxiway Design Group 2); the larger safety area allows for snow removal and occasional operations by larger aircraft.
- Construct a new 374-foot by 300-foot apron and aviation support area.
- Build two SREBs on the aviation support area (one heated and one for cold storage).
- Improve runway and taxiway lighting to include Medium Intensity Runway and Taxiway Lighting (MIRL), and two pads for Precision Approach Path Indicator (PAPI) lights, and a pad for the AWOS.
- Install wind cones, a segmented circle, and a rotating beacon to aid navigation.
- Build a 24-foot-wide access road between the apron and the main road connecting to the community.
- Acquire approximately 267.3 acres for the runway improvements, future crosswind runway, and access road.
- Install an overhead power line to power the new SREB.

Work required to facilitate the proposed action includes the realignment of a tidal channel that has been responsible for eroding the ground alongside the runway and improvements to an existing trail to provide a haul road for construction.

In order to construct the proposed action, the contractor would need to develop two material sites (Material Sites A and B; Figure 7) and establish a connecting access road from the runway area to the material sites. A haul route from the Kwigillingok River to the airport is needed; this can be provided by improving an existing public easement trail (typical section illustrated on Figure 8). Additionally, the contractor would need a staging area for imported gravel and surface course material.

NOTES:

1. PROPOSED AIRPORT BOUNDARY IS THE PROPOSED AIRPORT ACQUISITION AND INCLUDES THE LAND NEEDED FOR THE FUTURE CROSSWIND RUNWAY.
2. CONSTRUCTION OF THE FUTURE CROSSWIND RUNWAY IS NOT PART OF THIS PROJECT.



STATE OF ALASKA
Department of Transportation and Public Facilities
CENTRAL REGION



**KWIGILLINGOK AIRPORT
ENVIRONMENTAL ASSESSMENT
Appendix D**

**TEMPORARY WATER USE PERMIT
PROPOSED ACTION**

KWIGILLINGOK, ALASKA

DATE: 4/21/2014	FIGURE: 1
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APPENDIX E

SCOPING AND AGENCY COORDINATION

Agency Scoping Letter and Responses

Public Meeting Correspondence

Kwigillingok Airport Newspaper Announcement

Newsletters

Agency Scoping Letter and Responses

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

CENTRAL REGION DESIGN AND CONSTRUCTION
PRELIMINARY DESIGN AND ENVIRONMENTAL SECTION

SEAN PARNELL, GOVERNOR

4111 AVIATION AVENUE
P.O. BOX 196900
ANCHORAGE, ALASKA 99519-6900

PHONE: (907) 269-0542
FAX: (907) 243-6927

Date: December 12, 2011
Project: Kwigillingok Airport Improvements
Project No.: 52571

Dear Agency Staff Member:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the lead federal agency, the Federal Aviation Administration (FAA), is soliciting comments and information on a proposed project that would improve the airport at Kwigillingok ([Figure 1](#)).

Kwigillingok is located on the western shore of the Kuskokwim Bay near the mouth of the Kuskokwim River, 77 miles southwest of Bethel and 388 miles west of Anchorage. The Kwigillingok Airport is located within the U.S. Geological Survey (USGS) Kuskokwim Bay (D-4) quadrangle, Seward Meridian, in Sections 26, 27, 34, 35, T3S, R81W ([Figures 1 & 2](#)).

Proposed Kwigillingok airport improvements was the subject of a 1996 Environmental Assessment (EA) and a 2004 Supplemental EA. Findings of No Significant Impacts (FONSI) were issued for both EAs on January 22, 1996 and May 11, 2004, respectively. Since then, various factors have delayed long term improvements to the Kwigillingok airport and due to the lapse of time and changes in environmental regulations, DOT&PF in coordination with the FAA, plan to prepare a new EA that will cover changes to the proposed project and current environmental conditions in Kwigillingok.

Purpose and Need

The Kwigillingok runway is short and narrow and does not meet current standards for a Community Class Airport. The surfacing material is thin to nonexistent. Pilots report that a larger apron is needed. The greatest need for additional apron space is after periods when flying is not possible due to weather. During these no-fly periods, mail, cargo, and passengers can get backed up, and after conditions clear, as many as four planes have reportedly been on the ground at the same time. When no parking room is available, pilots have to circle until other aircraft leave.

Kwigillingok relies on the airport for essential services such as passenger transportation, bypass mail and cargo delivery, and medical evacuations (medevac). No roads connect Kwigillingok to neighboring communities. The Bethel region is known for low cloud cover and foggy conditions. Support for Non-Precision Instrument (NPI) approaches would improve the chances that aircraft could get in and out of Kwigillingok during inclement weather.

The purpose of this project is to improve the airport in order to provide a facility that meets current FAA and DOT&PF standards for a Community Class Airport. Airport deficiencies include:

- DOT&PF does not have adequate property interest
- Existing runway length and width do not meet current standards
- Surface is soft with pot holes, dips, swales, and ruts
- Windsock is unreliable and segmented circle is deteriorated and unusable
- Inadequate wind coverage (planes are unable to land in strong crosswinds)
- Equipment storage building penetrates airspace
- Not enough aircraft parking and tie downs are available
- Runway is unlit
- Snow removal equipment needs to be upgraded
- The adjacent tidal channel is eroding the runway safety area

Proposed Action

Bringing the airport up to Community Class Standards to meet FAA and state requirements will require the following:

- Acquiring property for the existing airport and future improvements including extending the runway to 4,000' and constructing a crosswind runway
- Reconstructing and extending the existing runway from 50' x 2,510' to 75' x 3,300' and runway safety area (RSA) from 100' x 2,900' to 150' x 3,900'
- Increasing taxiway width from 30' to 50'
- Increasing aircraft apron area from 18,000 square feet to 75,000 square feet
- Constructing two snow removal equipment buildings (one heated, one unheated)
- Installing runway and taxiway lighting
- Constructing a segmented circle with lighted wind cone
- Installing a rotating airport beacon
- Realigning the stream and/or installing erosion protection along the slough channel bank
- Developing one or more local borrow sources for embankment material
- Importing surface course material as no suitable source is available locally

This project will likely take three to four years to complete, depending on funding, land acquisition, and environmental and design considerations.

The project area and proposed borrow sites are illustrated on [Figure 2](#). FAA does not anticipate any significant environmental impacts associated with the proposed project as presently envisioned. Wetland impacts associated with the proposed project include fill for the runway, taxiway, access road, and apron embankments; excavating and constructing the realigned slough channel; and excavating at borrow site location(s).

Two potential borrow sources were previously identified for embankment fill. These sources are located directly west of the existing runway ([Figure 2](#)). All crushed aggregate surface course material will be barged to Kwigillingok.

Future Airport Projects

After constructing the proposed project, a future crosswind runway would be necessary to obtain required wind coverage. The crosswind runway would have the same dimensions as the proposed expansion to the existing runway. The runways may also be extended from 3,300' to 4,000' in length to accommodate larger and faster aircraft.

Preliminary Environmental Research

We have conducted preliminary research using the most current available data to identify environmental resources within the proposed project vicinity. This information is provided in Appendix A. Additional project information can be found on our project website: <http://dot.alaska.gov/creg/kwigillingok/>. Also below are links to agency-specific questions for each federal, state, and local agency from which DOT&PF is requesting comments and information. To ensure that all factors are considered in the airport site selection process, please provide your written comments, recommendations, and any additional requested information to our office no later than **January 16, 2012**.

[ADEC](#) [ADF&G](#) [ADNR-RAD](#) [ADNR-SHPO](#) [ADNR-SRO](#)
[FAA](#) [Air Carriers](#) [BLM](#) [City-Village-Borough](#) [Native Entities](#) [USACE](#)
[USCG](#) [USFWS](#)

If you have any questions or comments concerning engineering aspects of the proposed project, please contact Tom Schmid, P.E., Project Manager, DOT&PF, at (907) 269-0612 or by email at tom.schmid@alaska.gov. For environmental questions or comments, please contact Teresa Zimmerman, Environmental Team Leader at (907) 269-0551, or by email at teresa.zimmerman@alaska.gov.

Sincerely,



Brian Elliott
Regional Environmental Manager

Enclosures: Appendix A
Figure 1 - Vicinity Map
Figure 2 - Proposed Airport Layout

cc: Tom Schmid, P.E., Project Manager, Aviation Design
Teresa Zimmerman, Environmental Team Leader, PD&E

Valerie Webb

From: Zimmerman, Teresa J (DOT) <teresa.zimmerman@alaska.gov>
Sent: Monday, April 15, 2013 12:44 PM
To: Valerie Webb
Cc: Sanders, Holly M (DOT); Beaton, Barbara J (DOT)
Subject: FW: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

See ADFG scoping response. We WILL need a permit to relocate the slough by the runway.

From: Bales, James E (DFG)
Sent: Monday, January 23, 2012 12:48 PM
To: Zimmerman, Teresa J (DOT)
Subject: RE: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

Good afternoon Ms. Zimmerman,

Below we have answered the scoping questions that ADOT put together specifically for ADF&G regarding the proposed Kwigillingok Airport Improvements project. The bolded items are from ADOT and have been reproduced here for clarity.

In addition to identifying any concerns and/or issues your agency might have with the proposed project, the following information is requested:

1. We have researched the ADF&G's *An Atlas to the Catalog of Waters Important to the Spawning, Rearing or Migration of Anadromous Fishes* and any findings are identified in the scoping letter and/or Appendix A. If you have any other information and/or data on anadromous or resident fish streams in the vicinity of the proposed project, including spawning/rearing habitat and migration corridors please provide us that information.

As noted in Appendix A, the Kwigillingok River (Stream No. 335-40-15950) has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The Kwigillingok River is known to support whitefish.

The slough that flows adjacent to the airstrip may also contain anadromous whitefish. Resident fish that are likely present in the slough and surrounding lakes includes Alaska blackfish, stickleback, and possibly slimy sculpin.

2. Identify any fish species within the project boundaries that may be used for subsistence.

Whitefish and Alaska blackfish may be used for subsistence.

3. We have researched the ADF&G *State of Alaska Refuges, Critical Habitat Areas and Sanctuaries* and any findings are identified in the scoping letter and/or Appendix A. If these special areas exist in the project vicinity, would the normal activities of these areas be affected by the proposed project?

There are no state-designated special areas in the vicinity of the proposed project.

4. Provide information on wildlife other than fish in the vicinity of the proposed project.

We have no comment regarding wildlife in the vicinity of the proposed project.

5. Would the project affect wildlife migration corridors or bisect/segment wildlife habitat?

We have no comment regarding wildlife migration corridors in the vicinity of the proposed project.

6. Identify any permits and/or clearances to be obtained from your agency for the proposed project.

An ADF&G Fish Habitat Permit will be required for the proposed slough realignment. A permit may be required for the material extraction if there are fish present in the lakes or streams located near the potential borrow sites. A permit would also be required if water is needed for the project and is withdrawn from a fish bearing stream or lake, including the Kwigillingok River. Any other activity that could impact a fish bearing stream or lake may also need a permit.

Thank you for the opportunity to review the proposed project and comment. Please let me know if you have any questions.

Jim Bales, Habitat Biologist
Alaska Department of Fish and Game
Division of Habitat
333 Raspberry Road
Anchorage, AK 99518
(907) 267-2143

From: "Zimmerman, Teresa J (DOT)" <teresa.zimmerman@alaska.gov>

Date: December 14, 2011 8:50:20 AM AKST

To: <kwkadmin@starband.net>, <myron_naneng@avcp.org>, <michael_b@coastalvillages.org>, <sstreet@avcp.org>, <mblack@anthc.org>, "Lockard, David A (AIDEA)" <dlockard@aidea.org>, <jmcatee@calistacorp.com>, <kwktribal@yahoo.com>, <kwkadmin@starband.net>, <thomas.gould@ak.usda.gov>, <james.n.helfinstine@uscg.mil>, <stephen_fusilier@blm.gov>, <ricky.hoff@bia.gov>, <kristin.keit@bia.gov>, <mark.kahklen@bia.gov>, <regpagemaster@poa02.usace.army.mil>, "Perry, Phillip L (DFG)" <phillip.perry@alaska.gov>, "Marie, Megan E (DFG)" <megan.marie@alaska.gov>, "Boothby, Taunnie L (CED)" <taunnie.boothby@alaska.gov>, <HCD.Anchorage@noaa.gov>, <Ann.Rappoport@fws.gov>, <michael_buntjer@fws.gov>, <gene.peltola@fws.gov>, "Ashton, William S (DEC)" <william.ashton@alaska.gov>, "DNR, Parks OHA Review Compliance (DNR sponsored)" <oha.revcomp@alaska.gov>, "Nahorney, Christina B (DNR)" <christina.nahorney@alaska.gov>, "Plett, Krissy A (DNR)" <krissy.plett@alaska.gov>, <LaCroix.Matthew@epa.gov>, <Curtis.Jennifer@epamail.epa.gov>, "Menefee, Wyn (DNR)" <wyn.menefee@alaska.gov>, <charter@flyera.com>, <patrick.thurston@hageland.com>, <res@flygrant.com>, <info@aceaircargo.com>, <yuteair@gei.com>, <renfrosalaskanadventures@gmail.com>, <info@pbadventures.com>

Cc: "Schmid, Tom J (DOT)" <tom.schmid@alaska.gov>, <bruce.greenwood@faa.gov>, "Elliott, Brian A (DOT)" <brian.elliott@alaska.gov>, "Royce Conlon" <RoyceConlon@PDCENG.US>

Subject: RE: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

All,

Apparently the link sent yesterday failed sometime during the night. A new link has been set up. Please let me know if you have any problems viewing the Kwigillingok Airport Project scoping letter at the new link.

http://dot.alaska.gov/creg/PDE/projects/52571_Kwigillingok_Airport_Improvements/letter/52571_Kwigillingok_Airport_Scoping_Letter.pdf

Sorry for the inconvenience.

Teresa Z.

From: Zimmerman, Teresa J (DOT)
Sent: Tuesday, December 13, 2011 1:09 PM
To: 'kwkadmin@starband.net'; 'myron_naneng@avcp.org'; 'michael_b@coastalvillages.org'; 'sstreet@avcp.org'; 'mblack@anthc.org'; Lockard, David A (AIDEA); 'jmcatee@calistacorp.com'; 'kwktribal@yahoo.com'; 'kwkadmin@starband.net'; 'thomas.gould@ak.usda.gov'; 'james.n.helfinstine@uscg.mil'; 'stephen_fusilier@blm.gov'; 'ricky.hoff@bia.gov'; 'kristin.keit@bia.gov'; 'mark.kahklen@bia.gov'; 'regpagemaster@poa02.usace.army.mil'; Perry, Phillip L (DFG); 'mike.daignault@alaska.gov'; Marie, Megan E (DFG); Boothby, Taunnie L (CED); 'HCD.Anchorage@noaa.gov'; 'Ann_Rappoport@fws.gov'; 'michael_buntjer@fws.gov'; 'gene_peltola@fws.gov'; Ashton, William S (DEC); DNR, Parks OHA Review Compliance (DNR sponsored); Nahorney, Christina B (DNR); Plett, Krissy A (DNR); 'LaCroix.Matthew@epa.gov'; 'Curtis.Jennifer@epamail.epa.gov'; Menefee, Wyn (DNR); 'charter@flyera.com'; 'patrick.thurston@hageland.com'; 'res@flygrant.com'; 'info@aceaircargo.com'; 'yuteair@gci.com'; 'renfrosalaskanadventures@gmail.com'; 'info@pbadventures.com'
Cc: Schmid, Tom J (DOT); 'bruce.greenwood@faa.gov'; Elliott, Brian A (DOT); Royce Conlon
Subject: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

Dear Agency Staff Members:

Please click on the link below to access the Agency Scoping Letter for the Kwigillingok Airport Improvements Project (Project #52571). The document is in PDF format and can be viewed and printed through Adobe Acrobat. If you have any problems opening the document and/or associated links, please contact me at 269-0551.

http://dot.alaska.gov/creg/PDE/projects/52571_Kwigillingok_Airport_Improvements/letter/Kwigillingok_Airport_Scoping.pdf

Please let me know if you would like to meet with DOT&PF regarding any comments or recommendations you may have for the project, or whether you know of issues that may arise during the permitting process. Initially, permits and approvals expected to be needed for the project include a Corps of Engineers Section 10/404 Permit, Alaska Department of Fish and Game Habitat Permit, and Section 106 Compliance.

DOT&PF requests your comments be submitted to this office by January 16, 2012. You may submit your responses to me via mail, email, or fax. We appreciate you taking the time to review the information provided for this project and look forward to receiving your comments and recommendations.

Teresa Zimmerman

Environmental Team Leader, PD&E

269-0551

Hard copy sent to:

Noah Andrew, President

Kwik Incorporated

P.O. Box 50

Kwigillingok, AK 99622-0049

Johnny Friend, President

Native Village of Kwigillingok

P.O. Box 90

Kwigillingok, AK 99622-0049

Kwig Power Company

P.O. Box 49

Kwigillingok, AK 99622-0049

Tribal Consultation Options

Native Village of Kwigillingok
P.O. Box 49
Kwigillingok, AK 99622

Project Name: **Kwigillingok Airport Improvements**
Federal/State Project Numbers: AIP (to be decided)/52571

Please check the appropriate response:

The Native Village of Kwigillingok will continue coordination for this proposed project directly with Owner / Operator of the airport. *Please note that if the Tribe initially chooses to consult / coordinate with the airport owner/operator, the Tribe may later decide to consult directly with the FAA.*

The Native Village of Kwigillingok a federally recognized tribe, would like to consult directly with the Federal Aviation Administration in a government-to-government relationship for this proposed project.

The Native Village of Kwigillingok has no interest associated with this proposed project and further consultation is not required.

Use the back of this form or additional sheets if you would like to make additional comments.

Johnny Friend
Tribal Leader (Please print)

907-588-8114
Telephone

Johnny Friend
Tribal Leader (Signature)

6/27/11
Date

Mail:
Johnny Friend, President
Native Village of Kwigillingok
PO Box 49
Kwigillingok, AK 99622

Phone: 907-588-8114
Fax: 907-588-8429
e-mail: kwktribal@yahoo.com

Other: (please describe)

If you have chosen to proceed with consultation, please identify a Tribal Representative for the consultation.

ANDREW KIUNYA
Name of Formal Tribal Representative (Please print)

907 588-8114
Telephone

Andrew Kiunya
Name of Formal Tribal Representative (Signature)

6/27/11
Date

Please mail to: John Lovett, Project Manager
FAA Airports Division, AAL 612
222 W. 7th Ave. #14, Anchorage, AK 99513

Or, fax to: (907) 271-2851

NATIVE VILLAGE OF KWIGILLINGOK
 Kwigillingok I.R.A. Council
 P.O. Box 90
 Kwigillingok, Alaska 99622-0090
 Phone: (907) 588-8114/8212
 Fax: (907) 588-8429
kwktribal@yahoo.com

Facsimile Transmittal

To: John Lovett Project manager	From: Emma Kiunya Administrative Assistant
Fax: 271-2851	Fax: (907) 588-8429
Pages: 2 w/cover page	Phone: (907) 588-8114 ext. 3
Re: Re-faxing signed document	Email: emmakiunya@yahoo.com

Notes:

From: [Johnson, Merry G \(DNR\)](#)
To: [Zimmerman, Teresa J \(DOT\)](#)
Subject: RE: Kwigillingok Airport Improvements, DOT&PF Project No. 52571
Date: Thursday, December 15, 2011 12:59:44 PM

Thank you for the opportunity to comment on the Kwigillingok Airport Improvements Project No. 57571. Water Resources has no objection to the proposed project. However, Alaska Department of Transportation and Public Facilities needs to apply for a temporary water use authorization for water use associated with this project such as stream diversion/realignment, construction activities, and dust control and compaction.

Merry Johnson
Natural Resource Specialist III
Water Resources Section
DNR-DMLW
Phone: 907-269-8588
Fax: 907-269-8904
550 West 7th Avenue, Suite 1020
Anchorage, Alaska 99501-3514

From: Plett, Krissy A (DNR)
Sent: Wednesday, December 14, 2011 9:02 AM
To: Johnson, Merry G (DNR)
Subject: FW: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

FYI

Krissy Plett
Natural Resources Manager I
Alaska DNR, DML&W, Water Resources Section
907-269-8641

From: Zimmerman, Teresa J (DOT)
Sent: Wednesday, December 14, 2011 8:50 AM
To: kwkadmin@starband.net; myron_naneng@avcp.org; michael_b@coastalvillages.org; sstreet@avcp.org; mblack@anthc.org; Lockard, David A (AIDEA); jmcatee@calistacorp.com; kwktribal@yahoo.com; kwkadmin@starband.net; thomas.gould@ak.usda.gov; james.n.helfinstine@uscg.mil; stephen_fusilier@blm.gov; ricky.hoff@bia.gov; kristin.keit@bia.gov; mark.kahklen@bia.gov; regpagemaster@poa02.usace.army.mil; Perry, Phillip L (DFG); Marie, Megan E (DFG); Boothby, Taunnie L (CED); HCD.Anchorage@noaa.gov; Ann_Rappoport@fws.gov; michael_buntjer@fws.gov; gene_peltola@fws.gov; Ashton, William S (DEC); DNR, Parks OHA Review Compliance (DNR sponsored); Nahorney, Christina B (DNR); Plett, Krissy A (DNR); LaCroix.Matthew@epa.gov; Curtis.Jennifer@epamail.epa.gov; Menefee, Wyn (DNR); charter@flyera.com; patrick.thurston@hageland.com; res@flygrant.com; info@aceaircargo.com; yuteair@gci.com; renfrosalaskanadventures@gmail.com; info@pbadventures.com
Cc: Schmid, Tom J (DOT); 'bruce.greenwood@faa.gov'; Elliott, Brian A (DOT); Royce Conlon
Subject: RE: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

All,

Apparently the link sent yesterday failed sometime during the night. A new link has been set up. Please let me know if you have any problems viewing the Kwigillingok Airport Project scoping letter at the new link.

http://dot.alaska.gov/creg/PDE/projects/52571_Kwigillingok_Airport_Improvements/letter/52571_Kwigillingok_Airport_Scoping_Letter.pdf
Sorry for the inconvenience.

Teresa Z.

From: Zimmerman, Teresa J (DOT)
Sent: Tuesday, December 13, 2011 1:09 PM
To: 'kwkadmin@starband.net'; 'myron_naneng@avcp.org'; 'michael_b@coastalvillages.org'; 'sstreet@avcp.org'; 'mblack@anthc.org'; Lockard, David A (AIDEA); jmcatee@calistacorp.com; 'kwktribal@yahoo.com'; 'kwkadmin@starband.net'; 'thomas.gould@ak.usda.gov'; 'james.n.helfinstine@uscg.mil'; 'stephen_fusilier@blm.gov'; 'ricky.hoff@bia.gov'; 'kristin.keit@bia.gov'; 'mark.kahklen@bia.gov'; 'regpagemaster@poa02.usace.army.mil'; Perry, Phillip L (DFG); 'mike.daignault@alaska.gov'; Marie, Megan E (DFG); Boothby, Taunnie L (CED); 'HCD.Anchorage@noaa.gov'; Ann_Rappoport@fws.gov; 'michael_buntjer@fws.gov'; 'gene_peltola@fws.gov'; Ashton, William S (DEC); DNR, Parks OHA Review Compliance (DNR sponsored); Nahorney, Christina B (DNR); Plett, Krissy A (DNR); 'LaCroix.Matthew@epa.gov'; Curtis.Jennifer@epamail.epa.gov; Menefee, Wyn (DNR); 'charter@flyera.com'; 'patrick.thurston@hageland.com'; 'res@flygrant.com'; 'info@aceaircargo.com'; 'yuteair@gci.com'; 'renfrosalaskanadventures@gmail.com'; 'info@pbadventures.com'
Cc: Schmid, Tom J (DOT); 'bruce.greenwood@faa.gov'; Elliott, Brian A (DOT); Royce Conlon
Subject: Kwigillingok Airport Improvements, DOT&PF Project No. 52571

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http://dot.alaska.gov/creg/PDE/projects/52571_Kwigillingok_Airport_Improvements/letter/Kwigillingok_Airport_Scoping.pdf

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DOT&PF requests your comments be submitted to this office by January 16, 2012. You may submit your responses to me via mail, email, or fax. We appreciate you taking the time to review the information provided for this project and look forward to receiving your comments and recommendations.

Teresa Zimmerman
Environmental Team Leader, PD&E
269-0551

Hard copy sent to:

Noah Andrew, President
Kwik Incorporated
P.O. Box 50
Kwigillingok, AK 99622-0049

Johnny Friend, President
Native Village of Kwigillingok
P.O. Box 90
Kwigillingok, AK 99622-0049

Kwig Power Company
P.O. Box 49
Kwigillingok, AK 99622-0049

From: [Fusilier, Stephen L](#)
To: [Zimmerman, Teresa J \(DOT\)](#)
Subject: RE: Kwigillingok Airport Improvements, DOT&PF Project No. 52571
Date: Saturday, January 07, 2012 12:56:59 PM

MS. Zimmerman,

After reviewing the records and Master Title Plats it is anticipated that the BLM will have few concerns and little input to your proposed action. For the most part all the land in the vicinity has been transferred by the BLM. From the information given and the drawings it would seem that there are potentially 3 Native allotments that might be affect – Patent 50-94-0141 (to the Heirs of Katie Avigeak); Patent 50-94-0143 to Eva Friend; and Patent 50-94-145 to Lena Atti. In addition most of the land In the area has been transferred to KWIK under various Interim Conveyances and the minerals of those lands to Calista.

Stephen L. Fusilier
Acting Lands Branch Manager
Anchorage Field Office
4700 BLM Road
Anchorage, AK 99507
(907) 267-1252 (Direct)
(907) 267-1267 (FAX)

KWIK INCORPORATED



GENERAL DELIVERY
KWIGILLINGOK
ALASKA 99622
(907) 588-8112

January 23, 2012

Brian Elliott, Regional Environmental Manager
State of Alaska
Department of Transportation and Public Facilities
4111 Aviation Ave.
PO Box 196900
Anchorage, AK 99519-6900

Ref; Project, Kwigillingok Airport Improvements #52571

Dear Mr. Elliott,

The Board of Directors of Kwik Incorporated is in full support of DOT&PF in its proposal to improve the airport of Kwigillingok Alaska. This project is one of the important projects needed for the community, and we are willing to work with you in settling various factors that delayed the project in the past.

Keep us posted on the progress of this project and feel free to contact us if you have any questions or problems related to this project. You can contact us at Phone #907-588-8112, or by email; wakwikinc@gci.net.

Sincerely,
For the Board of Directors of Kfwk Incorporated;

Willie Atti, President

Cc/fl.

Date: 1/25/12

Proj. #:

	P	A	P	P	F
Preliminary Design & Environmental					
Section Chief					
Site Manager					
Field Coordinator					
Permit Section					
Field Support & EPM					
Project File					

Public Meeting Correspondence



PDC INC. ENGINEERS

MEETING MINUTES

Location:	Kwigillingok, Alaska	Meeting Date:	6/7/2011
Attendees:	Tom Schmid, DOT&PF Project Manager Sue Grundberg, DOT&PF Ken Risse, PDC Project Manager Jeff Shannon, PDC Environmental Coord. John Lovett, FAA Johann Mueller, DOT&PF ROW Randy Vanderwood, DOT&PF M&O Public (see attached sign-in sheet)	PDC #	F10101
		Client # Name:	52571/52815 Kwigillingok Airport Improvements
		Minutes Prepared:	Jeff Shannon 6/24/2011
Subject:	Kwigillingok Airport Improvements Public Meeting		

The public meeting was held in the Albert Beaver Sr. Community Building in the village of Kwigillingok (Kwig) on June 7, 2011. People began to arrive around the scheduled start time of 1:00 PM and the meeting commenced at 1:15 PM. People continued to enter sporadically throughout the meeting. Johann Mueller (DOT ROW) helped with sign in and handed out raffle tickets.

Tom Schmid, DOT&PF Project Manager, opened the meeting by making introductions. Community member Adolph Lewis sat at the front and interpreted throughout the meeting between English and the Yup'ik Eskimo language that is spoken by the villagers.

Tom began by describing how the projects will occur in two phases. An initial project will improve the runway surface. The "big project" to expand the existing runway and apron areas would likely occur in about four years.

Tom explained that the project was initially looked at about 10 years ago, but for a variety of reasons hasn't moved forward as of yet.

Ken Risse of PDC introduced himself and explained how the team is investigating different options to improve upon the airport.

Tom explained how it would benefit the people of Kwig to have a community-class runway.

Ken explained the long-term planning effort and how a crosswind runway is being considered for the 20-year future of the airport. He said the project team had considered relocating the airport, but that really wasn't feasible given the difficulties of the surrounding terrain. Ken showed on a USGS map how the area surrounding Kwigillingok is dominated by lakes, and there is really no better nearby area where an airport could be sited, even when considering the area across the Kwigillingok River.

Tom commented that the project has come to many conclusions regarding existing environmental conditions over the years and we are working to make sure that those conclusions are still current and valid.

A gentleman in attendance stated that the community and tribe supported the airport improvements and state ownership 20 years ago.

Tom explained the importance of State ownership of the airport if public funds were going to be spent on the improvements. He also explained that it would ultimately be to the community's benefit to have the airport improved, because they are the ones that rely on it year-round.

1028 Aurora Drive
Fairbanks, AK 99709
T: 907.452.1414
F: 907.456.2707

Tom then described how the road from the barge landing will likely be improved initially so that material can be transported to the airport.

A gentleman asked about the timeframe of the project, and Tom replied that the major improvements would likely begin in about 2014 and be completed around 2016.

I (Jeff Shannon) introduced myself as the Environmental Coordinator for PDC. I briefly described the environmental process and how it was integrated with engineering and cost issues, and invited anybody with any specific concerns regarding issues like subsistence or fish and wildlife to speak with me about them. I also encouraged people to take the comment sheets that were provided and write down any comments they had, and also to mark up the maps provided on the backs of the comment sheets.

Ken said that initial studies would start this summer. He asked for help in establishing the flood elevation—if people could help the hydrologists by showing where floods have occurred in the past it would be very beneficial. Ken then explained that this coming winter there would likely be studies of the soil (geotech).

Tom told the residents that the planning effort would consider Right-of-Way (ROW) for the crosswind runway because of the seasonal changes in primary wind direction in the area.

Then he explained how relocating the apron was beneficial because the new area had better ground conditions with room for growth away from the lake. The lake and housing near the existing apron make it a real challenge to improve at that location.

Tom then explained the Runway Protection Zones on each end and how they make the ROW so large.

Ken said that there is potential to relocate the stream channel that is causing erosion, primarily along the area just southwest of the runway.

A gentleman asked if the stream could just be dammed since it would just come back if it were relocated. Tom replied that we are just gathering information at this point and that relocating the stream might not be feasible because it could have unintended consequences.

[Andrew Kiunya then asked me to step aside as he had a question for me. He took me to his adjacent office where he had written down a note that USDA was sending somebody out to Kwig. I told him I wasn't aware of that, but I thought it could possibly be USDA Wildlife Services and that they deal with wildlife hazard issues.]

At this point, RJ (Ronald J.) Lewis asked Johnny Friend if he could have permission to come up and speak. Permission was granted and RJ came forward and spoke in Yup'ik for several minutes while pointing to the graphics that were hanging on the wall. He then explained in English that he was asking for the community to support the project. He also said that the crosswind runway wouldn't have much impact on subsistence game animals.

Another gentleman said that the existing apron is convenient for pilots to use and asked if the crosswind project would hold up the immediate fixes to the runway. Tom answered that the crosswind runway would be looked at from a long-term perspective, and that the immediate fixes would still happen in the near future.

The same gentleman then asked why Kwig doesn't have lights like Kipnuk and Tunutuliak. His mother-in-law died of pneumonia because the medevac flight wasn't able to fly her out in the dark. Tom responded that those kinds of improvements couldn't be done because the airport wasn't publicly owned. He emphasized the importance of State ownership of the land and how the facility had to be open to the public if public money was going to be spent on the airport.

Tom then explained why the project due diligence leads to this kind of project taking a long time. He said there had been many challenges, including material types and ROW acquisition, but the Friends (local family – see sign-in sheet) had been very helpful.

The same gentleman reiterated that he wanted to see lights at the airport. Tom explained how lights are difficult in narrow runways such as Kwig, but all manner of improvements are being considered.

Johnny Friend said that when they built the airport years ago they dug out the two adjacent lakes and he recommended they not do that again. Tom then explained that “side borrowing” was an old technique that wasn’t generally used anymore because of the problems it can create.

Another gentleman in the audience expressed concern about the erosion. Tom explained that we have two hydrologists looking at the erosion, and they will come up with recommendations on what can be done. The focus will be on getting the community one good runway, and after that we’ll worry about the crosswind runway.

Tom then encouraged people to take the comment sheets and please comment on the project(s).

A gentleman said that he thought that the resurfacing project was supposed to happen this summer. Tom explained that chemical stabilization was initially tested as a method to improve the runway surface, but the tests showed that it wouldn’t work as well as hoped. He then described the logistical challenges of having to move material from the barge landing to the airport.

Two elders in the front row (Joseph Manchuak and another man) then spoke to each other in Yup’ik. RJ began to speak to the audience in Yup’ik again, followed by speeches in Yup’ik from Joseph Manchuak, Johnny Friend, and another elder.

On behalf of another elder in the front row, RJ then explained in English how last year the elder had to be med-evacuated out of Kwig, but the aircraft couldn’t land because of strong crosswinds at the time, so it had to return the next day to get him flown to Anchorage for surgery.

Darrel John (a younger man in the audience) said he likes the crosswind runway as long as the design prevents erosion of the embankments due to flooding. He said the State should respond quickly (ideally the same day) to erosion problems. Ken asked about the cause of flooding, and the same man said floods are from high tides and storm surges. He said there are no flood markers around town, and he asked if he could speak with me later as well.

Art Lake commented that the problem is not with the tribe or the FAA, but rather with the State for wanting to own the airport land. He felt that the State was being belligerent in demanding to own the airport. John Lovett (FAA) then came forward and explained that there was really blame all around for the delays in the project, but that was really all history at this point—the focus now should be on fixing the runway as soon as possible.

Adolph asked if there was a temporary plan for erosion control in the interim. Tom replied that surveyors will be coming out to map the erosion this summer. Adolph suggested that locals could be hired to use four-wheelers to haul gravel from the barge landing to the airport. Tom explained that the project had to go through a competitive bidding process, which meant that ultimately a large contractor would handle the project and the means to move material would be up to them.

One of the elders stated that he supports the plan.

Another man said that thinning of the permafrost due to global warming was a problem. He then spoke in Yup’ik for awhile.

A woman in the back spoke up in Yup'ik. Adolph translated that she is a health aide and she supports the project, but she would like to see permanent lights because the emergency lights don't work well enough.

Tom repeated that lights were tied to land acquisition and how the substandard runway was really the immediate focus that needed to be dealt with.

Johnny Friend said that the Tuntutuliak airport had been turned over to the tribe, and he wanted to know if that would happen in Kwig as well. Johann (DOT ROW) came forward and answered that they could likely write into the land acquisition paperwork that if the airport is closed for a certain length of time, the land would revert back to its previous owners.

RJ then came up and spoke in Yup'ik again.

Art Lake asked about temporary lighting and also suggested using mats over the gravel on the road to provide a solid base. Tom replied that funding limits the ability to use mats and that the improvements to the road would likely be considered temporary measures.

Darrel John asked about getting the project done soon so medevac flights could get in. Tom asked if the community had the kind of temporary lights that roll out when needed. People responded that they did. Woodson (the Grant Air charter pilot out of Bethel) said that the small landing area made it difficult to fly into Kwig after dark or during twilight hours.

Tom asked if a crosswind runway had been discussed before. Art Lake said yes, but at the time it was considered for the north end and would have crossed the stream channel.

Someone asked if we had considered moving the airport to another location, and Ken replied that that there really weren't any good options for relocating the airport.

A woman in the audience (last name Kiunya) thanked us for coming and said she supported the project.

RJ commented that the original engineers had goofed the construction by using visqueen that prevented drainage and refusing to listen to the locals. He said they had to come back and fix it later.

At this point, the raffle was held. First we asked if everyone had had a chance to sign in and get a raffle ticket. Raffle tickets were placed in a coffee can, and Johann pulled one out for Jim Beaver for a \$50 gift certificate to the Kwik Inc. Store. Jim had apparently left, but because we hadn't specified he had to be present to win, someone else said they would give it to him. Emma Kiunya's name was drawn for the cooler.

We then invited people to come up, take a closer look at the graphics, and speak with us if they wanted.

Owen Beaver came forward to speak with me. He said that he was about to turn 80 years old, and that the younger generation wants an easy way of life and they don't protect their environment like the elders do. He said the younger generations are more interested in getting everything quickly and easily.

Darrel John then came forward and told me that he was concerned about erosion at multiple spots along the Kwigillingok River. I explained to him that those areas were outside of our project area, but if he had questions about contacting the Corps of Engineers to address the problems I could certainly help him find contact information. I gave him one of my cards so he could call or email me.

RJ then spoke with Ken and me about the ground conditions and how his father had taught him about "living earth." He explained how the vegetative mat kept the ground from sinking and as soon as that was removed the ground would start to subside. He also said that the dry lake bed near the airport was drained through natural erosion and not

during construction of the airport as we had initially been told. He said that was a large lake, and the wind would cause large waves to lap at the shore and eat it away. During the winter the ground likely froze, cracked, and opened up a channel that broke through and drained the lake out. He said that happened sometime in the 1960s.

The meeting adjourned at 4:15 PM.

*This information is **voluntary**. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.



**ALASKA DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES**



PUBLIC MEETING

SIGN IN SHEET

PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815

DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Owen Beaver	Kwigillingok	588-8229	M	N
Joseph Manchuaak	Kwigillingok	588-8600	M	N
Henry Eron	Kwig	588-8113	M	N
Roland J. Lewis	Kwigillingok	588-8620	M	N
John N. Paul	Kwigillingok	588-8214	M	N
Joseph Lewis	Kwigillingok	588-808	M	N

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)
effective: December 2004

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PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Darrel T. John	P.O. Box 95 Kwigillingok, AK 99622 john.demel@yahoo.com	907-588- 8077/2609	M	N
Andrew Kwaya	POB 84 Kwigillingok@yahoo.com	588-8117 8114	M	N
Johany Friends	Kwigillingok PO Box 48	588-885	M	N
Patrick Andrew	PO Box 48 Kwik, AK 99622 Pat99622@yahoo.com	588-8116	M	N
Samuel Ahti	PO, Box 42 Kwig 99622	588-8657	M	N
Wilkie Ahti	Box 55 Kwigillingok, AK 99622	1-800-8	M	Esk-
Norman H. John	Box 69 Kwik, AK 99622	907 588 8417	M	N
Marlona A. John	Box 68 Kwik, AK 99622	907 588 8417	F	N
Mikey D. John	Box 68 Kwik, AK 99622	907 588-8417	M	N

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O) effective: December 2004

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PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Tommy Andrew	P.O. Box 48 Kwigillingok	588-8365	M	
Emma Kinuya	P.O. Box 106 emakiuya@yahoo.com Kwigillingok AK 99622	(w) 588-8114	F	
Ray Kinuya	P.O. Box 106 Kinuya Kwigillingok, AK 99622	588-8080	M	
ARTHUR J. LAKE	Box 11 Kwigillingok 99622	588-2046	M	Yupik Eskimo
Elsie Jimmie	P.O. Box 63 AK. 99622 Kwigillingok	588-8312	F	Yupik Eskimo
Johnathan Friend	P.O. Box 86 Kwigillingok 99622	588-8820	M	Yupik Eskimo
Inez John	P.O. Box 95 Kwigillingok AK 99622	588-8077	F	Alaska Native
Margaret Beave	P.O. Box 75 Kwigillingok	588-8229	F	Yupik
Andrew Carl	Box 35 KwK, AK	588-2027	M	AK NATIVE

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)
effective: December 2004

*This information is voluntary. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.

PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Margaret Samson Beaver	Box 54 -	cell 588-2005	F	AN
Lillian F. Kiunya	PO Box 84	588. 2055	F	AN
Victor Amik	Box 14	588 8079	M	AAJ
Gavin D. Phillip	wing45@yahoo.com PO Box 107	588 2078	M	AN
Andrew Beausy	Box 54, Keig, AK 99522	588. 8252	M	AN
Ernest BEMEN	Box 76 Kuliq, AK 99022	588 8973	M	AN
Sherry Fair	Box 57 Kule, AK 99622	8796	M	Yupik
Anna Alena	Box 5 Kule, AK 99622	8933	F	AN
Moses Alexe	Box 5 Kule, AK 99622	568 2043	M	AN

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)
effective: December 2004

*This information is voluntary. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.

PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Johnny Andrew Sr	Box 71 Kwigillingok AK 99622	588- 8017	Male	AK-Nat
Jesse J. Jannick	Box 104 Kwigillingok AK 99622	588 8555	M	AK-Nat
Jimmy Berer	Box 77 Kwigillingok, AK 99622	8647	M	AK-Nat
Edward Georgesr	Box 13 Kwigillingok, AK 99622	5888215	M	AK
Peter Timmie	Box 63 Kwigillingok AK 99622	588-8812	Male	AK-Nat
Nelson Lieber	Box 55 Kwigillingok, AK 99622	545-4859	M	AK-Nat
Diane Athi	Box 77 Kwigillingok AK 99622	588-8088	F	/
Janet L. Andrew	Box 71 Kwigillingok, AK 99622	588-8017	F	AN
Roland Phillips	Kwigillingok AK 99622	588 8125		

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)
effective: December 2004

*This information is voluntary. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.

PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Jones John	Po Box 66 Kwik AK 99622 9075888007		M	N
Sherry Attie	" "	" "	F	N
Richard John	Box 72 Kwillingok 99622	N/A	M	AN
James Andrew G	Box 58 Kwillingok AK 99622	N/A	M	AN
Dorothy Beaver	Box 77 Kwillingok AK 99622	588-8647	F	N
Doreen Lewis	Bx 65 Kwig AK 99622 588-2047		F	N
Sue Grundberg	POT/PT	269-0613	F	A
JOHN LOFFETT	FAA AIRPORT	271-5426	M	O
Julie Cook	Box 15 Kwillingok Alaska 99622	588-2448	F	AN

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O) effective: December 2004

*This information is voluntary. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.

PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS - Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Wendy Saunders	Woodsen@mac.com	545- 5841	M	W
Morgan & John	PO Box 68 Kwigillingok, AK 99622 mljohn86@yahoo.com	588- 7610	F	AN
Wesslie B Andrew	Box 103 Kwig. AK 99622		M	W AN
David Jstad	Box 24 Kwig. AK 99622		M	W AN
Elizabeth Evon	Box 83 Kwigillingok AK	588- 2191	F	AN
Janet Lewis	Bx 43 Kwigillingok AK 99622	588-8422	F	AN
Pearl Andrew	103 Kwigillingok 99622	588-8570	F	AN
Warren P Lewis	Bx 33 Kwig	99622 - 8589	M	AN
Ken Bower	1 Kwig	2420	M	AN

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)
effective: December 2004

*This information is **voluntary**. Its purpose is to ensure fair and equal representation by the public in all projects and programs administered by the Alaska Department of Transportation and Public Facilities.

PROJECT NAME: KWIGILLINGOK AIRPORT IMPROVEMENTS – Project # 52571/52815 DATE: June 7, 2011 1:00 PM

NAME (PLEASE PRINT)	MAILING ADDRESS and *EMAIL	PHONE	*GENDER (M/F)	*RACE (W, AN, N, B, H, A, P, O)
Jeff Shannon	PDC	452-1414	M	W
Ken Bisse	PK	452-1414	M	W
Johann Mueller	ADOT iPF	269-0700	M	W

RACE CATEGORIES: WHITE (W), ALASKA NATIVE (AN), NATIVE AMERICAN (N), BLACK (B), HISPANIC (H), ASIAN (A), PACIFIC ISLANDER (P), and OTHER (O)

Kwigjillingok Public Meeting-June 7, 2011
General Summary of Comments

Name	Mailing Address	Email Address	Comment	Comments on figure
Darrel T. John	P.O. Box 95	john.darrell@yahoo.com	On behalf of the Native Village of Kwig. and as the EPA-IGAP coordinator-thank you for supporting the community. The community needs an airport that's safe and can support the functions of the community. Suggestions: Environmental Planner-work with the locals and compare you findings, opinions, facts, etc.	yes Darrel also marked the figure on the back of the sheet to show where the village is "eroding at a surprising rate."
Margaret Beaver	P.O. Box 54		Very happy something is finally being done to improve the safety of of the airport. No objections to any of the plans.	no
Johnny Friend	P.O. Box 46		Material for the current airport was dug around the runway causing lakes to form and erosion. For the cross wind runway he recommends not digging around the airport.	no
Andrew Beaver	P.O. Box 54	abeaver2005@yahoo.com	The community voted to go ahead with the project over 5 years ago but the Council did not. Very few people were against the project. Andrew strongly suggests that the project director listen to the whole community and not just a few people who are not in favor for the project.	no
Andrew Kiunya	P.O. Box 84	akiunya@hotmail.com	Fully support the project including the cross wind runway. Concern- erosion on both ends need to be worked on too. Concern-further damage from erosion	no

Kwigjillingok Public Meeting-June 7, 2011
General Summary of Comments

Peter Jimmie	P.O. Box 63		Could not distinguish exact comments. He was commenting on the hydrology of the area and when the adjacent lakes drain the ground subsides. This causes the community to live in sloshy water.	no
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COMMENT SHEET

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
KWIGILLINGOK AIRPORT IMPROVEMENTS
PROJECT NUMBER: 52571/52815
PUBLIC MEETING
JUNE 7, 2011

Thank you for attending the Kwigillingok Airport public meeting. Feel free to write any comments you have in the space provided below. You may also draw on the map on the back of this form if you would like to identify any specific areas of interest or concern.

NAME: Peter Gemma

MAILING ADDRESS: P.O. Box 63 Kwigillingok, Alaska 99622

E-MAIL ADDRESS (optional): _____

COMMENTS: We live here in low land above
lot of water lakes + slow rivers, when storms
then lake large or small the high
ground level go down
also in winter time if precast
what a rock the ground will be down
so we live in soft down surface
ground place, besides so we have
in sloshy water

Peter Gemma

Comments may be sent to:

Tom Schmid, P.E., DOT&PF Project Manager
P.O. Box 196900, Anchorage, AK 99519-6900
Phone: (907) 269-0612
Email: tom.schmid@alaska.gov

Thank you for your time.



COMMENT SHEET

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
KWIGILLINGOK AIRPORT IMPROVEMENTS
PROJECT NUMBER: 52571/52815
PUBLIC MEETING
JUNE 7, 2011

Thank you for attending the Kwigillingok Airport public meeting. Feel free to write any comments you have in the space provided below. You may also draw on the map on the back of this form if you would like to identify any specific areas of interest or concern.

NAME: Margaret S Beaver

MAILING ADDRESS: Box 54 Kwigillingok, Ak 99622

E-MAIL ADDRESS (optional): _____

COMMENTS: We have waited decades for improvements to our airport, and attending today's meeting and listening to your plans. I find no objections. Anything you do to improve our airstrip or airport is most acceptable to me. I will be very happy to see improvements in any way. Your plans are most welcomed and highly make sense. Safe wise to me. Just do what you can do. I am most happy finally something is being done. Thank you - Hope to see lots more of you again!!!
Quyana
(thats thanks)

Comments may be sent to:

Tom Schmid, P.E., DOT&PF Project Manager
P.O. Box 196900, Anchorage, AK 99519-6900
Phone: (907) 269-0612
Email: tom.schmid@alaska.gov

Thank you for your time.



COMMENT SHEET

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
KWIGILLINGOK AIRPORT IMPROVEMENTS
PROJECT NUMBER: 52571/52815
PUBLIC MEETING
JUNE 7, 2011

Thank you for attending the Kwigillingok Airport public meeting. Feel free to write any comments you have in the space provided below. You may also draw on the map on the back of this form if you would like to identify any specific areas of interest or concern.

NAME: Johnny Friend

MAILING ADDRESS: PO Box 46

E-MAIL ADDRESS (optional): Kwigillingok, Ak 99622

COMMENTS: By looking at our ~~current~~ current airport
when they built it they dug around
the airport and did some impact and causes
these lakes and causes erosion

on the cross wind airport did recommend
not to dig ground around the airport,

Comments may be sent to:

Tom Schmid, P.E., DOT&PF Project Manager
P.O. Box 196900, Anchorage, AK 99519-6900
Phone: (907) 269-0612
Email: tom.schmid@alaska.gov

Thank you for your time.



COMMENT SHEET

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
KWIGILLINGOK AIRPORT IMPROVEMENTS
PROJECT NUMBER: 52571/52815
PUBLIC MEETING
JUNE 7, 2011

Thank you for attending the Kwigillingok Airport public meeting. Feel free to write any comments you have in the space provided below. You may also draw on the map on the back of this form if you would like to identify any specific areas of interest or concern.

NAME: Darrel T. John

MAILING ADDRESS: P.O. Box 95

E-MAIL ADDRESS (optional): john.darrel@yahoo.com

COMMENTS: On behalf of the Native Village of Kwigillingok and as the EPA-IGAP Coordinator, I would like to thank you for showing your support in making a big difference and having some positive impacts to our community.

It very important to have our AIRPORT Repaired, Improved or Replaced. for the purpose of supporting some of our community needs such as store necessities, medical necessities, etc. Most importantly we need the AIRPORT for Emergency situation, if we do not have an AIRPORT that's not safe enough for Airplanes to land we or the State SIDE will risk the lives of our community members.

If by anychance the Airport condition causes any accidents or fatalities, I can gaurantee that we will be ready to deal with an avoidabale situation. Thank you very much for your time and wish you all, the best of the best.

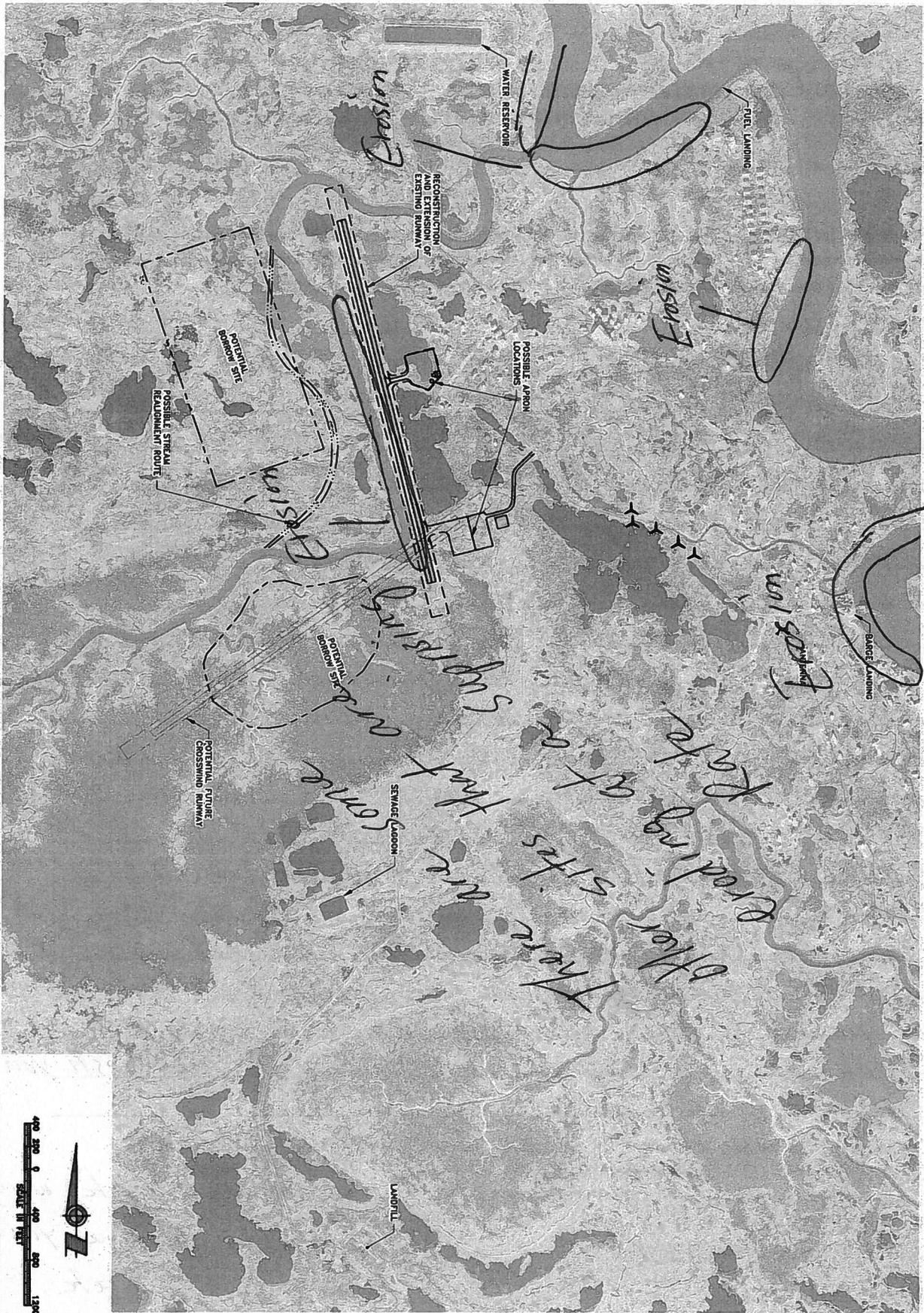
Comments may be sent to:

Tom Schmid, P.E., DOT&PF Project Manager
P.O. Box 196900, Anchorage, AK 99519-6900
Phone: (907) 269-0612
Email: tom.schmid@alaska.gov

- Suggestion -

* Environmental Planner, etc. work with the locals and compare your findings, opinions, facts, etc.

Thank you for your time.



SHEET TITLE:
PROJECT DETAILS

PROJECT:
KWIGILLINGOK AIRPORT IMPROVEMENTS

PLANS DEVELOPED BY:
FDG, INC.

CONSULTANT:

KWIGILLINGOK, ALASKA

DATE: 06/26/2013
DRAWN BY: J. F. FLOID
CHECKED BY: J. F. FLOID
SHEET NUMBER: 2
OF 3 SHEETS



COMMENT SHEET

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
KWIGILLINGOK AIRPORT IMPROVEMENTS
PROJECT NUMBER: 52571/52815
PUBLIC MEETING
JUNE 7, 2011

Thank you for attending the Kwigillingok Airport public meeting. Feel free to write any comments you have in the space provided below. You may also draw on the map on the back of this form if you would like to identify any specific areas of interest or concern.

NAME: Andrew Kiungya

MAILING ADDRESS: P.O. Box 84 KWIGILLINGOK, AK 99622

E-MAIL ADDRESS (optional): akiungya@hotmail.com

COMMENTS: fully support on the plan
and including cross runway plan

- Concern is erosion on both end
need to be worked on to
prevent further damage erosion.

Comments may be sent to:

Tom Schmid, P.E., DOT&PF Project Manager
P.O. Box 196900, Anchorage, AK 99519-6900
Phone: (907) 269-0612
Email: tom.schmid@alaska.gov

Thank you for your time.



COMMENT SHEET

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
KWIGILLINGOK AIRPORT IMPROVEMENTS
PROJECT NUMBER: 52571/52815
PUBLIC MEETING
JUNE 7, 2011

Thank you for attending the Kwigillingok Airport public meeting. Feel free to write any comments you have in the space provided below. You may also draw on the map on the back of this form if you would like to identify any specific areas of interest or concern.

NAME: Andrew Beaver

MAILING ADDRESS: P.O. Box 54, Kwigillingok AK 99622

E-MAIL ADDRESS (optional): a-beaver-2005@yahoo.com

COMMENTS: Thank you for coming to Kwigillingok to meet with us.

Building the airport is overdue because the community as the majority voted to go ahead with the project over 50 years ago but the Council didn't carry out the community's directive. A very few people (social construction group) were against this project for the sake of a disease "worry of immaturity."

I strongly suggest and recommend that the project directors listen to the whole community as whole, not just a few people not in favor of the project.

I enjoy the well organized meeting and keep up the good work.

Thanks

Comments may be sent to:

Tom Schmid, P.E., DOT&PF Project Manager
P.O. Box 196900, Anchorage, AK 99519-6900
Phone: (907) 269-0612
Email: tom.schmid@alaska.gov

Thank you for your time.

Kwigillingok Airport Newspaper Announcement



NOTICE OF COMMUNITY MEETING AND INTENT TO BEGIN ENGINEERING AND ENVIRONMENTAL STUDIES

KWIGILLINGOK AIRPORT IMPROVEMENTS (Project No. 52571/52815)

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the lead federal agency, the Federal Aviation Administration (FAA), is soliciting comments and information on a proposal to construct improvements to the airport in Kwigillingok, Alaska. DOT&PF will be conducting engineering and environmental studies to determine the project's environmental effects and will prepare an environmental document in accordance with the National Environmental Policy Act (NEPA) and FAA Orders 1050.1E *Environmental Impacts: Policies and Procedures* and 5050.4B *NEPA Implementing Instruction for Airport Actions*.

The purpose of this proposed project is to provide an airport facility that meets current standards of the FAA and State of Alaska. The proposed work would include the following:

- Property acquisition of the existing airport
- Reconstruction and extension of the existing runway, runway safety area (RSA), apron and aircraft support area
- Connecting taxiway between the runway and apron
- Snow removal equipment buildings
- Runway and taxiway lighting
- Lighted wind cone with segmented circle
- Rotating beacon
- Stream realignment and erosion protection along the riverbank
- Development of one or more local borrow sources
- Possible land acquisition for future crosswind runway

A temporary improvement project, which will include resurfacing the existing runway with gravel so the airport can remain operational, is planned for 2011. Construction for the proposed project listed above is anticipated to tentatively begin by the summer of 2013.

This proposed project will comply with the following: Section 106 of the National Historic Preservation Act; Executive Orders: 11990 (Wetlands Protection), 11988 (Floodplain Protection), 12898 (Environmental Justice), the Clean Air Act, Clean Water Act, Coastal Zone Management Act, Fish and Wildlife Coordination Act, U.S. DOT Act Section 4(f), 11593 (Historic Preservation), 13084 (Consultation and Coordination with Indian Tribal Governments).

To ensure that all possible factors are considered in the development of the proposed project, DOT&PF is requesting public comments and recommendations. **A public meeting on the proposed project is scheduled for June 7, 2011, at 1:00 PM, at the Albert Beaver Sr. Community Building.** Written comments will be accepted by:

Brian Elliott
Regional Environmental Manager
Preliminary Design & Environmental
Alaska Department of Transportation and Public Facilities
P.O. Box 196900
Anchorage, Alaska 99519-6900

If you have any questions or require additional information, please contact Tom Schmid, P.E., DOT&PF Project Manager, at (907)269-0612 or Teresa Zimmerman, Environmental Impact Analyst, at (907)269-0551. Persons with a hearing impairment can contact DOT&PF at our Telephone Device for the Deaf (TDD) at (907)269-0674. We can offer reasonable accommodations for special needs related to other disabilities.

Newsletters

KWIGILLINGOK AIRPORT IMPROVEMENTS

Alaska Department of Transportation & Public Facilities – Central Region – Project No. 52571

*Door
Prizes!*

COMMUNITY MEETING

June 7, 2011

1:00PM

Albert Beaver Sr. Community Building

*Refresh-
ments!*

The Alaska Department of Transportation and Public Facilities (DOT&PF) has been assessing upgrades to the existing runway and alternative airport layouts for Kwigillingok. A community meeting will be held to present project alternatives under consideration and the current schedule. The purpose of the proposed project is to construct a community class airport facility that meets current standards of the Federal Aviation Administration (FAA) and the State of Alaska.

KWIGILLINGOK AIRPORT



PRELIMINARY AGENDA

- Project history
- Alternatives
- Design considerations
- Schedule
- Upcoming studies and field work
- Community comments
- Right of Way Acquisition
- Snow Removal Equipment Building

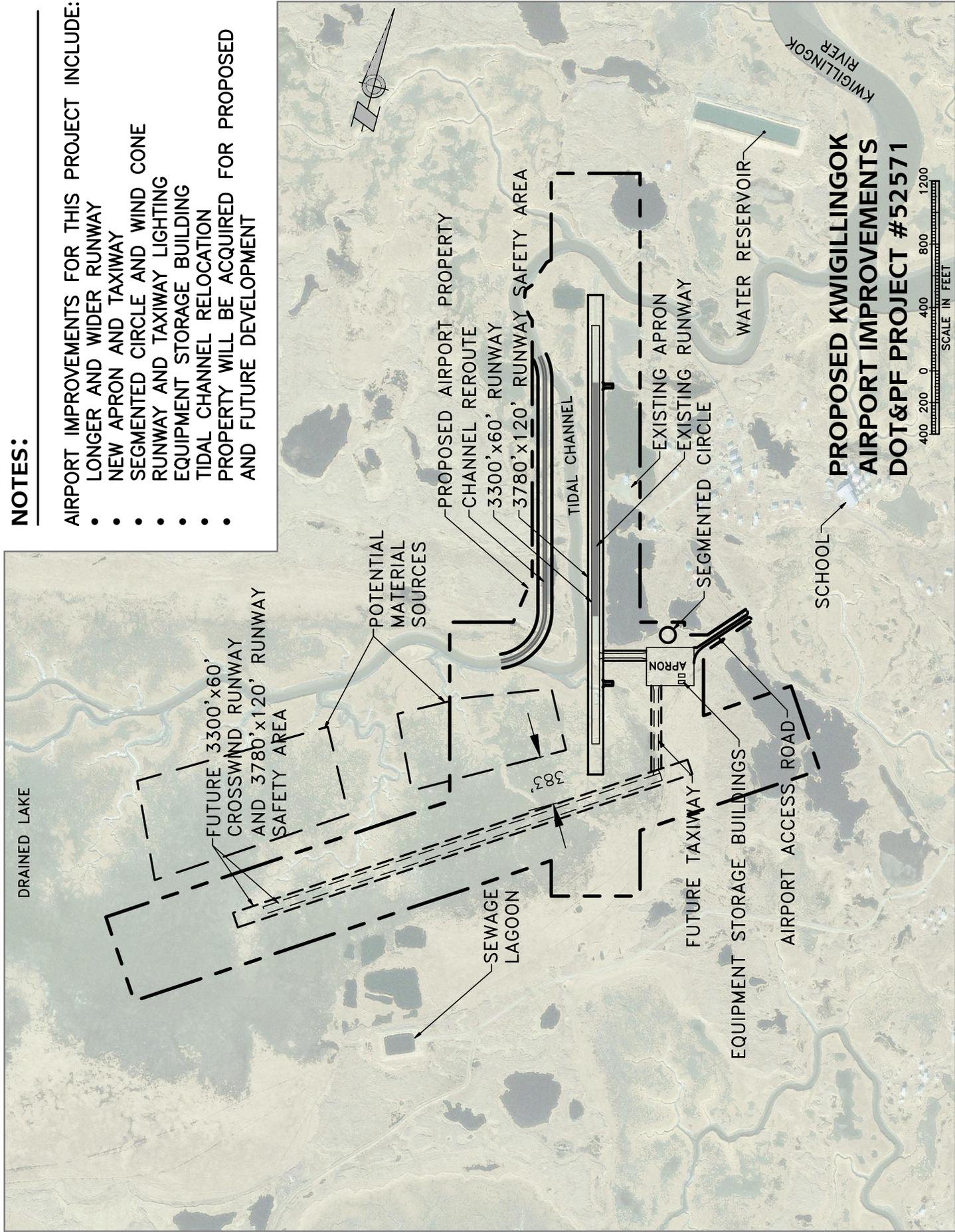
FOR MORE INFORMATION

Tom Schmid, P.E.
DOT&PF Project Manager
Alaska Department of Transportation
& Public Facilities
P.O. Box 196900
Anchorage, AK 99519-6900
(907) 269-0612
tom.schmid@alaska.gov

NOTES:

AIRPORT IMPROVEMENTS FOR THIS PROJECT INCLUDE:

- LONGER AND WIDER RUNWAY
- NEW APRON AND TAXIWAY
- SEGMENTED CIRCLE AND WIND CONE
- RUNWAY AND TAXIWAY LIGHTING
- EQUIPMENT STORAGE BUILDING
- TIDAL CHANNEL RELOCATION
- PROPERTY WILL BE ACQUIRED FOR PROPOSED AND FUTURE DEVELOPMENT



**PROPOSED KWIGILLINGOK
AIRPORT IMPROVEMENTS
DOT&PF PROJECT #52571**



Valerie Webb

From: Ken Risse
Sent: Thursday, April 18, 2013 3:09 PM
To: Valerie Webb
Subject: FW: Kwig Public Meeting Flyer
Attachments: Flyer_11y05m12d.pdf; Transmittal letter to Johnny Friend.PDF; Transmittal to Post Master at Kwig.PDF

fyi

From: Jeff Shannon
Sent: Thursday, May 26, 2011 3:56 PM
To: sue.grundberg@alaska.gov
Cc: Ken Risse; Royce Conlon; Mike Storey
Subject: Kwig Public Meeting Flyer

Sue,

Attached is the flyer that went out to the community. A dozen color copies were sent to Johnny Friend, President of the Native Village of Kwig, and he said he would post them in conspicuous locations throughout the community. 100 black and white copies were also sent to boxholders in Kwig:

To Box Holder
Kwigillingok, Alaska 99622-0049

Let me know if you need anything else.

Jeff Shannon
Environmental Coordinator

PDC Inc. Engineers
Planning Design Construction

1028 Aurora Drive | Fairbanks, Alaska 99709
v 907.452.1414 | f 907.456.2707 | www.pdceng.com

"Transforming Challenges into Solutions"



Transforming Challenges into Solutions

Anchorage
Fairbanks

PDC INC. ENGINEERS

TRANSMITTAL LETTER

To: Title:	Postmaster	PDC # Name:	F10101 Kwigillingok Airport Improvements
Firm:	U.S. Postal Service Kwigillingok, AK 99622	Date:	May 16, 2011
RE:	Flyers for Boxholders		

We are sending you the following via: USPS

Quantity	Description
100	Community Meeting Flyers – May 2011

REMARKS:

Please distribute these flyers to the boxholders. Thank you!

SIGNED:

Ken Risse, P.E.
Project Manager

1028 Aurora Drive
Fairbanks, AK 99709
T: 907.452.1414
F: 907.456.2707



Transforming Challenges into Solutions

Anchorage
Fairbanks

PDC INC. ENGINEERS

TRANSMITTAL LETTER

To: Title:	Johnny Friend President	PDC # Name:	F10101 Kwigillingok Airport Improvements
Firm:	Native Village of Kwigillingok Kwigillingok, AK 99622	Date:	May 16, 2011
RE:	Flyers for community		

We are sending you the following via: USPS

Quantity	Description
12	Community Meeting Flyers – May 2011

REMARKS:

Please distribute these flyers throughout the community. Thank you!

SIGNED:

Ken Risse, P.E.
Project Manager

1028 Aurora Drive
Fairbanks, AK 99709
T: 907.452.1414
F: 907.456.2707

KWIGILLINGOK AIRPORT IMPROVEMENTS

Project No. 52571

Boxholder
Kwigillingok, AK 99622

State of Alaska
Department of Transportation
& Public Facilities
Central Region
P.O. Box 196900
Anchorage, AK 99519-6900

Barbara Beaton, PE
Project Manager
barbara.beaton@alaska.gov
907.269.0617 phone
907.243.4409 fax

For more information or to
comment on the project,
please contact:



PROJECT UPDATES

February 2013

Over the past two years, the Kwigillingok Airport Improvements project has advanced toward the design and construction of new facilities that will provide the village with a community-class airport that meets current FAA guidelines.

Community Input

In June 2011, we held a public meeting in Kwigillingok, where the community expressed support for the project and let us know about several concerns:

- Erosion by the tidal channel is gradually destroying the runway
- Medevac planes have difficulty landing during bad weather
- Runway lighting is needed
- Construction material should not be mined from alongside the future crosswind runway (side borrow)

Planned Upgrades

To address these concerns, the airport improvements will include:

- Building a longer and wider runway with safety area
- Realigning the tidal channel
- Providing runway and taxiway lighting
- Using material sources set back from the future crosswind runway
- Planning and buying land for this upgrade project and for a future crosswind runway to be built under a different project

What's Been Done?

In 2011 and 2012, we completed the following steps toward the goal of upgrading Kwigillingok's airport:

- Initial site visit and community meeting
- Field work for the design and property surveys
- Geotechnical exploration to determine soil types
- Hydrologic studies of tidal stream features
- Staff field visits to review existing airport conditions
- Draft scoping report comparing design options
- Selection of design option for environmental process
- New surface applied to existing runway

What's Next?

In 2013, we will be moving forward with the following tasks:

- Prepare the project's environmental document
- Develop the Airport Layout Plan
- Produce the detailed design package for construction
- Purchase airport property

Construction is scheduled to begin in 2015, depending on the availability of federal funding. The time it takes to purchase property for the project may affect this schedule, since it could take two years or longer to buy the land.

Valerie Webb

From: Valerie Webb
Sent: Monday, March 04, 2013 3:47 PM
To: Carl Berger; charter@flyera.com; Coastal Villages; Dan Knesek - Director of Operations at Yute Air; David Lockard; info@aceaircargo.com; info@pbadventures.com; jmcatee@calistacorp.com; Ken Risse; Kwik Incorporated; kwkadmin@starband.net; kwktribal@yahoo.com; Matt Sullivan; Myron Naneng - Pres. Assoc. of Village Council Presidents; Patricia Walker; patrick.thurston@hageland.com; renfrosalaskanadventures@gmail.com; Representative Bob Herron; res@flygrant.com; Royce Conlon; Senator Lyman Hoffman; sstreet@avcp.org; Steve Smith; The Delta Discovery; Valerie Webb; Yute Air
Subject: Kwigillingok Airport Improvements Newsletter
Attachments: Kwigillingok Airport Improvements Newsletter.pdf.pdf

On behalf of the State of Alaska's Department of Transportation & Public Facilities Central Region, please find the attached *Kwigillingok Airport Improvements February 2013 Newsletter*.

For more information, please do not hesitate to contact myself or the Project Manager, Barbara Beaton, PE at Barbara.beaton@alaska.gov.

Thank you,
Valerie

Valerie Webb

Lead Environmental Analyst

PDC Inc. Engineers

Planning Design Construction

1028 Aurora Drive | Fairbanks, Alaska 99709

v 907.452.1414 | f 907.456.2707 | www.pdceng.com

"Transforming Challenges into Solutions"

APPENDIX F

**NATIONAL HISTORIC PRESERVATION ACT
SECTION 106 COMPLIANCE
CORRESPONDENCE**

Section 106 Correspondence #1

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

CENTRAL REGION DESIGN AND ENGINEERING SERVICES
PRELIMINARY DESIGN AND ENVIRONMENTAL SECTION

SEAN PARNELL, GOVERNOR

4111 AVIATION AVENUE
P.O. BOX 196900
ANCHORAGE, ALASKA 99519-6900

PHONE: (907) 269-0542
FAX: (907) 243-6927

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date: 2-9-12
File No.: 3130-1R FAA MW

RECEIVED

Date: 2/13/2012

Proj. #: 52571

Preliminary Design & Environmental	IP	PDF
Section Chief		
Project Manager		
Environmental		
EA Coordinator		
EA Analyst		
EA Analyst		
Gomez		
Project File		

In Reply Refer To:
Kwigillingok Airport Improvements
State Project: 52571
No Historic Properties Affected

January 25, 2012

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Dear Ms. Bittner:

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA), is proposing to improve the Kwigillingok Airport. The proposed project would be located in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4; Pursuant to 36 CFR 800.4(d)(1), implementing regulations of Section 106 of the National Historic Preservation Act, DOT&PF on behalf of FAA finds that no historic properties would be affected by the proposed project.

Project Background

Proposed Kwigillingok airport improvements was the subject of a 1996 Environmental Assessment (EA) and a 2004 Supplemental EA. Findings of No Significant Impacts (FONSI) were issued for both EAs on January 22, 1996 and May 11, 2004, respectively. Since then, various factors have delayed long term improvements to the Kwigillingok airport and due to the lapse of time and changes in environmental regulations, DOT&PF in coordination with the FAA, plan to prepare a new EA that will cover changes to the proposed project and current environmental conditions in Kwigillingok.

Project Description

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- Acquiring property for the existing airport and future improvements including extending the runway to 4,000' and constructing a crosswind runway
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- Increasing taxiway width from 30' to 50'
- Increasing aircraft apron area from 18,000 square feet to 75,000 square feet
- Constructing two snow removal equipment buildings (one heated, one unheated)

"Get Alaska Moving through service & infrastructure."

STATE OF ALASKA

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The Federal Aviation Administration (FAA) sent a Government-to-Government letter to the Native Village of Kwigillingok on June 2, 2011. The purpose of that letter was to ensure that the federally recognized tribe was given the opportunity to provide meaningful and timely input regarding FAA actions that may uniquely or significantly affect the tribe. The Native Village of Kwigillingok responded and did not cite any actions that would uniquely or significantly affect the tribe.

Finding of No Historic Properties Affected

DOT&PF does not plan to conduct a cultural resources survey for the proposed project as the recent search of the AHRS database produced negative results, there was no objection from the Native Village of Kwigillingok on the project and the previous SHPO concurrence obtained in 2002 was based on a similar scope of work. Based on this, DOT&PF, on behalf of FAA, finds that the project would have no effect on historic properties.

Consultation Efforts

The following parties are being notified of this finding: SHPO; the Native Village of Kwigillingok; Kwik, Inc.; and Calista Corporation.

Please direct your concurrence or comments to me at the address above, by telephone at 907-269-0535, or by e-mail at valerie.gomez@alaska.gov.

Sincerely,



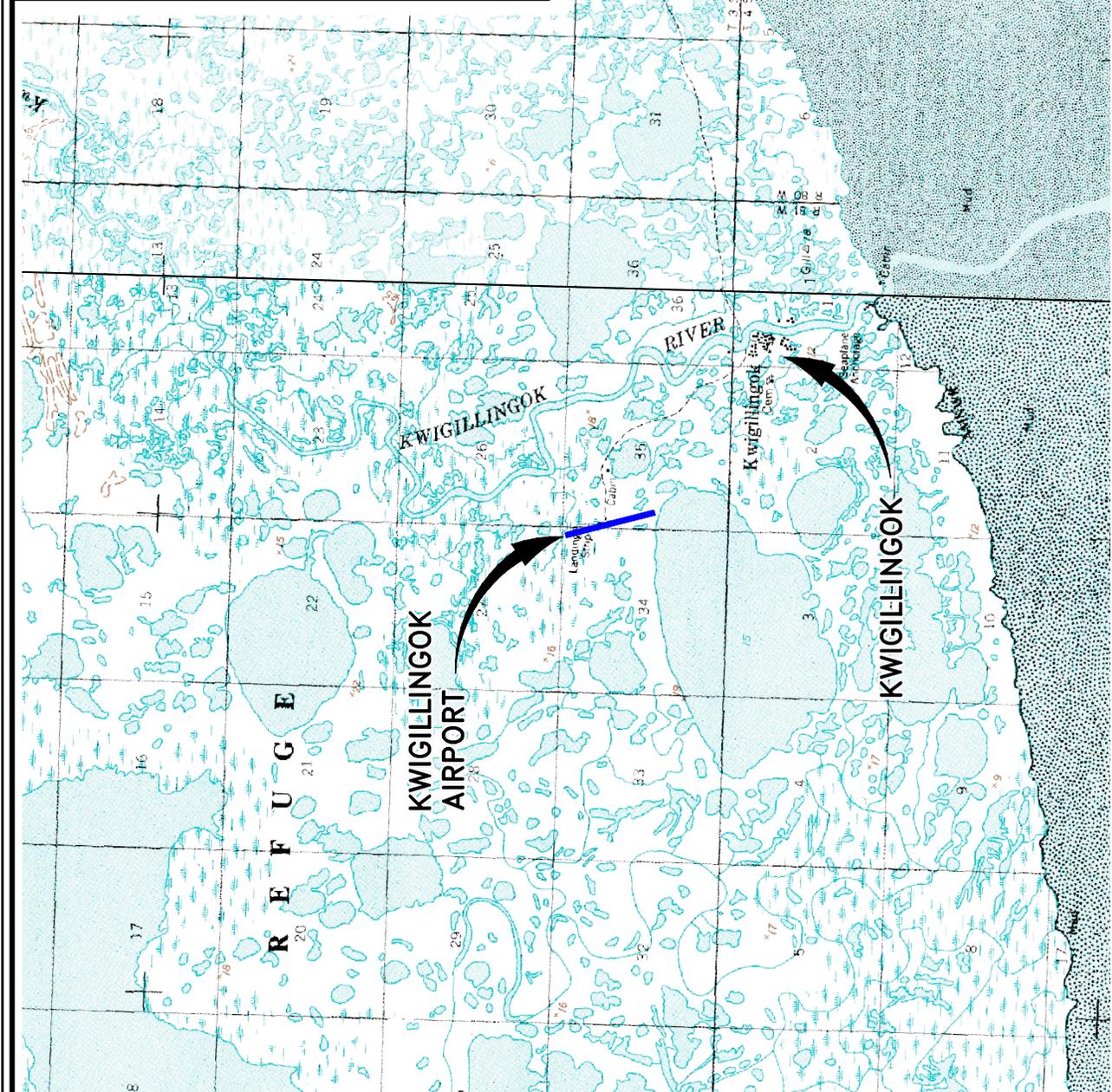
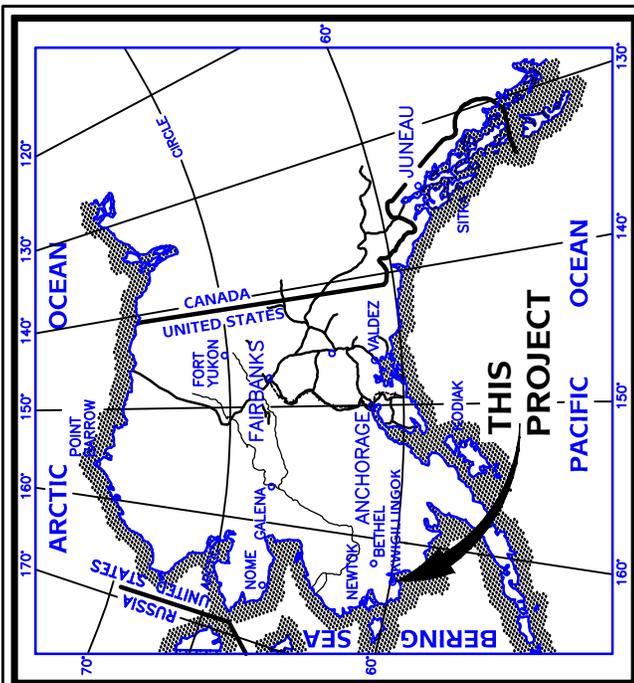
Valerie Gomez
Cultural Resources Specialist

Enclosures:

Figure 1 – Location and Vicinity Map
Figure 2 – Project Details
Figures for Proposed Geotech Test Holes
SHPO Concurrence from 2002

Electronic cc w/ enclosures:

John Lovett, FAA Project Manager
Bruce Greenwood, FAA Environmental Protection Specialist
Laurie Mulcahy, DOT&PF, Cultural Resources Manager
Tom Schmid, DOT&PF Central Region, Project Manager
Brian Elliott, DOT&PF Central Region, Regional Environmental Manager



**LOCATION AND VICINITY MAP
KWIGILLINGOK AIRPORT IMPROVEMENTS
KWIGILLINGOK, ALASKA**

DESIGN: TDM
DRAWN: RJP
CHECK: RLC

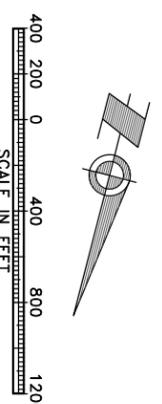
JAN. 2011
PROJ. No.
F10101

PLANS DEVELOPED BY:
PDC, INC

SEC 26, 27, 34, 35, T3S, R81W;
SEWARD MERIDIAN



- NOTES:**
- AIRPORT LAYOUT IS PRELIMINARY IN TERMS OF FACILITY LAYOUT AND EXACT LOCATION, BASED ON TOPOGRAPHY, GEOTECHNICAL, WIND AND ENVIRONMENTAL CONSIDERATIONS. THE LOCATION OF VARIOUS FACILITIES (RUNWAY, APRON, ACCESS ROAD, ETC.) WILL BE REFINED.
 - WITHIN 20 YEARS THE TOWERS WILL LIKELY BE REPLACED BY OTHER WIND GENERATION TOWERS IN A DIFFERENT LOCATION, OR THEY WILL BE REMOVED.



<p>SHEET TITLE : PROPOSED AIRPORT LAYOUT</p>	<p>PROJECT : KWIGILLINGOK AIRPORT IMPROVEMENTS DOT&PF PROJECT NO: 52571</p> <p>KWIGILLINGOK, ALASKA</p>	<p>PLANS DEVELOPED BY: PDC, INC.</p>	<p>CONSULTANT :</p>
<p>DESIGN: TDM DRAWN: HFE CHECKED: KAR DATE: JULY, 2011 PROJECT NO. F10101 SHEET NUMBER</p>			

Kwigillingok Airport Improvements
Proposed Test Hole Locations
with "skewed" Runway footprint

Figure 1

CR Materials

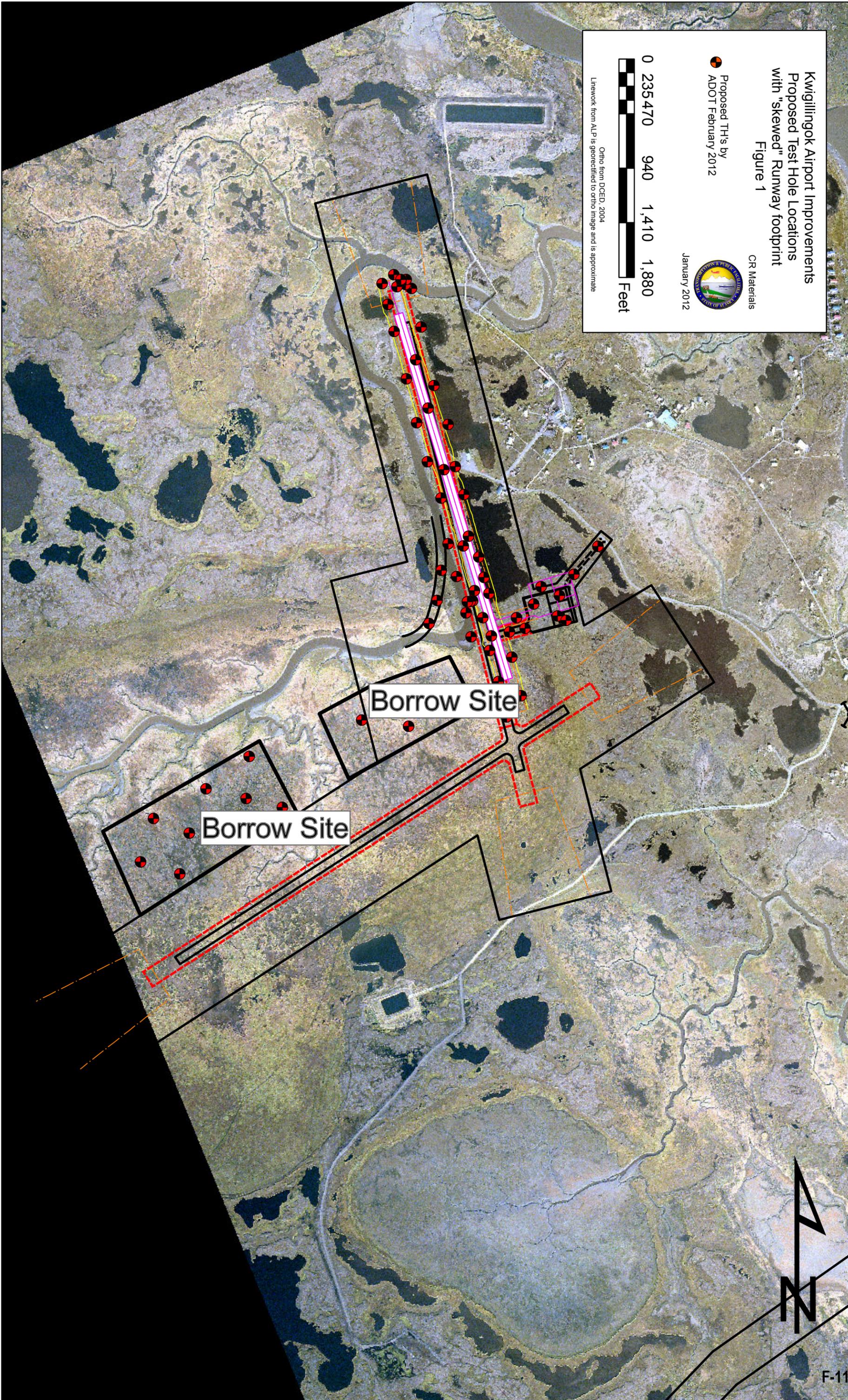
Proposed TH's by
ADOT February 2012

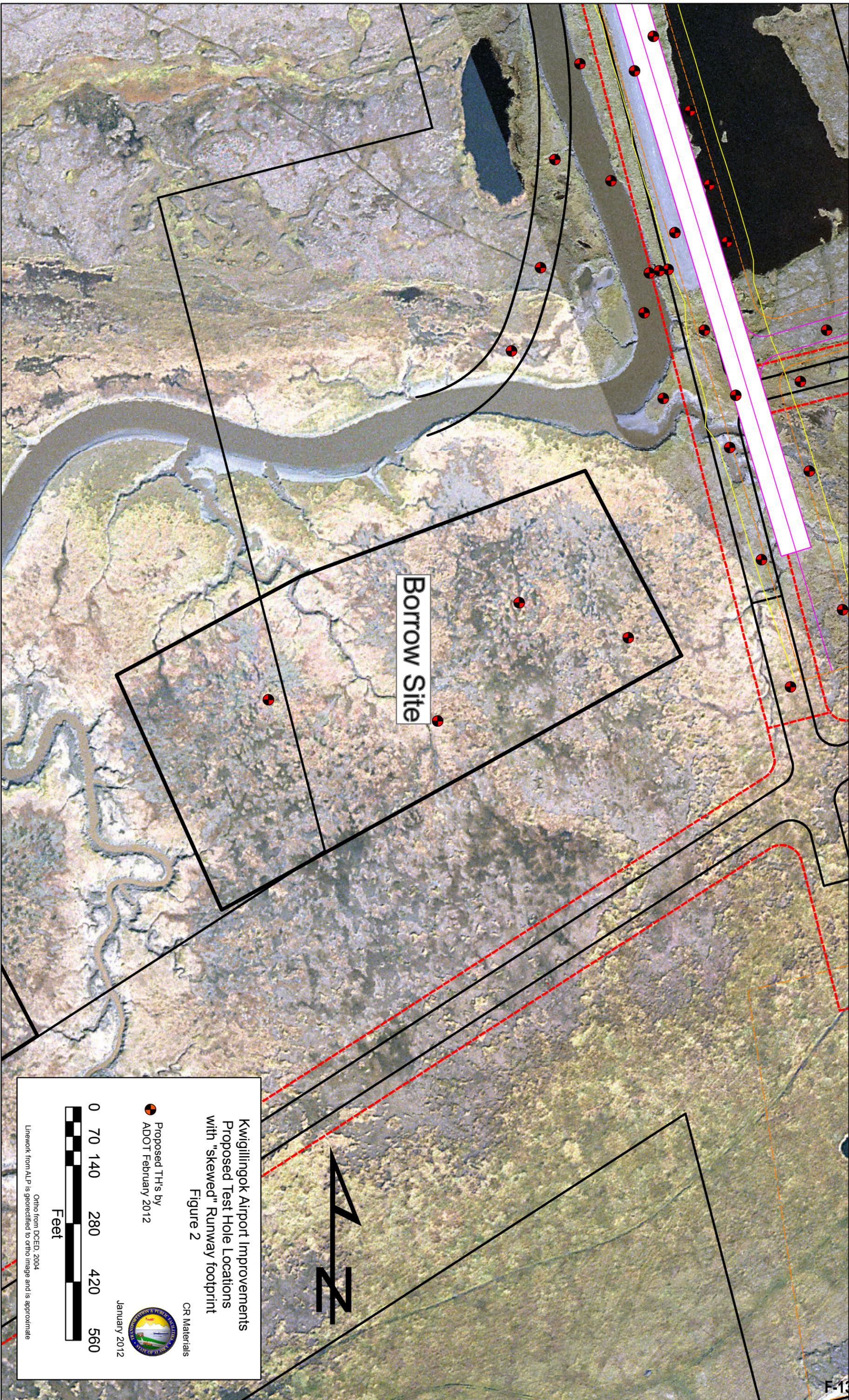


January 2012



Ortho from DGED, 2004
Linework from ALP is georeferenced to ortho image and is approximate





Borrow Site

Kwigilingok Airport Improvements
 Proposed Test Hole Locations
 with "skewed" Runway footprint
 Figure 2

CR Materials

Proposed TH's by
 ADOT February 2012



January 2012

0 70 140 280 420 560



Feet



Ortho from DCEI, 2004
 Linework from ALP is georectified to ortho image and is approximate

Borrow Site

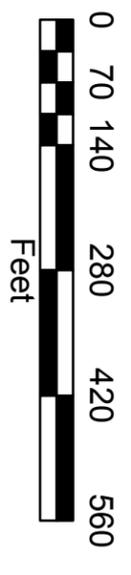


Kwigjilingok Airport Improvements
Proposed Test Hole Locations
with "skewed" Runway Alignment
Figure 3

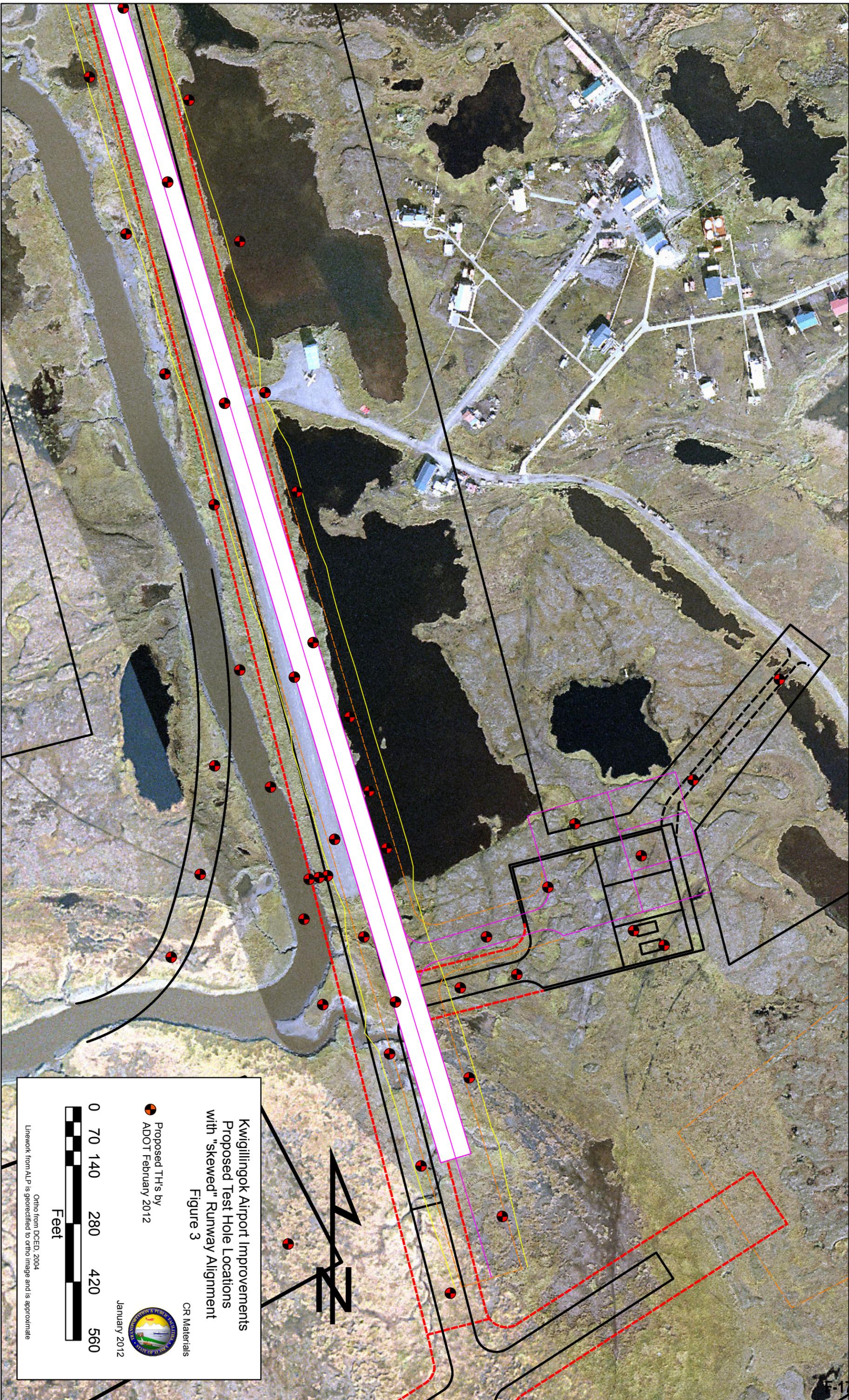
Proposed TH's by
ADOT February 2012



CR Materials
January 2012



Ortho from DCED, 2004
Linework from ALP is georectified to ortho image and is approximate



Kwijilingok Airport Improvements
Proposed Test Hole Locations
with "skewed" Runway Alignment
Figure 3

CR Materials



 Proposed TH's by
 ADOT February 2012
 January 2012


Feet

Ortho from DCEd, 2004
 Linework from ALP is georectified to ortho image and is approximate



Kwigilingok Airport Improvements
Proposed Test Hole Locations
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 Figure 3

CR Materials

Proposed TH's by
 ADOT February 2012



January 2012



Feet



Ortho from DCEd, 2004
 Linework from A.L.P. is georectified to ortho image and is approximate

STATE OF ALASKA

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ANCHORAGE, ALASKA 99519-6900

PHONE: (907) 269-0542
FAX: (907) 243-6927

In Reply Refer To:
Kwigillingok Airport Improvements
State Project: 52571
No Historic Properties Affected

January 25, 2012

Mr. Andrew Guy
President & CEO
Calista Corporation
301 Calista Court Suite A
Anchorage, Alaska 99518

Dear Mr. Guy:

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If you wish to comment on this finding, I can be reached at the address above, by telephone at 907-269-0535 or by e-mail at valerie.gomez@alaska.gov. However, we respectfully request that your comments or consultation requests be received within thirty days of your receipt of this correspondence.

Sincerely,



Valerie Gomez
Cultural Resources Specialist

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PHONE: (907) 269-0542
FAX: (907) 243-6927

In Reply Refer To:
Kwigillingok Airport Improvements
State Project: 52571
No Historic Properties Affected

January 25, 2012

Mr. Noah Andrew
President
Kwik Incorporated
P.O. Box 50
P.O. Box 50
Kwigillingok, Alaska 99622

Dear Mr. Andrew:

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Cultural Resources Specialist

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STATE OF ALASKA

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In Reply Refer To:
Kwigillingok Airport Improvements
State Project: 52571
No Historic Properties Affected

January 25, 2012

Mr. Johnny Friend
President
Native Village of Kwigillingok
P.O. Box 49
Kwigillingok, Alaska 99622

Dear Mr. Friend:

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Section 106 Correspondence #2

4.5.2013

3130-1R FAA



THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Transportation and Public Facilities

DESIGN & ENGINEERING SERVICES
PRELIMINARY DESIGN & ENVIRONMENTAL

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473
Fax: 907.243.6927

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MAR 29 2013
OHA

March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date: 4.5.2013
File No. 3130-1R FAA
SAB

Dear Ms. Bittner:

On January 25, 2012, the Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) sent a “No Historic Properties Affected” letter to the State Historic Preservation Officer (SHPO) for improvements to the Kwigillingok Airport (State Project 52571). The proposed location is in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4).

On February 9, 2012, DOT&PF received a concurrence letter from SHPO stating that no historic properties would be affected by the airport improvements. Since January 2012, plans for the proposed project have been updated to meet engineering and permitting needs.

Pursuant to 36 CFR 800.4(d)(1), implementing regulations of Section 106 of the National Historic Preservation Act, DOT&PF on behalf of FAA found that no historic properties would be affected by the proposed project changes.

Project Background

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Updated Project Description



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

**Department of Transportation
and Public Facilities**

DESIGN & ENGINEERING SERVICES
PRELIMINARY DESIGN & ENVIRONMENTAL

PO Box 196900
Anchorage, Alaska 99519-6900
Main: 907.269.0542
Toll Free: 800.770.5263
TDD: 907.269.0473
TTY: 800.770.8973
Fax: 907.243.6927

March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archaeology
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Dear Ms. Bittner:

On January 25, 2012, the Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) sent a “No Historic Properties Affected” letter to the State Historic Preservation Officer (SHPO) for improvements to the Kwigillingok Airport (State Project 52571). The proposed location is in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4).

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Consultation Efforts

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Please direct your concurrence or comments to me at the address above, by telephone at 907-269-0535, or by e-mail at valerie.gomez@alaska.gov.

Sincerely,



Valerie Gomez
Cultural Resources Specialist

Enclosures:

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Figure 2 – March 2013 Proposed Airport Layout
SHPO Concurrence (February 9, 2012)

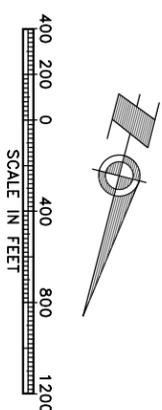
Electronic cc w/ enclosures:

Bruce Greenwood, FAA, Environmental Protection Specialist
Laurie Mulcahy, DOT&PF Statewide, Cultural Resources Manager
Barbara Beaton, P.E., DOT&PF Central Region, Project Manager
Brian Elliott, DOT&PF Central Region, Regional Environmental Manager

Figure 2



- NOTES:**
1. AIRPORT LAYOUT IS PRELIMINARY IN TERMS OF FACILITY LAYOUT AND EXACT LOCATION, BASED ON TOPOGRAPHY, GEOTECHNICAL, WIND AND ENVIRONMENTAL CONSIDERATIONS. THE LOCATION OF VARIOUS FACILITIES (RUNWAY, APRON, ACCESS ROAD, ETC.) WILL BE REFINED.
 2. WITHIN 20 YEARS THE TOWERS WILL LIKELY BE REPLACED BY OTHER WIND GENERATION TOWERS IN A DIFFERENT LOCATION, OR THEY WILL BE REMOVED.



PROJECT INFORMATION - Kwigillingok - Sino Coastal Project Data Feb 16, 2013 4:55 PM

CONSULTANT :

PLANS DEVELOPED BY:
PDC, INC.

PROJECT :
KWIGILLINGOK AIRPORT IMPROVEMENTS
DOT&PF PROJECT NO: 52571

KWIGILLINGOK, ALASKA

SHEET TITLE :
PROPOSED AIRPORT LAYOUT

DESIGN KAR
DRAWN HFE
CHECKED KAR
DATE FEB. 2013
PROJECT NO. F10101
SHEET NUMBER 2
OF 2 SHEETS 39



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March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Mr. Johnny Friend
President
Native Village of Kwigillingok
P.O. Box 49
Kwigillingok, Alaska 99622

Dear Mr. Friend:

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Sincerely,



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Cultural Resources Specialist

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March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Mr. Noah Andrew
President
Kwik Incorporated
P.O. Box 50
P.O. Box 50
Kwigillingok, Alaska 99622

Dear Mr. Andrew:

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March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Ms. June McAtee
Vice President, Land and Natural Resources
Calista Corporation
301 Calista Court Suite A
Anchorage, Alaska 99518

Dear Ms. McAtee:

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March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Mr. Ricky Hoff
Regional Archaeologist
Bureau of Indian Affairs
3601 C Street Suite 1100
Anchorage, Alaska 99503

Dear Mr. Hoff:

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March 21, 2013

In Reply Refer To:
Kwigillingok Airport Improvements – Project Update
State Project: 52571
No Historic Properties Affected

Mr. Steven Street
Director
Association of Village Council Presidents
P.O. Box 219
Bethel, Alaska 99559

Dear Mr. Street:

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The Alaska Heritage Resources Survey (AHRS) database was reviewed on March 20, 2013 to identify cultural resources in the project APE. No known sites are located within the APE or the surrounding area. DOT&PF staff also reviewed previous cultural resource survey reports within the Kwigillingok area. No positive results were identified in these reports and the area was described as having a low potential for encountering cultural resources due to the flat, low coastal topography and numerous sloughs, lakes and wetlands found throughout the surrounding area. As the project changes are similar to the previous scope of work and the likelihood for encountering subsurface cultural resources is relatively low, DOT&PF, on behalf of FAA, finds that the project would have no effect on historic properties.

Consultation Efforts

The following parties are being notified of this finding: SHPO; Native Village of Kwigillingok; Kwik, Inc.; Calista Corporation; the Bureau of Indian Affairs and the Association of Village Council Presidents.

If you wish to comment on this finding, I can be reached at the address above, by telephone at 907-269-0535 or by e-mail at valerie.gomez@alaska.gov. However, we respectfully request that your comments or consultation requests be received within thirty days of your receipt of this correspondence.

Sincerely,



Valerie Gomez
Cultural Resources Specialist

Enclosures:

Figure 1 – January 2012 Proposed Airport Layout
Figure 2 – March 2013 Proposed Airport Layout
SHPO Concurrence (February 9, 2012)

Electronic cc w/ enclosures:

Bruce Greenwood, FAA, Environmental Protection Specialist
Laurie Mulcahy, DOT&PF Statewide, Cultural Resources Manager
Barbara Beaton, P.E., DOT&PF Central Region, Project Manager
Brian Elliott, DOT&PF Central Region, Regional Environmental Manager

Section 106 Correspondence #3



THE STATE of ALASKA

GOVERNOR SEAN PARNELL

9.19.2013

RECEIVED

SEP 10 2013

OHA SEP 10 2013

3130-1R FAA Department of Transportation and Public Facilities

DESIGN & ENGINEERING SERVICES PRELIMINARY DESIGN & ENVIRONMENTAL

PO Box 196900 Anchorage, Alaska 99519-6900 Main: 907.269.0542 Toll Free: 800.770.5263 TDD: 907.269.0473 TTY: 800.770.8973 Fax: 907.243.6927

September 5, 2013

In Reply Refer to: Kwigillingok Airport Improvements- Project Update Project No.: 52571 No Historic Properties Affected ATTENTION: This letter contains no DOEs

Ms. Judith Bittner State Historic Preservation Officer Alaska Office of History and Archeology 550 W. 7th Avenue, Suite 1310 Anchorage, AK 99501-4565

No Historic Properties Affected Alaska State Historic Preservation Officer Date: 9.19.2013 File No. 3130-1R FAA SAD

Dear Ms. Bittner:

On January 25, 2012, the Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) sent a "No Historic Properties Affected" letter to the State Historic Preservation Officer (SHPO) for the proposed project to improve the Kwigillingok Airport. The project is located in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4). See Figure 1 - Location and Vicinity Map.

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Pursuant to 36 CFR 800.4(d)(1), implementing regulations of Section 106 of the National Historic Preservation Act, DOT&PF on behalf of FAA found that no historic properties would be affected by the project with the proposed changes.

Updated Project Description

Changes to the previously submitted project description are included below. For clarity, only changes since the March 21, 2013 correspondence are listed.

"Keep Alaska Moving through service and infrastructure."

- Proposed property acquisition boundary:
The proposed property boundary has been increased from 350 feet to 500 feet from each side of the existing runway and the proposed crosswind runway's centerline. This larger boundary has already received SHPO concurrence in February 9, 2012. A smaller boundary was proposed in March 2013. To ensure compatible land use and to protect the airspace around the airport facilities, the boundary has been extended to include the previously proposed larger footprint.
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Sincerely,



Valerie Gomez
Cultural Resources Specialist



September 5, 2013

In Reply Refer to:
Kwigillingok Airport Improvements- Project Update
Project No.: 52571
No Historic Properties Affected
ATTENTION: This letter contains no DOEs

Ms. Judith Bittner
State Historic Preservation Officer
Alaska Office of History and Archeology
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-4565

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Consultation Efforts

The following parties are being notified of this finding: SHPO; Native Village of Kwigillingok; Kwik, Inc.; and Calista Corporation.

Please direct your concurrence or comments to me at the address above, by telephone at 907-269-0535 or by e-mail at valerie.gomez@alaska.gov.

Sincerely,



Valerie Gomez
Cultural Resources Specialist

Enclosures:

Figure 1 – Location and Vicinity Map

Figure 2 – New Area of Potential Effect Map

cc: Barbara Beaton, DOT&PF Central Region, Project Manager
Bruce Greenwood, FAA, Environmental Protection Specialist
Brian Elliott, DOT&PF Central Region, Regional Environmental Manager
Laurie Mulcahy, DOT&PF Statewide, Cultural Resource Manager



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GOVERNOR SEAN PARNELL

Department of Transportation
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DESIGN & ENGINEERING SERVICES
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TTY: 800.770.8973
Fax: 907.243.6927

September 5, 2013

In Reply Refer to:
Kwigillingok Airport Improvements- Project Update
Project No.: 52571
No Historic Properties Affected

Ms. June McAtee
Vice President, Land and Natural Resources
Calista Corporation
301 Calista Court Suite A
Anchorage, Alaska 99518

Dear Ms. McAtee:

On January 25, 2012, the Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) sent a "No Historic Properties Affected" letter to the State Historic Preservation Officer (SHPO) for the proposed project to improve the Kwigillingok Airport. The project is located in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4). See *Figure 1 - Location and Vicinity Map*.

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Valerie Gomez
Cultural Resources Specialist

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cc: Barbara Beaton, DOT&PF Central Region, Project Manager
Bruce Greenwood, FAA, Environmental Protection Specialist
Brian Elliott, DOT&PF Central Region, Regional Environmental Manager
Laurie Mulcahy, DOT&PF Statewide, Cultural Resource Manager



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Fax: 907.243.6927

September 5, 2013

In Reply Refer to:
Kwigillingok Airport Improvements- Project Update
Project No.: 52571
No Historic Properties Affected

Mr. Noah Andrew
President
Kwik Incorporated
P.O. Box 50
P.O. Box 50
Kwigillingok, Alaska 99622

Dear Mr. Andrew:

On January 25, 2012, the Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) sent a "No Historic Properties Affected" letter to the State Historic Preservation Officer (SHPO) for the proposed project to improve the Kwigillingok Airport. The project is located in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4). See *Figure 1 - Location and Vicinity Map*.

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September 5, 2013

In Reply Refer to:
Kwigillingok Airport Improvements- Project Update
Project No.: 52571
No Historic Properties Affected

Mr. Johnny Friend
President
Native Village of Kwigillingok
P.O. Box 49
Kwigillingok, Alaska 99622

Dear Mr. Friend:

On January 25, 2012, the Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA) sent a "No Historic Properties Affected" letter to the State Historic Preservation Officer (SHPO) for the proposed project to improve the Kwigillingok Airport. The project is located in Sections 26, 27, 34, and 35, Township 3 South, Range 81 West, Seward Meridian (United States Geological Survey Quadrangle Kuskokwim Bay D-4). See *Figure 1 - Location and Vicinity Map*.

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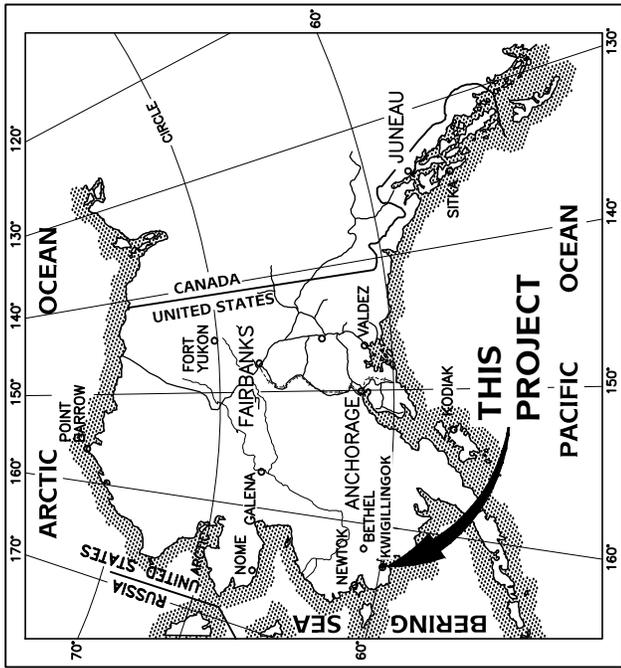


Valerie Gomez
Cultural Resources Specialist

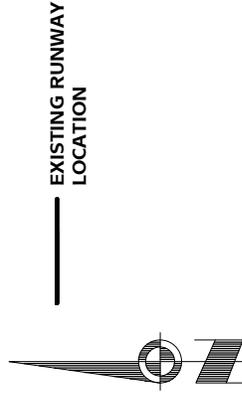
Enclosures:

Figure 1 – Location and Vicinity Map
Figure 2 – New Area of Potential Effect Map

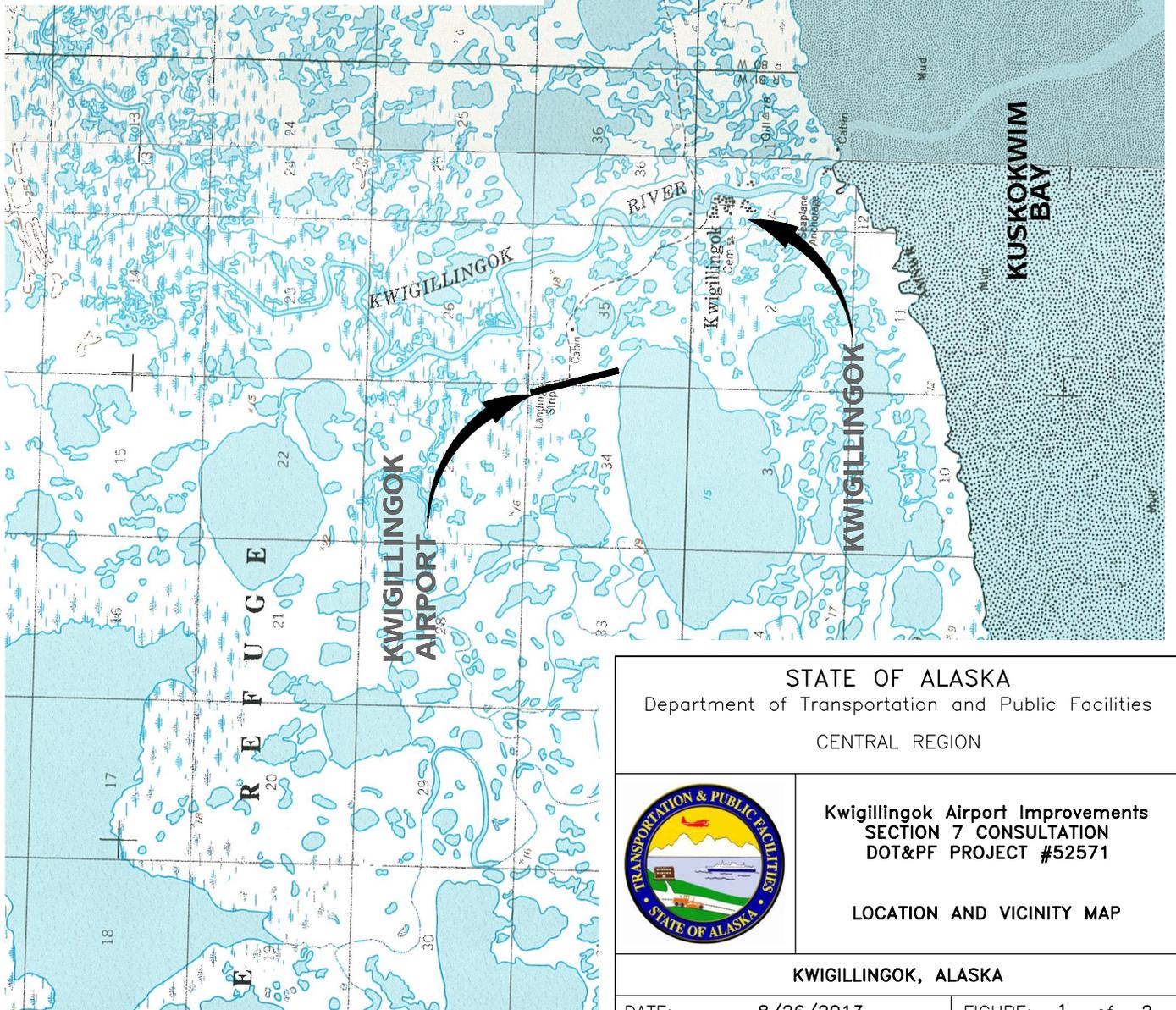
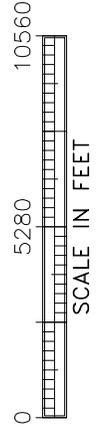
cc: Barbara Beaton, DOT&PF Central Region, Project Manager
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Brian Elliott, DOT&PF Central Region, Regional Environmental Manager
Laurie Mulcahy, DOT&PF Statewide, Cultural Resource Manager



LOCATION MAP



SEC 26, 27, 34, 35, T3S, R81W;
SEWARD MERIDIAN



STATE OF ALASKA
Department of Transportation and Public Facilities
CENTRAL REGION



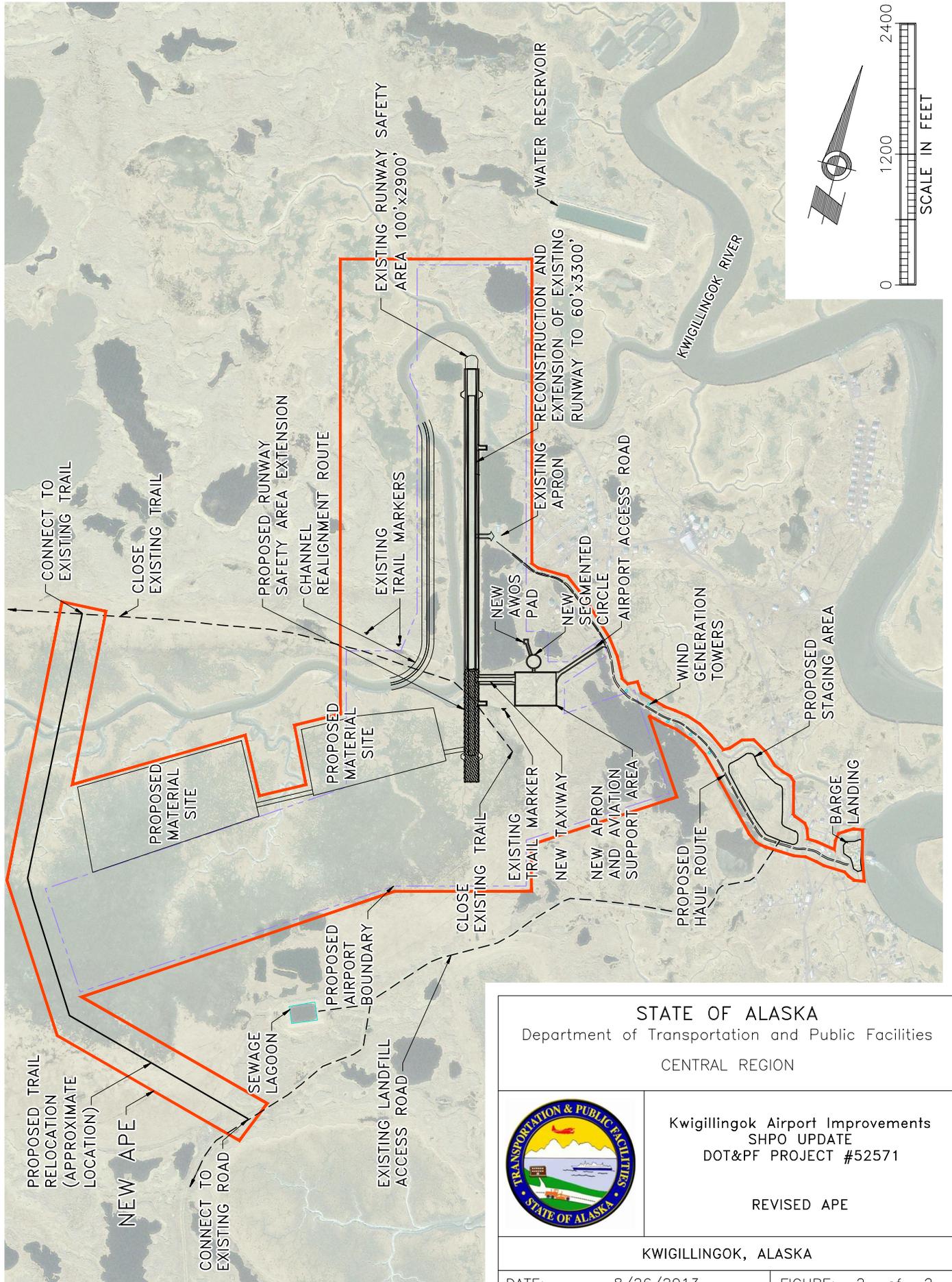
Kwigillingok Airport Improvements
SECTION 7 CONSULTATION
DOT&PF PROJECT #52571

LOCATION AND VICINITY MAP

KWIGILLINGOK, ALASKA

DATE: 8/26/2013

FIGURE: 1 of 2



<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport Improvements SHPO UPDATE DOT&PF PROJECT #52571</p>
<p>REVISED APE</p>	
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	8/26/2013
FIGURE:	2 of 2

APPENDIX G

ESA SECTION 7 CONSULTATION



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Anchorage Fish & Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, Alaska 99501-2249



In reply refer to: AFWFO

November 7, 2013

Emailed to:

TaraLyn Stone
Alaska Department of Transportation and Public Facilities
P.O. Box 196900
Anchorage, Alaska 99519- 6900

Re: Kwigillingok Airport Improvement (*Consultation Number 2013-0049*)

Dear Ms. Stone,

Thank you for your September 23, 2013, letter requesting concurrence with the determination that improving the airport in Kwigillingok, Alaska, is not likely to adversely affect species protected by the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq., as amended; ESA). The Alaska Department of Transportation and Public Facilities (DOT), in cooperation with the Federal Aviation Administration (FAA) have proposed this project.

Project Description

The proposed upgrades at the Kwigillingok airport are to occur in two stages. Stage I, which is scheduled to begin in 2015 would include: acquiring property, barging equipment, developing one or more borrow source, placing embankment material, realigning a stream channel, and re-vegetating. Stage II, which scheduled to begin in 2018, would include: barging material, placing surface material on the barge access road, improving the runway extension, taxiway, apron and airport access road, constructing a new snow removal equipment building, installing lighting systems, relocating the winter trail, and re-vegetating. Barging will occur during summer and fall. Approximately 54,000 cubic yard of material will be brought in over about 36 barge trips that may run weekly through September. Most summer construction would take place on previously disturbed ground. Eider nest surveys will be conducted prior to any new ground disturbance during nesting season (May through July). A Storm Water Pollution Prevention Plan (SWPPP) would be developed and implemented.

ESA-Listed Species

The following species may be found in the action area: the Alaska breeding population of Steller's eider (*Polysticta stelleri*, listed as threatened in 1997), and the spectacled eider (*Somateria fischeri*, listed as threatened in 1993). Federally designated critical habitat to protect Steller's eiders during the molting period is within the action area of the proposed activities.

Effects Analysis

The terrestrial habitat in the immediate vicinity of Kwigillingok is not federally designated critical habitat for nesting spectacled or Steller's eiders. Just offshore of Kwigillingok, however, is federally designated critical habitat for molting Steller's eiders. During the molting period (August through October) Steller's eiders concentrate in the protected waters of the Kuskokwim Shoals. There, they undergo complete molt; an energy intensive life-stage when they are completely flightless. During this time, they are highly vulnerable to human caused disturbance and harm from spilled oil. Barging of materials through critical habitat will occur during the molting period. As per your November 7, 2013, email, DOT estimates 10 to 20 barge trips from August through September. Based on data from the Alaska Department of Environmental Conservation, 208 spills occurred in Alaska from barge incidents over an 18 year period. Of those spills, 14% occurred in Western Alaska. Most of

TaraLyn Stone

those spills occurred while the barges were refueling, and the maximum diesel spill size was 100 gallons. Based on these data, we conclude that the probability of a barge incident resulting in the discharge of significant amounts of fuel in Kuskokwim Bay is low, and therefore, the probability that a listed Steller's eider would be harmed as a result of exposure to those petroleum hydrocarbons is very low.

The proposed airport upgrades in Kwigillingok may alter previous undisturbed ground, but we do not believe that, even if this activity occurs during nesting season, it will result in harm because: 1) there is low probability that this area is used by eiders for nesting, and 2) foot surveys will be conducted to look for eider nests if ground disturbing activities occur during nesting season. If a nest is found, ground disturbing work will cease until the birds have voluntarily left the area. Thus, it is highly unlikely that ground disturbance, even during nesting season will adversely affect listed eiders.

No new overhead power lines will be installed as a result of this proposed improvement project, and lighting will not change appreciable from current conditions at the airport. Although Steller's and spectacled eiders are known to collide with power lines and other on-land infrastructure, and they appear to be attracted to lights, we do not anticipate an increase in the probability of strikes as a result of this proposed project. Furthermore, storm water drainage patterns are not expected to change appreciably as a result of this proposed project and a SWPPP should identify Best Management Practices to avoid sedimentation in the marine environment. Thus, we do not anticipate adverse impacts to Steller's eider critical habitat as a result of water quality degradation.

Fuel spills due to increased barge traffic in Kuskokwim Bay are unlikely. Furthermore, Kwigillingok is on the eastern-most edge of designated critical habitat and we expect most of the eiders to be concentrated around the barrier islands. Therefore, the increased barge traffic resulting from the proposed airport upgrades is unlikely to disturb or otherwise harm Steller's eiders. Nest disturbance during ground clearing, collision with on-land power lines or other infrastructure, and habitat loss are unlikely to occur due to the improvements. Therefore, the Service concurs with your determination that the airport improvements in Kwigillingok, Alaska, are unlikely to adversely affect listed Steller's or spectacled eiders or their critical habitat.

Requirements of section 7 of the ESA have been satisfied. However, if new information reveals project impacts that may affect listed species or critical habitat in a manner not previously considered, if this action is subsequently modified in a manner which was not considered in this assessment, or if a new species is listed or critical habitat is designated, reinitiation of section 7 consultation should be considered.

This letter relates only to federally listed or candidate species and/or designated or proposed critical habitat under jurisdiction of the U.S. Fish and Wildlife Service. It does not address species under the jurisdiction of National Marine Fisheries Service, or other legislation or responsibilities under the Fish and Wildlife Coordination Act, Migratory Bird Treaty Act, Marine Mammal Protection Act, Clean Water Act, National Environmental Policy Act, or Bald and Golden Eagle Protection Act.

Thank you for your cooperation in meeting our joint responsibilities under the ESA. If you have any questions, please contact me at (907) 271-1467 and refer to consultation number 2013-0049.

Sincerely,



Ellen W. Lance
Endangered Species Branch Chief

Stone, Taralyn R (DOT)

From: Stone, Taralyn R (DOT)
Sent: Monday, September 23, 2013 2:33 PM
To: "ellen_lance@fws.gov" (ellen_lance@fws.gov)
Subject: FW: consult. no. 2013-0049; Kwigillingok AP Evaluation of Potential Biological Impacts on ESA
Attachments: Kwigillingok Section 7 Consultation_8.5.13.pdf

Ellen, Please see the email below.

Thanks,
Tara

From: Stone, Taralyn R (DOT)
Sent: Thursday, September 19, 2013 1:23 PM
To: 'kimberly_klein@fws.gov'
Cc: Elliott, Brian A (DOT); Bruce.Greenwood@faa.gov; Beaton, Barbara J (DOT)
Subject: consult. no. 2013-0049; Kwigillingok AP Evaluation of Potential Biological Impacts on ESA

Kim,

Attached is the Alaska Department of Transportation and Public Facilities' response to your letter on April 3, 2013, requesting an evaluation of potential biological impacts from the proposed improvements to the Kwigillingok Airport on ESA-listed species and designated critical habitat. If you have any questions on the attached evaluation or the proposed project, please feel free to contact me.

Thanks,
Tara Stone

TARALYN STONE



Department of Transportation and Public Facilities

PD&E | ENVIRONMENTAL IMPACT ANALYST

OFFICE 907.269.0534 | FAX 907.243.6927

P.O. BOX 196900 | ANCHORAGE, AK 99519-6900

TARALYN.STONE@ALASKA.GOV | DOT.ALASKA.GOV



September 19, 2013

Project: Kwigillingok Airport Improvements
Project No.: 52571
Consultation No.: 2013-0049

Kimberly J. Klein
Endangered Species Biologist
Anchorage Fish & Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, AK. 99501-2249

RE: Evaluation of potential biological impacts on ESA-listed species

Dear Ms. Klein:

In response to your letter on April 3, 2013, and to meet the requirements of Section 7 of the Endangered Species Act (ESA), the Alaska Department of Transportation and Public Facilities (DOT&PF) conducted an evaluation of potential biological impacts from the proposed improvements to the Kwigillingok Airport on the ESA-listed species and designated critical habitat.

A Supplemental Environmental Assessment (EA) to 1996 EA was prepared for the project (FONSI dated May 11, 2004), during which time USFWS was consulted on potential impacts to ESA-listed species and their critical habitat. It was determined, and USFWS concurred, that the project was not likely to adversely affect the listed species or their habitat. The DOT&PF committed to doing the embankment work in the winter and implementing Best Management Practices at borrow sites and fill areas to minimize potential impacts. Land ownership and funding challenges precluded construction of the project. The project is now being reinitiated and an EA is being prepared. The current project scope and location are generally the same as proposed in 2004; the most notable changes are refinements to the location of the apron and stream realignment.

Project Information

DOT&PF, in cooperation with the Federal Aviation Administration, is proposing to improve the airport at Kwigillingok in order to provide residents with a safe, reliable facility to meet their transportation needs year-round. Kwigillingok is near the western shore of the Kuskokwim Bay near the mouth of the Kuskokwim River, 77 miles southwest of Bethel and 388 miles west of Anchorage. The project area is located within the U.S. Geological Survey (USGS) Kuskokwim Bay (D-4) quadrangle; Seward Meridian; Sections 26, 27, 34, 35, T3S, R81W; 59.8723°N., 163.1658°W. See *Figure 1 – Location and Vicinity Map*.

Project components are illustrated on the attached *Figure 2 –Proposed Action*. The proposed project is broken into two stages to allow time for the embankment, constructed from local borrow material, to naturally settle. Both stages will be included in the EA and are being accounted for in this evaluation.

Proposed work for Stage I would include:

1. Acquiring property for the airport improvements and the proposed crosswind runway.
2. Barging in equipment.
3. Developing one or more local borrow sources for embankment material.
4. Placing embankment material for the proposed runway extension, new apron and taxiway, and access roads.
5. Realigning a small channel which has been responsible for eroding the embankment parallel to the runway.
6. Re-vegetating and reclaiming the work sites.

Stage II would complete the proposed improvements and would include:

1. Barging in surface course material, as no suitable source is locally available.
2. Improving the existing barge access road as needed in order to provide a haul route for barged materials. Imported material may be staged along the haul route in a proposed staging area to be constructed approximately 300 feet from the existing barge landing.
3. Placing surface course material on the runway extension, taxiway and apron, and airport access road.
4. Constructing a new snow removal equipment building on the new apron.
5. Installing runway and taxiway lighting systems.
6. Relocating an existing winter trail around the west end of the expanded airport property. This consists of moving the existing trail markers.
7. Re-vegetating and reclaiming the work sites.

Stage I construction is scheduled to begin in 2015 but is dependent on land acquisition and available construction funding. Stage II construction is estimated to begin in the summer of 2018. The project area for both Stages I and II includes the proposed airport property boundary, material sites, staging areas, haul routes, and barge landings.

ESA-Listed Species

Through consultation with you, it has been determined that the Alaska breeding population of Steller's eiders and the spectacled eiders may be found in the project area. Critical habitat for the Steller's eider is located in the intertidal and marine habitat in the Kuskokwim Bay. Known breeding habitat for the spectacled eider is located in the wetlands and uplands surrounding Kwigillingok.

Direct Construction Effects and Mitigation

The majority of Stage I work would take place during the winter when eiders do not occur within the project area. Almost all of the listed Stage I activities would result in new ground disturbance and wetland fill. Because the work would take place in the winter, the activities would not result in direct impacts from noise or heightened activity levels to the eiders. The activities would cause a minor loss of breeding habitat; however, the area surrounding Kwigillingok and the project area consists of wetlands and other pristine breeding habitat for the eiders and the loss would be negligible.

A majority of summer construction would be limited to previously disturbed ground and could result in temporary impacts from an increase in noise and human activity levels, storm water discharge, and

contaminants such as petroleum hydrocarbons. The only anticipated new ground disturbance during the summer would be from relocating the trail markers. If other new ground disturbance during the nesting season cannot be avoided, contractors would follow the Anchorage Fish and Wildlife Field Office Nest Survey Guidelines. Construction noise generated from equipment use would be temporary and consistent with the noise levels of airplanes landing and taking off from the airport. Potential impacts from storm water and contaminants would be mitigated by implementing a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the Alaska Department of Environmental Conservation Construction General Permit. The SWPPP would include all applicable Best Management Practices.

Construction within the Steller's eider's intertidal and marine habitat is not anticipated. Activities within the Kuskokwim Bay would be limited to barging. The barges would travel through the Kuskokwim Bay to the existing barge landing one mile up the Kwigillingok River. Whenever possible, barging would occur after April and before August to avoid direct impacts to migrating Steller's eiders. Dependent on weather, barging activities may continue through the end of October.

Long-Term Effects and Mitigation

Project lighting, buildings, and drainage patterns would be consistent with the existing airport facilities. There would be no increase in the potential for collisions with buildings and structures from lighting and structures. The runway and apron would be constructed of crushed aggregate and borrow material. This material is permeable and only minor increases in storm water discharge would result from the project. The sideslopes and embankments would be seeded to further reduce the potential for storm water runoff.

Noise levels and the number of aircraft using the airport are not expected to increase as a result of the proposed project. The project would bring the airport up to the standards of a community class airport, to meet the needs of the current fleet mix, and to bring the airport up to current FAA design standards. Because there would be no change in existing noise levels, no long-term impacts to eiders are anticipated.

Determination of Effect

The proposed project is not anticipated to cause direct or long term impact on ESA-listed species or their critical habitat. The DOT&PF has determined that the proposed project is not likely to adversely affect the Steller's eider or the spectacled eider or their critical habitats.

If you have any further questions or require additional information, please contact me by phone at (907) 269-0534 or email at taralyn.stone@alaska.gov.

Sincerely,

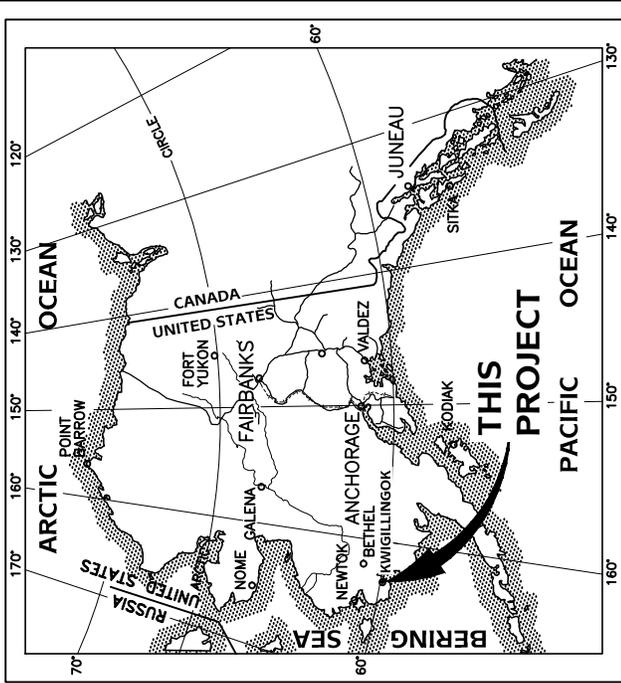


TaraLyn Stone
Environmental Impact Analyst

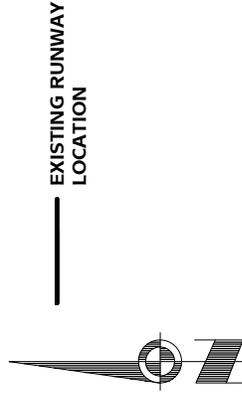
Enclosures:

Figure 1 Location and Vicinity Map
Figure 2 Proposed Action

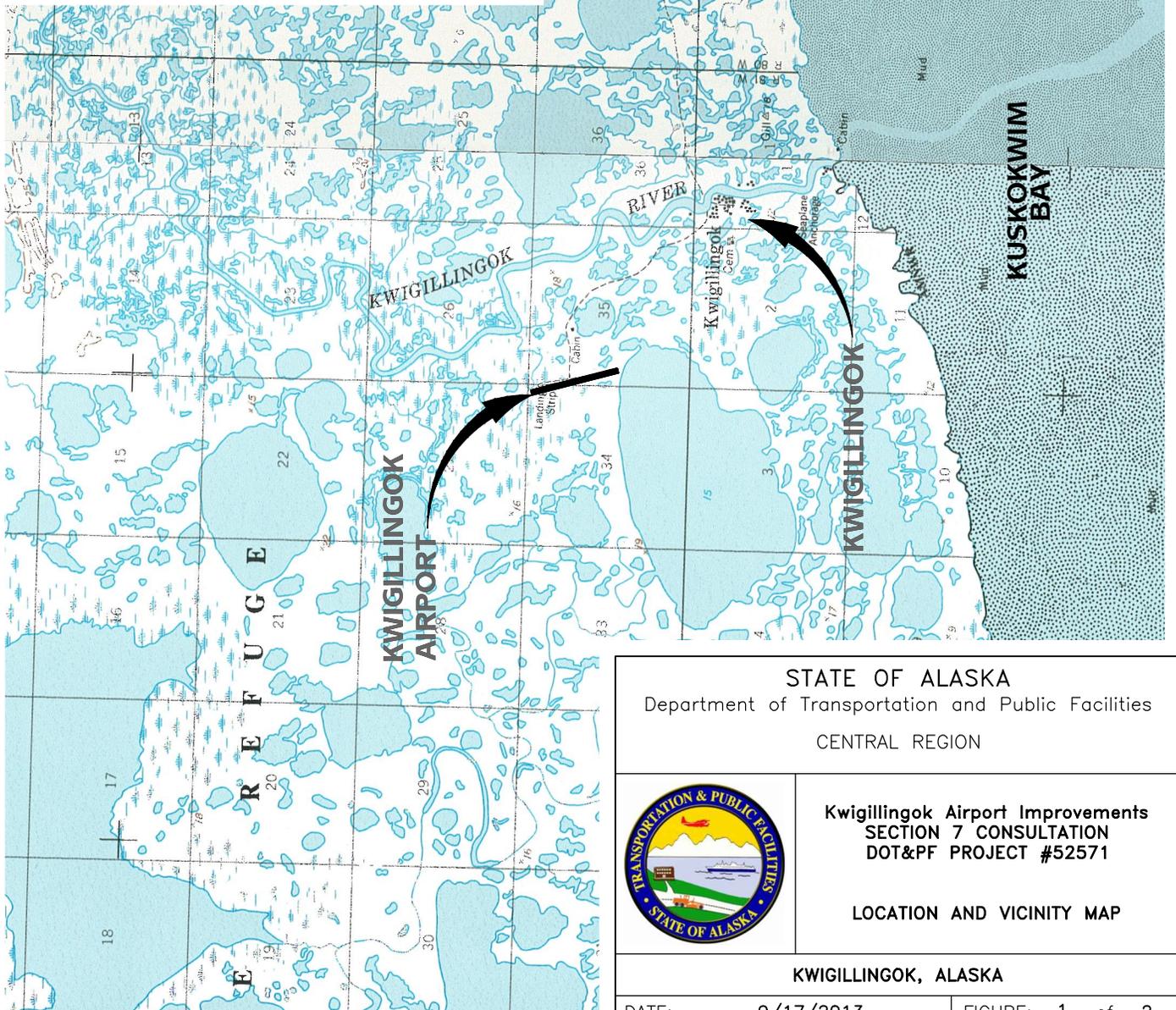
cc: Bruce Greenwood, FAA Environmental Specialist
 Brian Elliott, DOT&PF Central Region
 Barbara Beaton, DOT&PF Central Region, Project Manager



LOCATION MAP



**SEC 26, 27, 34, 35, T3S, R81W;
SEWARD MERIDIAN**



STATE OF ALASKA
Department of Transportation and Public Facilities
CENTRAL REGION



**Kwigillingok Airport Improvements
SECTION 7 CONSULTATION
DOT&PF PROJECT #52571**

LOCATION AND VICINITY MAP

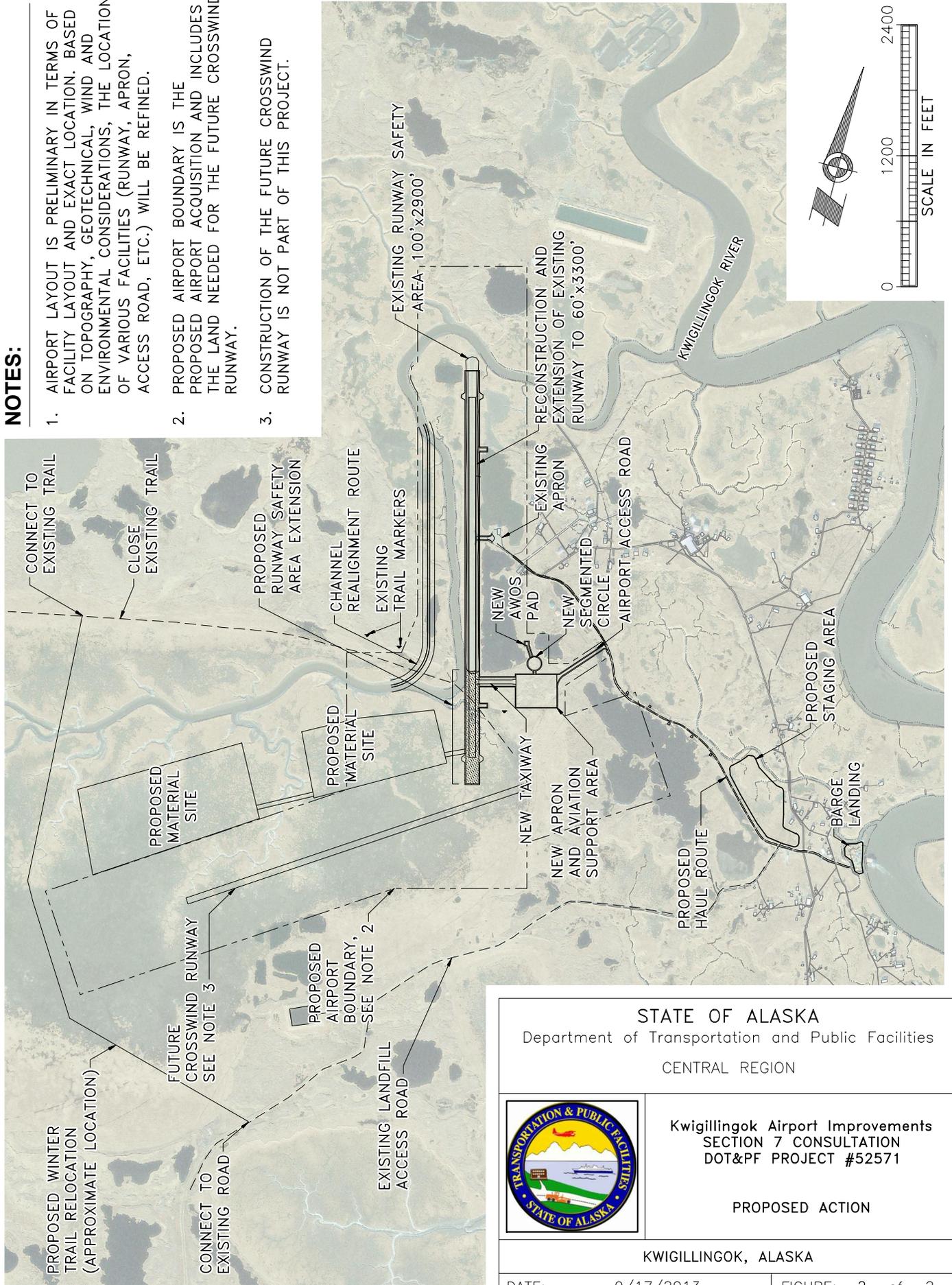
KWIGILLINGOK, ALASKA

DATE: 9/17/2013

FIGURE: 1 of 2

NOTES:

1. AIRPORT LAYOUT IS PRELIMINARY IN TERMS OF FACILITY LAYOUT AND EXACT LOCATION. BASED ON TOPOGRAPHY, GEOTECHNICAL, WIND AND ENVIRONMENTAL CONSIDERATIONS, THE LOCATION OF VARIOUS FACILITIES (RUNWAY, APRON, ACCESS ROAD, ETC.) WILL BE REFINED.
2. PROPOSED AIRPORT BOUNDARY IS THE PROPOSED AIRPORT ACQUISITION AND INCLUDES THE LAND NEEDED FOR THE FUTURE CROSSWIND RUNWAY.
3. CONSTRUCTION OF THE FUTURE CROSSWIND RUNWAY IS NOT PART OF THIS PROJECT.



<p>STATE OF ALASKA Department of Transportation and Public Facilities CENTRAL REGION</p>	
	<p>Kwigillingok Airport Improvements SECTION 7 CONSULTATION DOT&PF PROJECT #52571</p>
<p>PROPOSED ACTION</p>	
<p>KWIGILLINGOK, ALASKA</p>	
DATE:	9/17/2013
FIGURE:	2 of 2



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Anchorage Fish & Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, Alaska 99501-2249



In reply refer to: AFWFO

April 3, 2013

Emailed to:

Theresa Zimmerman
Alaska Department of Transportation & Public Facilities
801 W. 10th St. Ste B
Juneau, AK 99801-0201

Re: Kwigillingok Airport Improvements (*Consultation Number 2013-0049*)

Dear Ms. Theresa Zimmerman

Thank you for your March 12, 2013, email regarding wildlife species that may be affected by the expansion of the airport at the village of Kwigillingok, Alaska. The Federal Aviation Administration (FAA) will fund the project and serve as the lead federal agency. The Alaska Department of Transportation & Public Facilities (ADOT&PF) has been designated as the non-federal representative. The U.S. Fish and Wildlife Service (the Service) is providing this list of threatened and endangered species in accordance with section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq., as amended, ESA).

Project Description

The proposed project is located at 59.8723° N., 163.1658° W. Runway improvements are proposed to include: building a longer and wider runway and safety area; realigning the tidal channel; providing runway and taxiway lighting; and using material sources set back from the runway. Future development of a crosswind runway is planned, but is not part of this project. Kuskokwim Bay and the nearshore waters are proposed to be used for mobilizing/demobilizing and barging materials into the area.

ESA-Listed Species

The Alaska breeding population of Steller's eider (*Polysticta stelleri*, listed under the ESA as threatened in 1997) and the spectacled eider (*Somateria fischeri*, listed as threatened in 1993) may be found in the project area. Intertidal and marine habitat near the project area was designated in 2001 as critical habitat for Steller's eiders to provide a staging area during migration. Wetlands and uplands surrounding Kwigillingok are also within the breeding range of the spectacled eiders. Steller's eiders generally occur in the nearshore marine waters in April, May, August, and September. Spectacled eiders occupy the breeding habitat between May 5 and July 25 each year.

Potential Effects to Species

This project may result in impacts to ESA-listed species due to disturbance. Increased noise and human activity levels can be expected during construction, as well as increased use of vehicles, heavy equipment, and barges. Additionally, the risk of direct and indirect exposure to harmful contaminants such as petroleum hydrocarbons may increase during construction (when heavy equipment is used), or during regular operation of the airport if airport traffic will increase. Furthermore, excavation and placement of fill may cause soil disturbance and subsequent sedimentation. Spilled petroleum hydrocarbons and sediments could be washed into streams, wetlands, and the marine environment with runoff or snowmelt. Listed species and their habitats may be affected if water quality is impaired. Finally, Steller's and spectacled eiders are known to collide with vessels and on-land structures, and improved lighting may attract them, increasing collision risk.

Consultation

To meet the requirements of the ESA, ADOT&PF should prepare and submit an assessment of the potential biological impacts of the project on ESA-listed species and designated critical habitat. This Biological Assessment (BA) should completely describe the action area, the project, operations, equipment, and timelines, including any uncertainties in design or operations. In order to accurately assess potential impacts, we recommend the action area be defined to include areas directly affected by work activities, noise, and disturbance of sediment, as well as those areas potentially affected by contaminants released during excavation and placement of fill, or by fuel or oil spills which could occur during the proposed work. The BA should identify and describe the anticipated noise levels to be produced from project activities (especially if any quarry blasting will be conducted). Also include the amount and extent of sediment disturbance, the potential contaminant sources, the effects to ESA-listed species, and any measures that will be taken to reduce the potential impacts.

After compiling this information and analyzing the risks to threatened and endangered species and designated critical habitat, please determine whether this project will adversely affect these species, is not likely to adversely affect these species, or will have no effect. Please submit this BA along with your determination of impacts to listed species or habitat. For more information on the section 7 process, please see: <http://alaska.fws.gov/fisheries/fieldoffice/anchorage/endangered/consultation.htm>.

Conservation Recommendations

The following recommendations are measures that if adopted, will reduce the possibility that spectacled and Steller's eiders would be affected:

Spectacled and Steller's Eider Timing Windows

- If possible, conduct all work in Kuskokwim Bay and the nearshore waters after April and before August each year to avoid direct impacts migrating Steller's eiders.
- Conduct all ground-disturbing work in previously-undisturbed areas of suitable spectacled eider nesting habitat after July 26 and before May 4 each year.
- If work during the nesting season cannot be avoided, follow the Anchorage Fish and Wildlife Field Office Nest Survey Guidelines (attached).

Sedimentation

- Prepare or update the storm water runoff management plan for the ongoing operation of the airport. Incorporate permanent landscape features that prevent water from draining off of hardened surfaces directly into streams or wetlands. For example, grade paved surfaces away from creeks, install check dams along drainages, route storm water to bioswales or infiltration basins rather than along ditches, and create or retain vegetated buffers along stream channels.
- Prepare a storm water runoff management plan for construction. Include such measures as:
 - a. Minimize the amount of unstable, erodible soil that is generated or stockpiled;
 - b. Use silt fences, coir logs, hay bales, diversion channels, check dams, infiltration basins, or other effective measures around unstable soil and disturbed ground to prevent release of sediment-laden runoff into surface water;
 - c. Stabilize all disturbed surfaces as soon as possible;
 - d. Revegetate all denuded areas with native weed-free seed suitable for the local soil and weather conditions.

Hazardous Materials

- Prepare or update the hazardous materials spill prevention and response plan for operation of the airport. Specify measures that will be taken to reduce the possibility of fuel or oil spills. Identify what response measures will be taken when spills or leaks occur.
- Store response materials such as sorbent pads and boom on site. Maintain supplies in good condition.
- Regularly inspect tanks, fueling stations, pipelines, valves, and all fuel delivery components for corrosion and damage, and to detect spills or leaks as soon as they occur. Repair and replace aged parts as soon as possible.

- Provide discharge prevention and response training to on-site staff.
- Require continuous monitoring during fuel deliveries.
- Locate all tank yards and fuel storage areas in lined impoundment areas to contain any spills.
- Avoid and minimize the use of chemical de-icers.
- Develop and implement a project-specific spill prevention and response plan for the construction work. This plan should specify Best Management Practices (BMPs) to reduce the potential for release of contaminants during construction. Such measures may include:
 - a. Conduct fueling of equipment only at designated transfer areas within lined or bermed secondary containment;
 - b. Ensure that all equipment is in good working order prior to operating in or near the habitat of listed species; no equipment that is visibly leaking fuel or oil will be used;
 - c. Conduct mechanical repairs and maintenance only in a suitable location away from spectacled eider breeding habitat and marine areas; and
 - d. Take appropriate measures to avoid fuel spills and leaks; use proper fuel storage containers and handling procedures.

Lighting

- Avoid installing overhead structures such as transmission lines whenever possible. Bury transmission lines or place them at ground level.
- If overhead lines must be used, install bird diverters in locations where birds are likely to encounter the lines. Please contact us for more information on specific recommendations.
- Co-locate overhead structures on existing utility poles.
- Tie into existing infrastructure rather than installing new transmission lines.
- Avoid using guyed lighting towers. If guy wires are necessary, bird flight diverters or high visibility marking devices should be used.
- Employ only red strobe, or dual red and white strobe, strobe-like, or flashing lights, not steady burning lights, to meet Federal Aviation Administration (FAA) requirements for visibility lighting of towers. All pilot warning lights should fire synchronously.
- To the extent practicable, avoid installing lights offshore or within half a mile of the coast. If lights are necessary, keep lighting to the minimum required:
 - Use lights with motion or heat sensors and switches to keep lights off when not required;
 - Direct lighting downward and use hoods to minimize horizontal and skyward illumination;
 - Minimize use of high-intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, or other bright spotlights.
- Lighting towers should be designed to prevent nests or bird perches from being established and to prevent bird electrocution. Contact us for more information.

Thank you for considering these recommendations in your project design. This letter relates only to federally listed or proposed species and/or designated or proposed critical habitat under jurisdiction of the Service. It does not address species under the jurisdiction of National Marine Fisheries Service, or other legislation or responsibilities under the Fish and Wildlife Coordination Act, Migratory Bird Treaty Act, Marine Mammal Protection Act, Clean Water Act, National Environmental Policy Act, or Bald and Golden Eagle Protection Act. If you have any questions, call me at (907) 271-2066 and refer to consultation number 2013-0049.

Sincerely,

Kimberly J. Klein
Endangered Species Biologist

Encl: Nest Survey Guidelines



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Anchorage Fish & Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, Alaska 99501-2249



Anchorage Fish and Wildlife Field Office, US Fish and Wildlife Service (Service) Nest Survey Guidelines December 5, 2012

The best way to ensure that ground-disturbing activities do not affect nesting birds, including the ESA-listed spectacled and Steller's eider, and the yellow-billed loon (a candidate for ESA listing) is to **conduct the work outside of the nesting season (see timing guidance for nesting season dates)**. When this cannot be accomplished, nest surveys can be effective in reducing the possible disturbances. The surveys are conducted to identify and avoid nest locations. Surveys are best conducted by individuals or a team who have experience searching for nests. While a trained and experienced field biologist familiar with the birds of the project area is preferred, this is not necessary, so long as the team members can accurately identify the birds, have the authority to stop construction activities if a loon or eider nest is found, and will report the information (including locations) back to the Service. Standard field equipment should include a GPS unit, camera, and binoculars. When a nest is found (any species), the surveyor should document it, cover the eggs with dry grass to reduce visibility to predators, and leave the site as quickly as possible to encourage the parent to return. [Fischer et al \(2009\)](#) describes the general methodology. Helpful nest identification information can be found in [Bowman \(2008; pages attached\)](#).

Regarding the location and extent of surveys, spectacled eider nests are generally found close to ponds, streams or sloughs, but may be located further from open water than loon nests. On St. Lawrence Island, nests have been found as far as 200 meters from water (Stephenson 1997). In the Indigirkin River Delta, 33% of nests were found more than 20 m from water (Heglund et al 1993). Birds may be highly sensitive to disturbance, and may flush while the source of the disturbance is relatively far away. For example, loons are particularly susceptible to disturbance during nesting and in areas with low levels of background disturbance (i.e. everyday vehicle, boat, and ATV traffic) loons have been documented to flush at almost 200 meters from novel sources of disturbance (Ruggles 1994). **Surveys should therefore be completed in all vegetated areas where a 200-meter buffer around project activities will overlap a 250-meter buffer around open water (sloughs, creeks, ponds, lakes).**

Timing of surveys should correspond with early incubation. Nest initiation occurs very soon after breakup. We know from the study in the Indigirkin River Delta that nest initiation occurred **between 13-17 of June**; peak hatch was 22-26 days later around 12-16 July. Estimated hatch dates on the Yukon-Kuskokwim Delta are a little sooner, ranging between **19 June and 4 July** (mean = Jun 27). Timing of surveys on the YK Delta should therefore be scheduled for the first or second week of June, give or take a week to correspond to the week or two following breakup. Although we have no data on nesting ecology from St. Lawrence specifically, nest initiation is thought to be between the dates for the Indigirkin Delta and the YK Delta. Surveys should occur during reasonably good weather (no rain or snow) to minimize the probability of exposing eggs to bad weather.

Surveys for the entire area of disturbance (the entire road corridor for example) should occur before any ground disturbing work begins. If a nest is found during surveys, the survey crew should note the location with a GPS, identify the species, cover the eggs with grass to camouflage them against predators, and move quickly out of the area. All work within 0.5 miles of the nest should be postponed until after the nesting season.

Mr. Wood

Please address any questions about these nest survey protocols to:

Kimberly_Klein@fws.gov, 907-271-2066 direct; or anchfieldoffice@fws.gov, 907-271-2888

Literature Cited

Bowman TD. 2008. Field guide to bird nests and eggs of Alaska's coastal tundra. 2nd edition. Alaska Sea Grant College Program, University of Alaska Fairbanks.

Fischer JB, RA Stehn, G Walters. 2009. Nest Population Size and Potential Production of Geese and Spectacled Eiders on the Yukon-Kuskokwim Delta, Alaska, 2009. U.S. Fish and Wildlife Service: Waterfowl Management. Available: <http://alaska.fws.gov/mbsp/mbm/waterfowl/surveys/nestplo.htm>

Heglund P, J Pearce, J Hupp, M Petersen. 1993. Nesting Ecology and Habitat Use of Spectacled Eiders on the Indigirka River Delta, Russia. Unpublished Report submitted to U.S. Fish and Wildlife Service, Anchorage, Alaska.

Ruggles AK. 1994. Habitat selection by loons in southcentral Alaska. *Hydrobiologia* 279/280: 421-430.

Stephenson SW. 1997. Spectacled Eider Ground Survey of Saint Lawrence Island 1997. Unpublished Report produced for the Eider Recovery Team Meeting, November 1997. Anchorage, Alaska.

DRAFT



U.S. Fish & Wildlife Service

Land Clearing Timing Guidance for Alaska

Plan Ahead to Protect Nesting Birds

General Information:

Under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703) (see <http://ipl.unm.edu/cwl/fedbook/mbta.html>), it is illegal for anyone to "take" migratory birds, their eggs, feathers or nests. "Take" includes by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. Take and possession under MBTA can be authorized through regulations, such as hunting regulations, or permits, e.g., salvage, research, depredation, or falconry. The MBTA does not distinguish between intentional and unintentional take. In Alaska, all native birds except grouse and ptarmigan (protected by the State of Alaska) are protected under the MBTA.

Destruction of active bird nests, eggs, or nestlings that can result from spring and summer vegetation clearing, grubbing, and other site preparation and construction activities would violate the MBTA. The following timing guidelines are not regulations, but are intended as recommendations to help you comply with the MBTA. Some species and their nests have additional protections under other federal laws, including those listed under the Threatened and Endangered Species Act (ESA), and bald and golden eagles (protected under the Bald and Golden Eagle Protection Act or BGEPA). Please contact the U.S. Fish and Wildlife Service to ensure compliance with ESA and BGEPA if these species may be present in your project area.

Directions:

1. Apply timing window guidelines to your project planning, unless project-specific review results in unique guidelines from the USFWS for your project.
2. If you encounter an active nest *at any time*, including before or after the local timing window, leave it in place and protected until young hatch and depart. "Active" is indicated by intact eggs, live chicks, or presence of adult on nest. Timing guidelines should considerably reduce the risk of inadvertent nest destruction, but final compliance with the law is your responsibility: do not destroy eggs, chicks, or adults of wild bird species.
3. If you have any questions regarding the MBTA and the timing guidelines, including projects that may occur in "boundary areas" between regions described on the matrix, contact your local Fish and Wildlife Field Office for assistance:

Anchorage (907) 271-2888
Fairbanks (907) 456-0203

Kenai (907) 262-9863
Juneau (907) 780-1160



Recommended Time Periods to Avoid Vegetation Clearing

HABITAT TYPE →	Forest or woodland ¹ (i.e., trees present)	Shrub or Open (i.e., shrub cover or marsh, pond, tundra, gravel, or other treeless/shrubless ground habitat)	Seabird colonies (including cliff and burrow colonies)	Raptor and raven cliffs
REGION ↓				
Southeast	April 15 – July 15	May 1 – July 15 ²	May 1 – September 15 ³	April 10 – August 10
Kodiak Archipelago			April 15 – September 7 ³	
Southcentral (Lake Iliamna to Copper River Delta; north to Talkeetna)	May 1 – July 15 ²			
Bristol Bay/AK Peninsula (north to Lake Iliamna)	April 10 – July 15	May 1 – July 15 ^{2,4}	May 10 – September 15	
Interior (north of Talkeetna to south slope Brooks Range; west to treeline)	May 1 – July 15 ²		May 1 – July 20 ⁵	April 15 – August 1
Aleutian Islands		April 25 – July 15	May 1 – September 15 ³	April 1 – August 1
Yukon-Kuskokwim Delta (east to treeline)		May 5 – July 25 ^{2,4}	May 20 – September 15	April 15 – August 15
Seward Peninsula		May 20 – July 20 ⁴		
Northern (includes northern foothills of Brooks Range)		June 1 – July 31 ⁴		
Pribilof and Bering Sea Islands		June 1 – July 15	May 25 – September 1	

USFWS July 2009

¹ Owl species may begin to nest two or more months earlier than other forest birds, and are fairly common breeders in forested areas of Alaska. You may wish to survey for nesting owls (or other early spring tree-cavity nesters) prior to tree-cutting. It is your responsibility to protect active nests from destruction.

² Canada geese and swan habitat: begin April 20

³ Storm petrel burrow habitat: April 1 – October 15

⁴ Black scoter habitat: through August 10

⁵ Seabird colonies in Interior refer to terns and gulls

Field Guide to Bird Nests and Eggs of Alaska's Coastal Tundra

SECOND EDITION

Field Guide to Bird Nests and Eggs of Alaska's Coastal Tundra

This one-of-a-kind book is an excellent guide to more than 70 coastal tundra birds, and their nests and eggs. The range includes the Alaska Peninsula, Bering and Chukchi sea coasts, and east along the Arctic coastal plain past the Arctic National Wildlife Refuge. The book is made of tough, waterproof paper to hold up under rigorous use outdoors. This second edition includes more than 60 upgraded photos. Author Tim Bowman is a U.S. Fish and Wildlife Service ornithologist with 20 years of experience in Alaska.

First Place winner of a National Association of Government Communicators Blue Pencil Award

"Superbly enhanced with more than 450 full-color wildlife photographs... an efficient, effective, fail-safe way to easily and confidently identify nests and eggs. This is a 'must' reference and resource for biologists, ornithologists, naturalists, and non-specialist general readers with an interest in Alaska wildlife."—Midwestbookreview.com

"This field guide is a wonderful reference for nests and eggs, and as a source of natural history information about these amazing birds."—Susan Sharbaugh, Ph.D., Senior Scientist, Alaska Bird Observatory, Fairbanks, Alaska

"This guide has been an invaluable resource in the field since it was first published. Our crews—both novice and experienced birders—have been using it to successfully identify nests on the North Slope. The egg guide and breast feather photos are especially useful. I wouldn't want to be out in the field without it."—Nora Rojek, Fish and Wildlife Biologist, USFWS, Fairbanks, Alaska



Timothy D. Bowman
U.S. Fish and Wildlife Service
Anchorage, Alaska
Published by Alaska Sea Grant College Program



G-17

University of Alaska Fairbanks
School of Fisheries & Ocean Sciences



King Eider

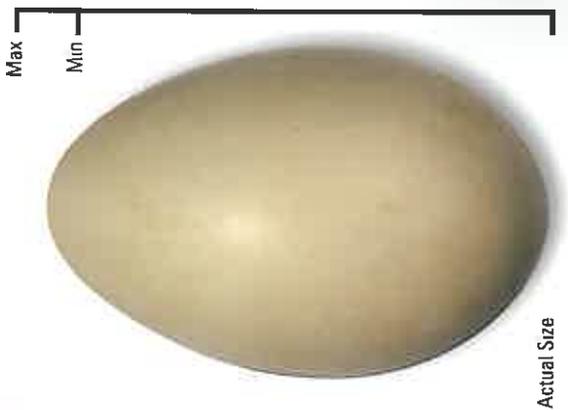
(Somateria spectabilis)

Hen is slightly smaller than common eider and its bill is smaller. The bill is not feathered at base like spectacled eider. Usually nests in sedges along shorelines or on islands. Down is sooty brown with indistinct pale centers. Breast feathers largely unpatterned, light brown becoming darker brown toward tip. Greenish eggs.

Relative Abundance: Southwest—none, Y-K Delta—rare, Northwest—none, Arctic Coastal Plain—uncommon



Typical Clutch: 4-7 eggs
Average Egg Size: 67 x 44.6 mm



Actual Size



Steller's Eider

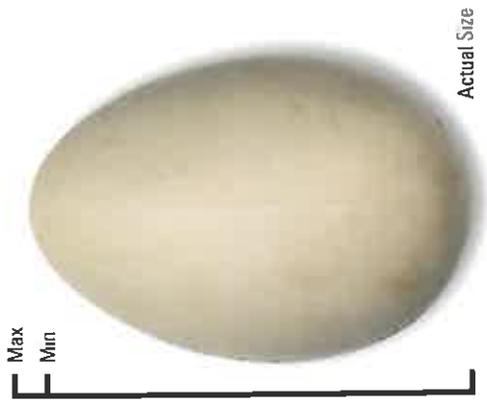
(Polysticta stelleri)

Nests at grassy margin of lakes and ponds. Hen flushes at low angle. Hen will often circle back near the nest, sometimes with male—be alert. Down is dark gray, almost black, mixed with grass. Usually deposits a few breast feathers, which are an unpatterned light brown becoming darker brown toward tip. Greenish eggs.

Relative Abundance: Southwest—none, Y-K Delta—rare, Northwest—none, Arctic Coastal Plain—rare (found primarily around Barrow)



Typical Clutch: 6-8 eggs
Average Egg Size: 59.1 x 41.4 mm



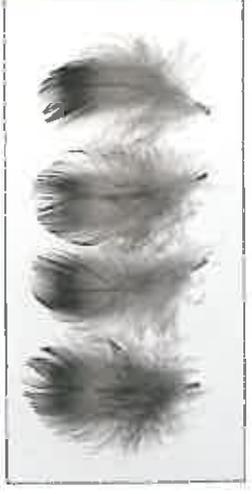
Actual Size



DT



NB



Spectacled Eider (*Somateria fischeri*)

Nests commonly along shoreline or on islands and peninsulas. Hen flushes at low angle or skitters across water. Look for light eye patch; hen will often circle back near the nest, sometimes with male—be alert. Body and bill are smaller than common eider and wingbeat is more rapid. Wings have slight white bars on speculum. Down is dark gray, darker than that of common eider, and is mixed with grass. Breast feathers have variable amounts of barring and flecking; very similar to common eider, but flecking is usually more evident in spectacled eider. Greenish eggs. Female often defecates on eggs when flushed.

Relative Abundance: Southwest—none, Y-K Delta—uncommon, Northwest—rare, Arctic Coastal Plain—uncommon

Typical Clutch: 5-7 eggs
Average Egg Size: 67.7 x 45.1 mm

Max

Min



Actual Size

Common Eider (*Somateria mollissima*)

Nests commonly along shoreline or on islands and peninsulas. Hen skitters away from nest. Compared to spectacled eider, body is larger, bill is heavier and longer, and wingbeat is slower. Wings have slight white bars on speculum. Hen will often circle back near the nest, sometimes with male—be alert. Down is mixed with grass and lighter gray than for spectacled eider. Breast feathers have variable amounts of barring and flecking; very similar to spectacled eider. Greenish eggs. Female often defecates on eggs when flushed.

Relative Abundance: Southwest—uncommon, Y-K Delta—uncommon, Northwest—common, Arctic Coastal Plain—uncommon (locally common on barrier islands)

Typical Clutch: 4-7 eggs
Average Egg Size: 75 x 49.8 mm

Max

Min



Actual Size



JW





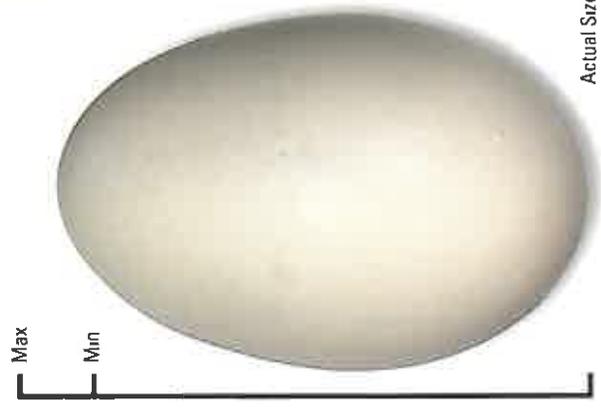
Brant

(*Branta bernicla*)

Nests in colonies and as isolated pairs. Typically nests on islands and shorelines. Nests contain the largest amount of down of the four dark goose species. Down is largely free of vegetation and "crackles and snaps" when pulled apart. Breast feathers are usually light gray at base with gradually darker gray toward distal portion; more uniform in appearance than breast feathers of Canada geese. Central shaft of breast feather is white in proximal half and gray in distal half.

Relative Abundance: Southwest—none, Y-K Delta—abundant, Northwest—uncommon, Arctic Coastal Plain—uncommon (nests mostly on barrier islands)

Typical Clutch: 3-5 eggs
Average Egg Size: 71.1 x 47.9 mm



Actual Size

Cackling Canada Goose

(*Branta canadensis minima*)

Usually nests close to water, particularly on islands and peninsulas. Nests often contain a large amount of down (but less than brant) with vegetation uniformly woven among down (unlike brant). Breast feathers are mostly gray, sometimes with variable amounts of white mixed with gray in distal half; occasionally all white. Central shaft of breast feather is white at base and gray in distal two-thirds.

Relative Abundance: Nests on Y-K Delta only—abundant



Typical Clutch: 4-6 eggs
Average Egg Size: 73.7 x 49.6 mm



Actual Size



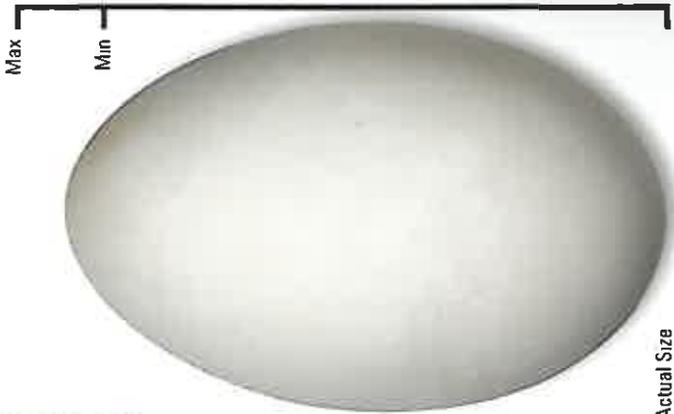
Emperor Goose *(Chen canagica)*

Nests most commonly along pond shorelines and slough banks, sometimes farther from water in grass-sedge. Nests contain down mixed with grass; down is generally less abundant and lighter gray than that of brant and cacklers. Breast feathers have a light bluish-gray background with a rust-colored band near the tip of the feather and sometimes a narrow subterminal black band. The central shaft of the breast feather is usually white, except for distal third, which is gray. Eggs noticeably larger than those of brant and cacklers, but similar to white-fronted. Dump nesting is common and clutch sizes are highly variable.

Relative Abundance: Southwest—none, Y-K Delta—common, Northwest—rare, Arctic Coastal Plain—none

Typical Clutch: 4-6 eggs

Average Egg Size: 80.4 x 52.3 mm



Actual Size

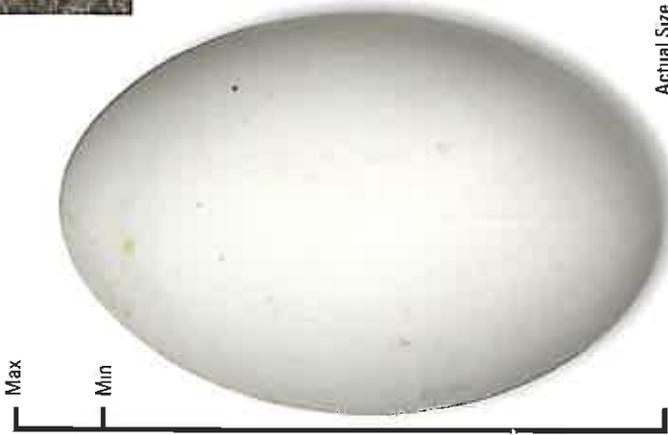
Greater White-fronted Goose *(Anser albifrons)*

More likely to nest farther from water than other geese; nest sites include dry sedge meadows, slough banks, uplands, and lake shores. Nests generally contain less down than brant and cacklers, but a similar amount to emperors. Down color is light gray but usually darker than emperors. Breast feathers are variable; may be entirely white or have a white background with an all black or black- or gray-mottled distal half (these feathers taken together form the "speckles" on the belly). Central shaft of breast feather is white nearly its entire length. Eggs noticeably larger than those of brant and cacklers, but similar to emperors.

Relative Abundance: Southwest—uncommon, Y-K Delta—abundant, Northwest—common, Arctic Coastal Plain—common

Typical Clutch: 4-7 eggs

Average Egg Size: 80.7 x 53.9 mm



Actual Size



Yellow-billed Loon (*Gavia adamsii*)

Large loon with a yellow bill. Nests on bare tundra, usually on a raised site at water's edge; sometimes on a small island or mound of vegetation. Nest is shallow scrape with little or no vegetative lining and usually damp. Eggs brown or yellowish-olive with many dark brown spots and blotches. Incubation by both sexes.

Relative Abundance: Southwest—none, Y-K Delta—none, Northwest—rare, Arctic Coastal Plain—rare, but locally more frequent in parts of National Petroleum Reserve and Colville River Delta.

Typical Clutch: 2 eggs
Average Egg Size: 91 x 55.2 mm

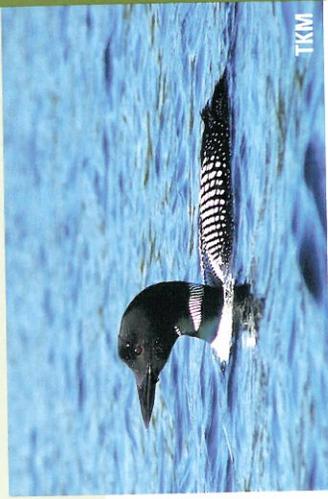
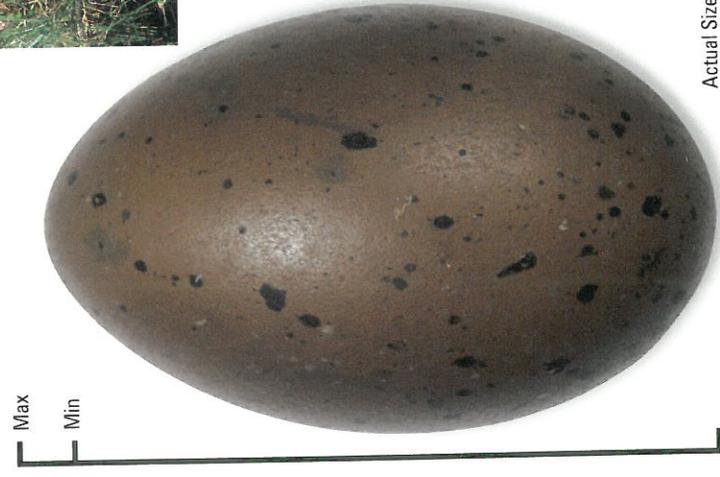


Common Loon (*Gavia immer*)

Large loon with "checkerboard" back, dark bill, and all dark head. Nest is a mound of aquatic vegetation, wet grasses, and mosses that averages about 55 cm (22 in) in diameter. Usually within a meter of water, sometimes concealed, often on island or amassed atop vegetation in shallow water. Eggs dark greenish-brown with black spots. Incubation by both sexes.

Relative Abundance: Southwest—common, Y-K Delta—rare, Northwest—none, Arctic Coastal Plain—none, but occurs farther inland in foothills on north side of Brooks Range.

Typical Clutch: 2 eggs
Average Egg Size: 89.5 x 57.4 mm

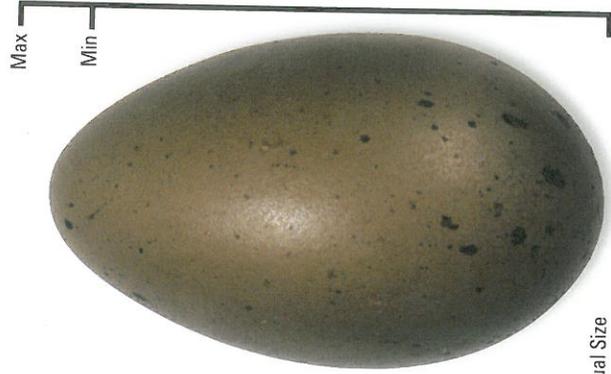


Red-throated Loon (*Gavia stellata*)

Loons flush at long distances when approached, so be alert as you approach ponds. Red-throated loon has a raspy, rapid "quacky" call. Nests and eggs of red-throated and Pacific loons are virtually identical. Red-throated loon eggs are, on average, slightly smaller than those of Pacific loons, and red-throated loons tend to nest on smaller water bodies. However, neither of these traits is diagnostic as there is much variation. Nests are built on land at water's edge or over water atop a heap of vegetation. No down or feathers in nests. Incubation by both sexes.

Relative Abundance: Southwest—uncommon, Y-K Delta—uncommon, Northwest—uncommon, Arctic Coastal Plain—uncommon

Typical Clutch: 2 eggs
Average Egg Size: 73.9 x 45 mm



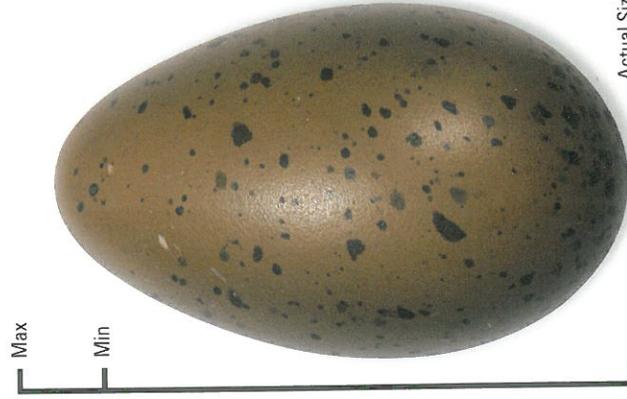
Actual Size

Pacific Loon (*Gavia pacifica*)

Loons flush at long distances when approached, so be alert as you approach ponds. Pacific loon has a mournful, wailing call and a high pitched sharp "whiip" just before diving, as well as a guttural growl when disturbed. Nests and eggs of red-throated and Pacific loons are virtually identical and their sizes overlap. Nests are built on land at water's edge or over water atop a heap of vegetation. No down or feathers in nests. Incubation by both sexes.

Relative Abundance: Southwest—uncommon, Y-K Delta—common, Northwest—common, North Slope—common

Typical Clutch: 2 eggs
Average Egg Size: 76.2 x 47.2 mm



Actual Size

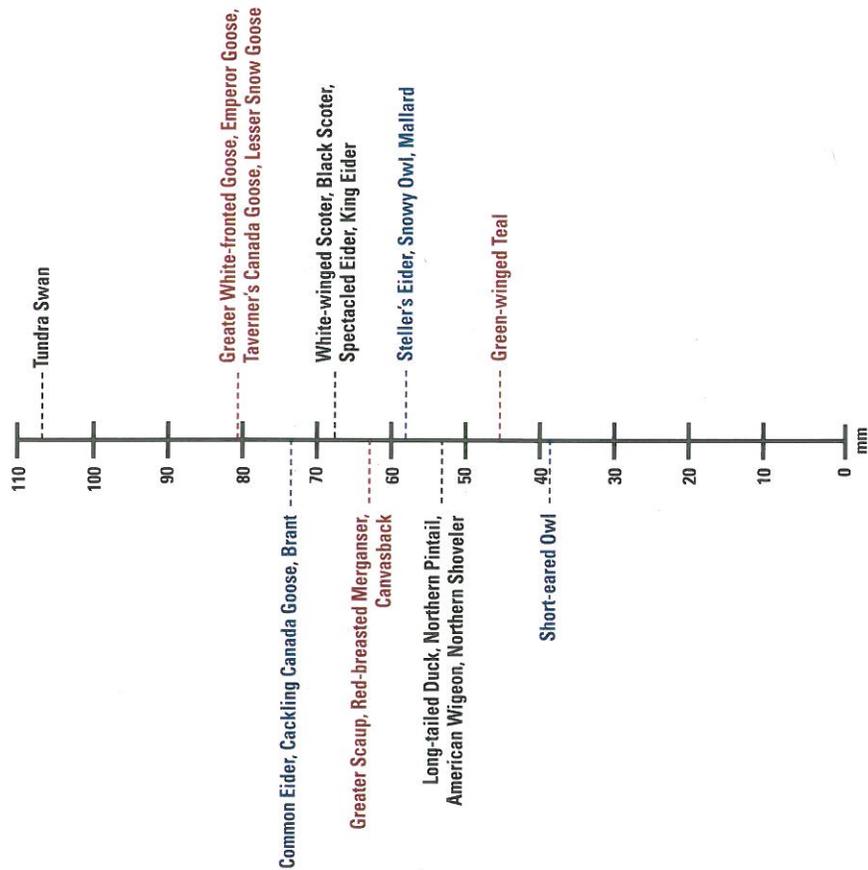


TM



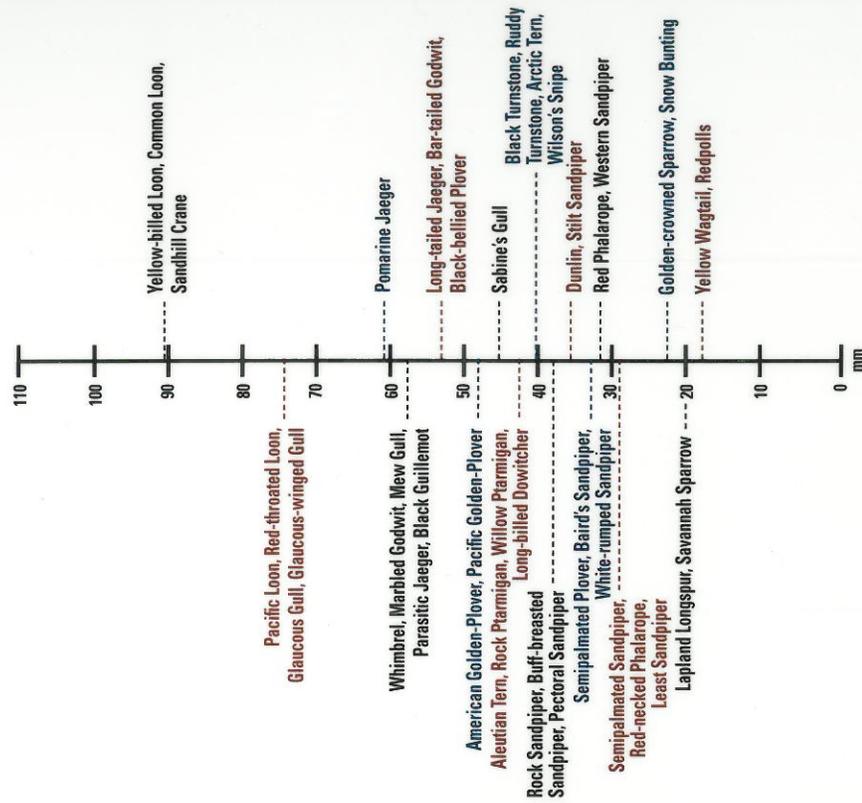
Sizing Chart for Unpatterned (Plain) Eggs

Egg sizing charts provide a quick reference to help reduce the number of prospective species to which an egg could belong. There is considerable variation in egg size both within and among species, so this provides only an approximate guide. Refer to species pages for additional information on egg and nest characteristics.



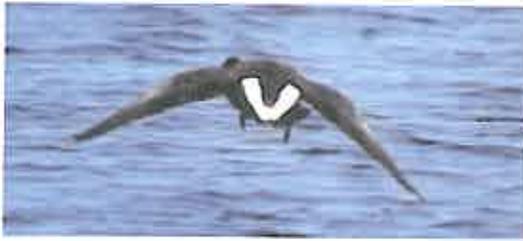
Sizing Chart for Patterned (Spotted or Speckled) Eggs

Egg sizing charts provide a quick reference to help reduce the number of prospective species to which an egg could belong. There is considerable variation in egg size both within and among species, so this provides only an approximate guide. Refer to species pages for additional information on egg and nest characteristics.



Parting Shots . . .

In addition to head and body plumage, tail patterns can help distinguish among goose species.



Brant
Single V-shaped white band



Canada Goose
U-shaped white sub-terminal band



Emperor Goose
Wide single white terminal band



White-fronted Goose
Two white bands; terminal band is narrower

Quick Reference for Identification of Dark Goose Nests



START IN THIS ORDER	Brant	Canada	Emperor	White-fronted
DOWN COLOR	Darker gray		Lighter gray	
NEST MATERIAL	Down largely free of vegetation	Down mixed with grass		
DOWN ABUNDANCE	Abundant		Sparse	
BREAST FEATHERS	Mostly all gray; sometimes all white		Light bluish-gray with rust-colored tip	White; distal half may be all black or mottled gray or black

Valerie Webb

From: Zimmerman, Teresa J (DOT) <teresa.zimmerman@alaska.gov>
Sent: Thursday, April 04, 2013 2:47 PM
To: Sanders, Holly M (DOT); Valerie Webb; Beaton, Barbara J (DOT); Wuttke, Jessica L (DOT)
Subject: FW: FW: Kwigillingok Airport Improvements Project/ #52571; Newsletter
Attachments: 2013-0049_Kwigillingok Airport Improvements_SL.pdf

Here is the FWS consultation letter. Please note that DOT&PF is authorized to act for FAA, not me in particular, so Holly can step right in.

The BA they refer to is a letter, not a formal BA process. This shouldn't be a huge effort. Steller's eiders shouldn't even be an issue, as we aren't going to be in near shore marine waters. You will need to mention the barge mobe/demobe and imported gravel.

Please let me know if you have any questions.

Teresa

From: Klein, Kimberly [mailto:kimberly_klein@fws.gov]
Sent: Thursday, April 04, 2013 11:27 AM
To: Zimmerman, Teresa J (DOT)
Cc: Bruce Greenwood (Bruce.Greenwood@faa.gov)
Subject: Re: FW: Kwigillingok Airport Improvements Project/ #52571; Newsletter

Please see the attached letter regarding threatened and endangered species that may be affected by your proposed project. Call or reply if you have questions or if a hard copy of this letter is needed. Thank you.

Kimberly Klein
Endangered Species Biologist
Anchorage Field Office
U.S. Fish and Wildlife Service
(907) 271-2066
Kimberly_Klein@fws.gov

On Tue, Mar 12, 2013 at 3:57 PM, Zimmerman, Teresa J (DOT) <teresa.zimmerman@alaska.gov> wrote:

Thanks! Hope to see it sooner! ☺

From: Klein, Kimberly [mailto:kimberly_klein@fws.gov]
Sent: Tuesday, March 12, 2013 3:48 PM

To: Zimmerman, Teresa J (DOT)

Subject: Re: FW: Kwigillingok Airport Improvements Project/ #52571; Newsletter

Teresa, I'll send you a species list for the Kwig airport ASAP (no later than 30 days is our mandate, but hopefully sooner).

Thanks!

Kimberly Klein
Endangered Species Biologist
Anchorage Field Office
U.S. Fish and Wildlife Service
(907) 271-2066
Kimberly_Klein@fws.gov

On Tue, Mar 12, 2013 at 2:30 PM, Zimmerman, Teresa J (DOT) <teresa.zimmerman@alaska.gov> wrote:

Kim,

As Kwigillingok is near the Kuskokwim Bay shore, and we will be using nearshore waters for mobilizing/demobilizing and barging surface course for the project, we will need Section 7 consultation.

Please send a T&E species list for Kwigillingok and I will get FAA (Bruce Greenwood or Patti Sullivan) to give DOT&PF the permission to act on FAA's behalf for Section 7 consultation.

Thanks for the help, and also thanks for getting right back to us!

Teresa

From: Klein, Kimberly [mailto:kimberly_klein@fws.gov]

Sent: Wednesday, March 06, 2013 3:04 PM

To: Zimmerman, Teresa J (DOT)

Cc: Lance, Ellen

Subject: Re: FW: Kwigillingok Airport Improvements Project/ #52571; Newsletter

Hi Teresa,

Thank you for sending the background information for the Kwigillingok Airport. The nearshore marine waters near Kwigillingok support seasonal use by Steller's eiders. Section 7 consultation is required if Federal funding will be used and if the shoreline or the nearshore waters may be affected. If so, let me know how and when you would like proceed. I can send a species list to get started if you would like. Call/hit reply if you have questions. Thanks

Kimberly Klein
Endangered Species Biologist
Anchorage Field Office
U.S. Fish and Wildlife Service
(907) 271-2066
Kimberly_Klein@fws.gov

On Tue, Mar 5, 2013 at 6:47 AM, Lance, Ellen <ellen_lance@fws.gov> wrote:

----- Forwarded message -----

From: **Zimmerman, Teresa J (DOT)** <teresa.zimmerman@alaska.gov>
Date: Mon, Mar 4, 2013 at 2:48 PM
Subject: FW: Kwigillingok Airport Improvements Project/ #52571; Newsletter
To: "ellen_lance@fws.gov" <ellen_lance@fws.gov>, "lori_verbrugge@fws.gov" <lori_verbrugge@fws.gov>
Cc: "Beaton, Barbara J (DOT)" <barbara.beaton@alaska.gov>, "Wuttke, Jessica L (DOT)" <jessica.wuttke@alaska.gov>, Ken Risse <KenRisse@pdceng.com>, "Grundberg, Sue L (DOT)" <sue.grundberg@alaska.gov>

Ellen and Lori,

The email to Judy Jacobs was undeliverable, so I'm sending to you two.

Teresa Z.

From: Zimmerman, Teresa J (DOT)
Sent: Monday, March 04, 2013 2:40 PM
To: Manfred, Elizabeth K (CED); Boothby, Taunnie L (CED); Mendivil, Gary A (DEC); Ashton, William S (DEC); Daigneault, Michael J (DFG); Perry, Phillip L (DFG); DNR, Parks OHA Review Compliance (DNR sponsored); Menefee, Wyn (DNR); Thompson, Richard B (DNR); mblack@anthc.com; myron_naneng@avcp.org; sstreet@avcp.org; jmcatee@calistacorp.com; wakwikinc@gci.net; wakwikinc@gci.net; kwktribal@yahoo.com; kwktribal@yahoo.com; regpagemaster@poa02.usace.army.mil; kristin.keit@bia.gov; mark.kahklen@bia.gov; ricky.hoff@bia.gov; stephen_fusilier@blm.gov; james.n.helfinstine@uscg.mil; thomas.gould@ak.usda.gov; ryan.maroney@ak.usda.gov; gene.kane@ak.usda.gov; amy.holman@noaa.gov; deb.alston@hud.gov; matthew.freeman@faa.gov; curtis.jennifer@epamail.epa.gov; lacroix.matthew@epa.gov; gene_peltola@fws.gov; brian_mccaffery@fws.gov; judy_jacobs@fws.gov; HCD.Anchorage@noaa.gov
Cc: Beaton, Barbara J (DOT); 'Ken Risse'; Wuttke, Jessica L (DOT); Grundberg, Sue L (DOT)
Subject: Kwigillingok Airport Improvements Project/ #52571; Newsletter

All,

Please find attached a newsletter for the Kwigillingok Airport Improvements project. DOT&PF is in the process of writing the NEPA document (Environmental Assessment), which is planned for public/agency review and completion in 2013.

Please let me know if you have any environmental questions. Barb Beaton (269-0617, Barbara.beaton@alaska.gov) can answer any engineering questions you may have.

Thanks,
Teresa Zimmerman

269-0551

--
Ellen W. Lance

Endangered Species Branch Chief

Anchorage Fish and Wildlife Field Office

605 West 4th Ave., Rm G61

Anchorage, Alaska 99501

(907) 271-1467

Valerie Webb

From: Ken Risse
Sent: Wednesday, March 13, 2013 3:23 PM
To: Valerie Webb
Cc: Royce Conlon
Subject: FW: Kwigillingok - ESA

FYI

From: Zimmerman, Teresa J (DOT) [<mailto:teresa.zimmerman@alaska.gov>]
Sent: Wednesday, March 13, 2013 3:18 PM
To: Ken Risse
Cc: Beaton, Barbara J (DOT); Grundberg, Sue L (DOT); Wuttke, Jessica L (DOT)
Subject: FW: Kwigillingok - ESA

FYI, the wheels are rolling along.

From: Bruce.Greenwood@faa.gov [<mailto:Bruce.Greenwood@faa.gov>]
Sent: Wednesday, March 13, 2013 3:11 PM
To: Kimberly_Klein@fws.gov
Cc: Zimmerman, Teresa J (DOT)
Subject: Kwigillingok - ESA

Kimberly,

For the Kwigillingok Airport Improvement project FAA appoints Teresa Zimmerman of the DOT&PF, as the FAA representative/agent during the informal Section 7 consultation process.

Bruce

Bruce Greenwood
Environmental Protection Specialist
FAA - Alaskan Region, Airports Division
907-271-5439
907-271-2851 (fax)

APPENDIX H

NON-ISSUES

APPENDIX H Environmental Impact Categories: Non-Issues

The following categories have been determined to be non-issues for this project. These categories do not warrant discussion either because there is no potential for impact, no public comment, or no agency interest.

- Air Quality
- Coastal Resources
- Department of Transportation Act: Section 4(f)
- Farmlands
- Natural Resources and Energy Supply
- Noise
- Wild and Scenic Rivers

1 AIR QUALITY

Kwigillingok is located in an attainment area, and according to FAA Order 1050.1E, the General Conformity rule does not apply. The airport activity would not likely change nor exceed the 180,000 operations threshold, and no further air quality or NEPA analysis is required. Construction related air quality impacts are discussed in the Environmental Assessment (EA), Section 6.12.

2 COASTAL RESOURCES

The Alaska Coastal Management Program (ACMP) expired by operation of Alaska Statutes 44.66.020 and 44.66.030 on June 30, 2011. As a result, the ACMP was withdrawn from the National Coastal Management Program on July 1, 2011, and Alaska no longer has a Coastal Zone Management Act (CZMA) program.

Federal agencies no longer provide Consistency Determinations or Negative Determinations to the State of Alaska CZMA pursuant to 16 U.S.C. 1456(c)(1) and (2), and 15 CFR part 930, subpart C. Persons or applicant agencies for Federal authorizations or funding no longer provide Consistency Certifications to the State of Alaska CZMA pursuant to 16 U.S.C. 1456(c)(3)(A), (B) and (d), and 15 CFR 930, subparts D, E, and F.

3 DEPARTMENT OF TRANSPORTATION ACT: SECTION 4(f)

There are no 4(f) resources in the project area. The proposed project would not affect any publicly owned park, recreation area, or significant historic site. The Yukon Delta National Wildlife Refuge would not be affected or impacted by the proposed project. No legislatively designated special areas (state game refuges, sanctuaries, or critical habitat areas) are located in the project vicinity. Section 4(f) does not apply to 17(b) trails.

4 FARMLANDS

No prime or unique farmlands of local importance are located in the project area (Natural Resources Conservation Service, 2008. *Prime and Unique Farmlands* website: <http://www.ak.nrcs.usda.gov/technical/soils/soilslocal.html>).

5 NATURAL RESOURCES AND ENERGY SUPPLY

None of the proposed action's construction or operation will cause a demand that exceeds available natural resources or energy supplies. Gravel and bedrock available for development do not exist in the area. Material will be barged in from a source with sufficient supply. Because the material would be barged in, local resources will not be depleted and the project would not cause a significant exceedance of local supply.

6 NOISE

The aircraft operations from Group I and II aircraft are not expected to exceed the threshold of 90,000 adjusted propeller operations requiring a noise analysis by FAA Order 1050.1E. Forecast enplanements for Kwigillingok by the year 2030 are 4,499 (Appendix A), which does not approach the threshold for requiring a noise analysis. No noise-sensitive receivers are located in or near the project area. Noise is not expected to be at or above the yearly day/night average sound level of the 65 decibel significance threshold. No direct, indirect, or cumulative effects from nuisance airport noise are expected.

7 WILD AND SCENIC RIVERS

No Wild and Scenic Rivers are located near the project area (National Park Service website, <http://www.rivers.gov/wildriverslist.html>, 2013).

APPENDIX I

HYDROLOGIC AND HYDRAULIC REPORT

Hydrologic and Hydraulic Report
Kwigillingok Airport Improvements Project
Final

Prepared for:

PDC, Inc. Engineers
1028 Aurora Drive
Fairbanks, AK 99709

And the
Alaska Department of Transportation
and Public Facilities
Central Region
Anchorage, AK 99509

Prepared by:

Hydraulic Mapping and Modeling
1091 West Chena Hills Drive
Fairbanks, AK 99709

February 2014



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Project Location and Description

The Alaska Department of Transportation and Public Facilities (ADOT&PF) wishes to make improvements at the Kwigillingok Airport (Figure 1). Planned improvements include lengthening and widening the runway, providing additional aircraft parking, and addressing erosion of the runway embankment caused by an adjacent unnamed tidal stream.

Erosion is occurring at both the southwest corner of the existing safety area, and adjacent to the northeast corner of the runway. Most of the stream banks in a tidal channel adjacent to the runway appear to be unstable with active erosion. This ongoing erosion is commonly attributed to the drainage of a large lake southwest of the existing runway in the early 1980s when borrow cells along the west side of the runway became interlinked.

This report includes an analysis of the hydrologic characteristics of Kwigillingok, and a hydraulic analysis of the preferred design for runway embankment erosion protection.

Hydraulic History

The stream that flows adjacent to the west side of the existing runway flows out of a drained lake southwest of the runway. Near the southwest portion of the runway, the embankment forces the stream to make a 90° sharp left turn and flow north roughly parallel to the runway embankment. This appears to be at least partly causing embankment erosion near the toe of fill that is approximately 10' high.

At the end of the runway, the stream turns right to flow southeast. The erosion on the runway embankment here is similar to that near the southwest portion of the runway, except here it is generally 5' high. From the end of the runway, the stream meanders for approximately 0.5 miles before joining the Kwigillingok River. The Kwigillingok River then flows in a southerly direction for 3.3 miles before emptying into Kuskokwim Bay.

The channel is tidally influenced. On the rising (flood) tide, flow comes up the Kwigillingok River and flows up the channel adjacent to the runway and into the drained lake. Following high tide, the ebb tide flows out the tidal channel to the Kwigillingok River and Kuskokwim Bay.

Typical of most areas in Alaska, there are no long-term gaging records available for the tidal channel or the Kwigillingok River. Additionally, there is no NOAA tide gage station at Kwigillingok. Anecdotal information from the U.S. Corps of Engineers describes the effects of several fall storm surges during the 1970s, and a recent report documents the rate of erosion along the banks of the Kwigillingok River and tidal channel (USACE, 2009).

Hydrology

Kwigillingok is located in a maritime climate, approximately 1 mile from the shore of Kuskokwim Bay. The coast is bordered by sea ice in the winter, and the surrounding coastal area is treeless and dotted with numerous small lakes. Although the mean annual temperatures are

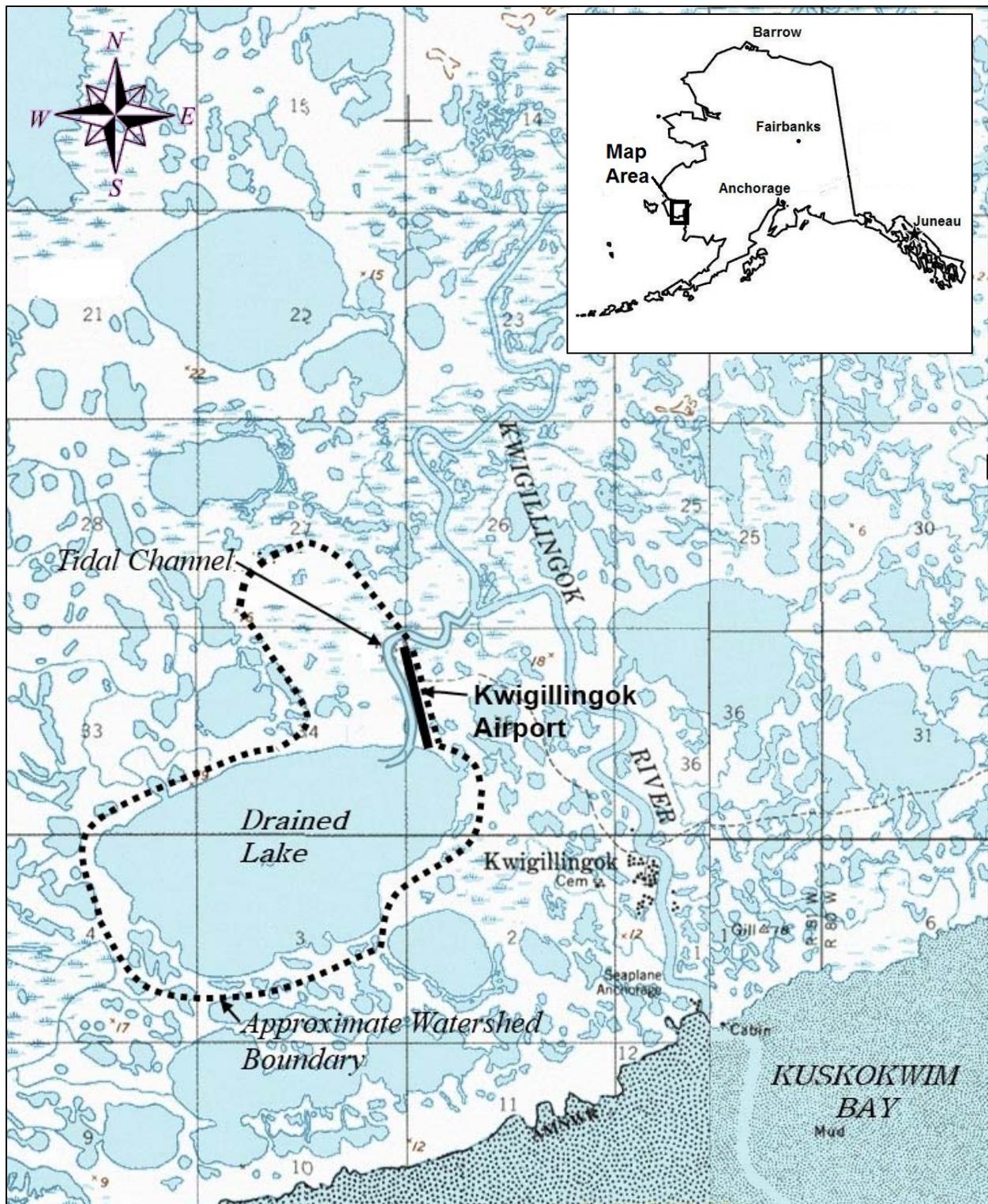


Figure 1. Project location map.

similar to inland sites at the same latitudes, the seasonal range of temperatures is much lower and the winds are much higher. Annual precipitation at Kwigillingok averages 22 inches, with 43 inches of snowfall annually. Summer temperatures range from 41 to 57 °F, and winter temperatures average 6 to 24 °F (ADCED, 2012).

Flooding in the Kwigillingok area may be the result of two sources, runoff from precipitation events and/or coastal storm surges. Since no gaging information exists for any nearby streams, precipitation-related flood magnitude estimations were developed using USGS regression equations for estimating the magnitude of peak streamflows in Alaska. Peak flood magnitudes were estimated for the tidal channel watershed at its confluence with the Kwigillingok River, and for the Kwigillingok River watershed.

The latest USGS regression method for estimating peak streamflows at ungaged locations is described in the USGS Water Resources Investigations Report 03-4188 (Curran et al., 2003). Basin characteristic information is used in the USGS regression analysis. For Region 6, the characteristics include:

- drainage area upstream from the site,
- percentage of lakes and ponds area,
- percentage of forest areas.

Basin characteristics were obtained by planimetric techniques used with USGS 1:63360 quad maps. Due to flat terrain, the planimetered basin characteristics in Table 1 should be considered as an approximation.

Table 1. Watershed characteristics.

	Tidal Channel Watershed	Kwigillingok River Watershed
Drainage Area (mi ²)	2.2	32.8
Area of Lakes and Ponds (%)	61	23
Area of Forests (%)	0	0

The range of the ‘lakes and ponds area’ variable used to develop the regression equations for Streamflow Analysis Region 6 is 0 to 15 %. The percentages of the ‘lakes and ponds’ areas for the two watersheds are significantly larger than the high end of the range. Lakes and ponds act as temporary storage areas during floods, and tend to dampen peak flood magnitudes. Therefore, the peak flood magnitudes for these two watersheds may be smaller than predicted by the regression equations.

For flooding caused by precipitation events, the estimated magnitudes for the 2-year flood through the 500-year flood for the tidal channel watershed and the Kwigillingok River watershed are shown in Table 2 and in Appendix 1. The adequacy of the regression equations can be evaluated by several measures. Confidence limits provide a measure of the error in a particular prediction. The 5% and 95% confidence limits provide a 90% prediction interval for a particular site. Because this watershed is ungaged, has limited historic hydraulic information, and has boundaries that are difficult to delineate, the lower and upper confidence limits were calculated and included in Appendix 1.

Table 2. Flood discharges based on precipitation events.

Flood Recurrence Interval	Tidal Channel (cfs)	Kwigillingok River (cfs)
2-year	35	510
5-year	59	745
10-year	77	909
25-year	100	1120
50-year	119	1280
100-year	138	1440
200-year	158	1610

Design Flood Elevation

Project designers require the design flood elevation. The design flood has a recurrence interval of 100 years, also referred to as having a 1-percent probability of being equaled or exceeded in any given year. Two types of flooding may occur in the Kwigillingok area; runoff from precipitation events and coastal storm surges. Analyses of both types of floods were conducted to determine the type and water surface elevation of the governing 100-year flood.

Precipitation-Based Flooding

A hydraulic analysis was conducted to determine whether the estimated 100-year precipitation-based flood will result in a higher water surface elevation in the tidal channel adjacent to the runway than the typical daily high tide elevation. The analysis involves modeling the tidal channel's flow characteristics using the HEC-RAS water surface profile modeling program. The program was used to estimate and compare the discharge in the tidal channel during a non-storm ebb tide flow following high tide to the tidal channel precipitation-based 100-year flood. If the 100-year discharge is less than that of a non-storm ebb tide discharge, that would indicate that precipitation-based floods may not be the correct choice for establishing the design flood elevation.

A numerical model of the tidal channel was constructed in HEC-RAS, using cross-sections surveyed by a PDC survey crew in August 2011. Fourteen cross-sections, labeled from 637 (downstream) to 9185 (upstream) were used in the model. Station 0 (zero) starts at the confluence of the tidal channel and the Kwigillingok River. See Figure 2 for cross-section location. Field observations, published tables, and engineering judgment were used to determine estimates of the Manning's n values. The selected n values used in the model are 0.03 (channel) and 0.10 (floodplain).

On 08/15/ 2011, PDC, Inc surveyors surveyed a series of water surface elevations during a period from 12:00 pm to 3:41 pm local time at the upstream tidal observation location on the tidal channel, and a set of simultaneous water surface elevations at both the upstream and downstream tidal observation locations at 3:41 pm local time, approximately 2 hours following the observed high tide (see Figure 2). The difference between simultaneous water surface elevations (0.13 feet) and the distance between the tidal observation locations (8,550 feet) were used to estimate a normal depth slope for a calibration of the HEC-RAS model. The estimated

slope during the ebb tide is 0.000015 ft/ft. See Appendix 2 for tidal observation and stage data.

By matching the observed water surface elevations in the HEC-RAS model, the discharge in the channel at the time of the survey was estimated to be 227 cfs. See Table 3 for the HEC-RAS results, including hydraulic characteristics at all cross-sections.

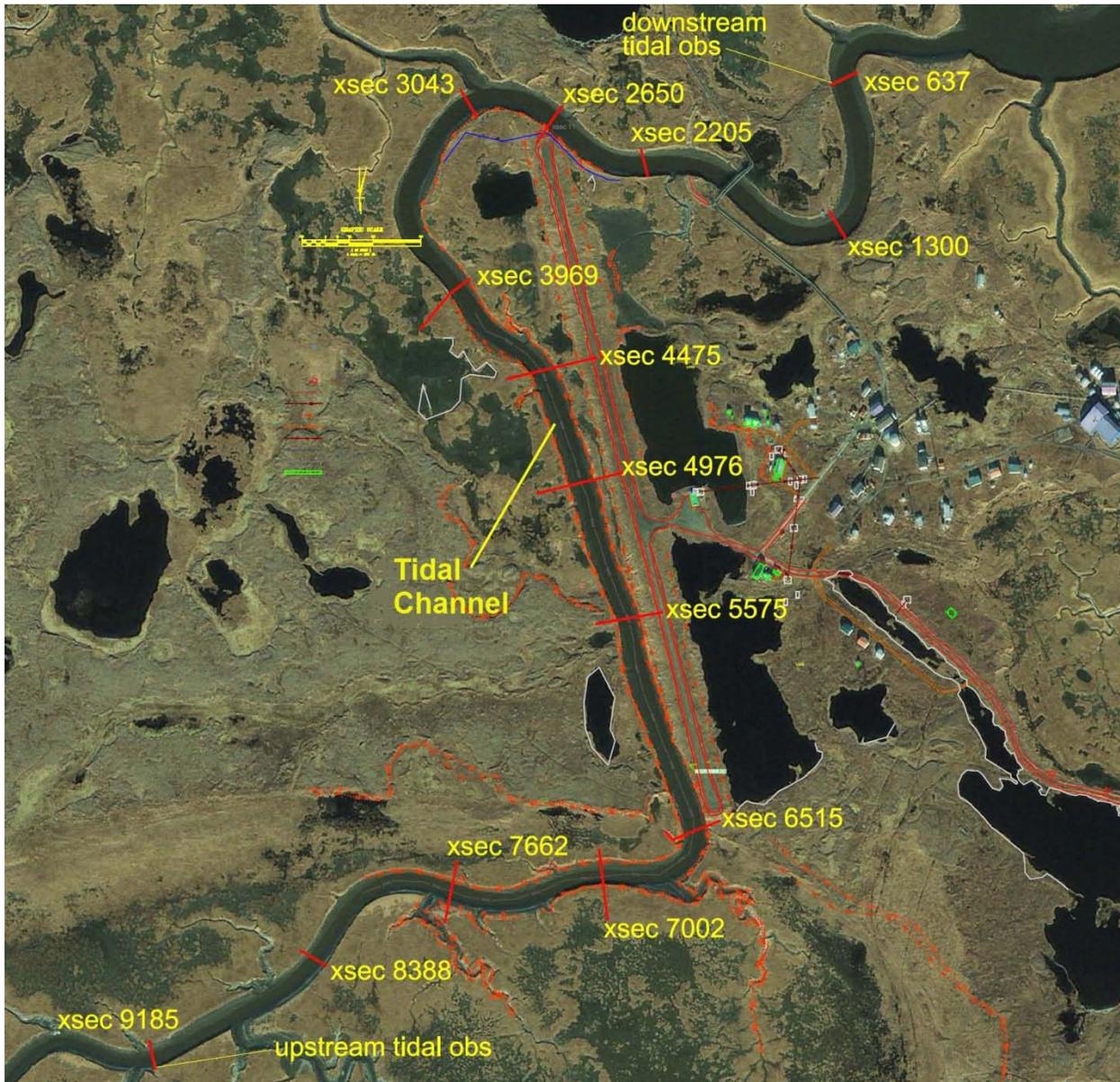


Figure 2. Cross-sections and tidal observation locations for HEC-RAS hydraulic analysis.

A comparison of the estimated flood magnitudes in Table 2 with the channel hydraulic analysis shows that the outgoing flow that occurred in the tidal channel on 08/15/2011 (227 cfs) was substantially greater than the predicted precipitation-based 100-year (138 cfs) and 200-year (158 cfs) floods for the tidal channel watershed. As no large storm events had occurred immediately preceding the August survey, the flow was considered typical.

Table 3. Results from HEC-RAS analysis of existing tidal channel.

Cross-section	Q total (cfs)	Min Ch El (ft)	W.S. El (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
9185	227.0	0.98	6.78	0.78	291.04	78.35
8388	227.0	1	6.75	0.69	328.85	87.28
7662	227.0	-0.54	6.73	0.56	407.94	96.48
7002	227.0	-0.36	6.72	0.55	409.34	86.31
6515	227.0	-0.69	6.72	0.50	453.65	102.61
5575	227.0	-1.1	6.70	0.50	455.45	94.91
4976	227.0	-0.79	6.7	0.49	467.80	105.48
4475	227.0	-1.43	6.69	0.48	468.48	94.99
3969	227.0	-2.35	6.68	0.48	477.40	92.20
3043	227.0	-2.18	6.67	0.46	492.66	96.65
2650	227.0	-2.25	6.66	0.38	597.16	103.02
2205	227.0	-2.71	6.65	0.41	549.10	98.10
1300	227.0	-0.92	6.63	0.42	536.97	102.41
637	227.0	-2.57	6.62	0.36	635.75	114.59

Tidally affected river crossings are characterized by both river flow and tidal fluctuations. Field observations of two-directional flow at the site, along with the HEC-RAS analysis, indicate that the majority of the discharge in the tidal channel is from upstream high-tide storage, not by precipitation-generated flow from the upper watershed. Flood flows and associated water surface elevation increases from precipitation events are likely insignificant compared to daily ebb and flood tide levels and discharges. This indicates that precipitation-based floods may not be the correct choice for establishing the design flood elevation.

Storm Surge

Storm surges are temporary abnormal changes in sea level that accompany storms in shallow coastal waters. Impacts to low-lying coastal areas in western and northern Alaska can be significant, as a result of both inundation and increasing the effective height of waves.

Some work on analysis and modeling of storm surges in Alaska has occurred. A statistical model was developed from the Alaska storm surge climatology developed by Wise et al. (1981). Regression analysis was used to correlate surge height with various parameters. For the Kwigillingok area, the 50-year surge height is 11.6 feet above mean high water (MHW); the 100-year surge height is 12 feet above MHW.

The U.S. Army Corps of Engineers conducted a storm-induced water level prediction study for the western coast of Alaska (Chapman et al, 2009). The study developed frequency-of-occurrence relationships of storm-generated water levels for 17 selected communities along Kotzebue and Norton Sounds, the Bering Sea, and Bristol Bay. The community of Kongiganak, located approximately 10 miles east of Kwigillingok, was included in the study. The stage-frequency analysis for Kongiganak is found in Table 4. Stage units are feet mean lower-low water (ft MLLW).

Table 4. Stage-frequency analysis for Kongiganak, AK (Chapman et al., 2009).

Return Period (years)	5	10	15	20	25	50	100
Surge Level (ft MLLW)	10.31	12.57	13.92	14.84	15.43	17.03	18.28
Std. Deviation (ft)	0.52	1.05	1.21	1.38	1.28	1.35	1.28

The hydrographic parameters influencing the formation of storm surge are a gently sloping seafloor near shore and sufficient open sea to allow for a long fetch (Wise et al., 1981). Though near-shore bathymetric data wasn't available for this study, Kwigillingok and Kongiganak share similar characteristics, including aspect and an open sea to the south. This suggests that results from the USACE storm surge stage-frequency analysis for Kongiganak are applicable for use at Kwigillingok.

To estimate the Kwigillingok MLLW elevation, eight years of daily predicted tide levels were obtained for a nearby subordinate station located at Apokak Creek (NOAA, 2012). For the period of record, the MLLW was calculated as the mean of the lower twice-daily low tide levels. The estimated MLLW at Apokak Creek is 0.04 feet.

A lack of data prevents a direct correlation of the Apokak MLLW datum to MLLW at Kwigillingok. However, the 1:40 p.m. high tide measurement at Kwigillingok for August 15, 2011 (8.69 feet) is similar to the 2:37 p.m. high tide prediction for Apokak (8.6 feet). Based on the lack of additional tide data, and the proximity of the Apokak Creek station to Kwigillingok, the estimated MLLW at Kwigillingok is 0.0 feet.

Based on the stated assumptions, the 100-year storm surge elevation at Kwigillingok is estimated at 18.3 feet.

Design Elevation

The design elevation for the Kwigillingok airport is guided by requirements that the runway should be raised to a level above the 100-year flood elevation. Based on the tidal channel hydraulic analysis and the storm-induced water level prediction study for the western coast of Alaska (Chapman et al, 2009) and other assumptions described above, the estimated surge level and design build elevations for the Kwigillingok airport are found in Table 5.

Table 5. Design elevation for Kwigillingok runway.

100-year storm surge elevation	18.3 ft
design elevation (1-foot freeboard)	19.3 ft
design elevation (3-foot freeboard)	21.3 ft

Bank Erosion Analysis

According to a 1993 ADOT&PF memo, the lake southwest of the existing runway was drained in the early 1980's when borrow cells along the west side of the runway became interlinked. A

series of aerial photographs show that the channel has continued to straighten and widen. Though the lake has drained, tidal currents continue to affect channel geometry.

The tidal channel is eroding the southwest corner of the existing safety area and the bank adjacent to the northeast corner of the runway. Determining the reason for the bank erosion along the tidal channel is necessary for designing embankment erosion protection and assessing tidal channel alignment alternatives.

Four possible causes of erosion were considered: pore-water pressure, frost heave phenomenon, long-term permafrost melting, and boundary shear stress. The first three causes are discussed qualitatively; a quantitative analysis was conducted to estimate bank erosion from boundary shear stress. The analysis was based in part on logs of test holes bored by the ADOT&PF in the vicinity of the Kwigillingok airport in February 2012. The logs reveal that subsurface soils in the project area are primarily silts, silts with sand, and silts with organics.

Pore-Water Pressure

Positive pore-water pressure can lead directly to streambank erosion and instability. In addition to increasing the weight of the bank, pore-water pressure reduces the effective friction (normal stress) between soil particles, thereby weakening the soil and allowing particles to be dislodged. Bank erosion from positive pore water pressure is commonly attributed to areas with shallow water tables and non-cohesive bank materials such as gravels and sand. However, a short literature review found papers that focus on the importance of accounting for positive and negative pore-water pressures of unsaturated cohesive materials when considering stream stability, bank erosion, and channel widening. Simon and Collison (2001) note that pore-water pressure within cohesive riverbeds will increase during the rising limb of a flood hydrograph (or tidal inflow). If the water level falls rapidly on the receding limb, bed pore-water pressure will also fall, though the impermeability of the soil delays pressure equalization. As a result, upward-directed seepage occurs to eliminate the pressure differential, and leads to rupture and erosion of the streambed, or to partial liquefaction of the upper part of the bed

Similarities between the Simon and Collison study sites and the Kwigillingok airport include the soil type (silt) and the large rapid variation in the hydrograph. The spring range (mean difference between high and low tidal levels during “spring tides”) for the Apokak Creek entrance NOAA subordinate tide station, used for this project as a reference station for Kwigillingok, is 12.0 ft. The variation in tide levels occurs approximately every 6 hours.

Frost Heave Phenomenon

Frozen soils frequently have intermittent layers of ice in the soil mass that range in thickness from barely visible to ten of millimeters or more. Segregation of ice is caused by a thermodynamic imbalance created by the advancing freeze front within the soil. Ice lens formation in fine-grained soils is responsible for frost heave. Three conditions must occur simultaneously for frost heaving to occur, including: 1) a prolonged period of subfreezing temperatures, 2) frost-susceptible soils (silts are more frost-susceptible than either sands or clays), and 3) a source of water.

In general, water moves from warm to cold, from high-moisture zones to low moisture zones,

and from regions of low solute concentrations to high solute concentrations. As the soils freeze from the top downward, the thermal gradient will induce an upward flow of water to the freezing front. Freezing of soil water creates a strong sink for water and induces an upward movement of water. The resultant ice lens formation results in frost heaving (Henry, 2000). In addition to an upward displacement of the ground surface, segregated ice lenses may also form vertically in areas of vertical cuts or faces (such as a stream bank). In this condition, the frost heave results in an outward displacement of the vertical face. See Figure 3.

The potential for frost heaving to occur in the vicinity of the Kwigillingok airport is high. Bethel has a subarctic climate, with a minimum monthly temperature below freezing for 7 continuous months. Bore holes show predominantly silty soils in the region. Additionally, ice lenses of 3.5 to 6 inches thick were noted in 4 test holes; TH12-11, TH12-15, TH12-16, and TH12-44. Though a water table was not evident in the test hole logs, the relatively high water content and degree of saturation of the silt layers may provide enough water for upward or lateral movement and the development of ice lenses.

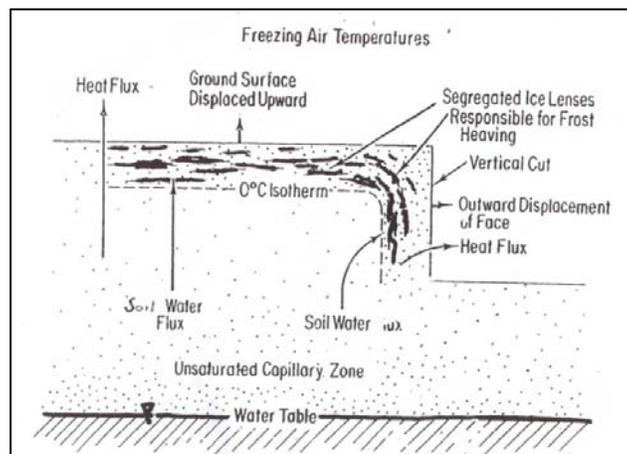


Figure 3. Vertical and horizontal surface displacement from frost heave.

Thermal Degradation

Changing thermal conditions may be responsible for melting permafrost and subsequent bank erosion. Reports documenting the effects of coastal shore erosion from warming or melting permafrost, and thermokarsting (thawing process associated with disturbance of the surface thermal regime in areas of ice-rich permafrost) are readily available. Researchers have noted thermally induced erosion of areas with high ground ice content, including hillslopes and river channels (Rowland et al., 2010).

In August 1972, five test holes were placed by ADOT&PF along the centerline of the proposed runway at Kwigillingok, between the southern edge of the runway (adjacent to the lake) and the parking apron at mid-runway. Two additional test holes were also bored; one beyond the northern end of the runway and one on the access road. Six of the holes indicated permafrost to depth of hole (10-20 ft) and the seventh hole indicated frozen soil to 7.5 ft and unfrozen ground between 7.5 and 20 ft (Moore, 1972)

In February 2012, 47 test holes were bored by ADOT&PF in the vicinity of the runway and

proposed expansion areas adjacent to the runway. At nine of the holes at the northern and southern ends of the runway, data loggers with temperature probes were installed and recorded temperature data from March 2012 through September 2012. The data indicates that at most of the holes, seasonal frost now occurs rather than permafrost. At one hole, soils at 8 and 12 ft depth did not freeze for the duration of the logging period (Steff Browne, personal communication, October 22, 2012). Soil temperatures did not appear to be influenced by tidal activity.

A recent study (Karle, 2014) concluded that thawing permafrost and subsequent thermokarsting of soils and vegetation that had been disturbed by construction activities and/or activities by local residents was likely responsible for the establishment and downcutting of the tidal channel over time in the early 1980s. However, there is currently not enough data available to determine if melting permafrost is responsible for the ongoing bank erosion.

Erosion by Shear Stresses

The USDA Bank Stability and Toe Erosion Model (BSTEM) was utilized to estimate erosion of the bank and bank toe by hydraulic shear stress. The model estimates boundary shear stress from channel geometry and considers critical shear stress and erodibility of two separate zones with potentially different materials: the bank and bank toe (USDA, 2012).

Cross-section 6515, surveyed at the high eroding bank at the southwest corner of the runway, was used to provide the bank geometry for the analysis. Soil layer data, including thickness and material type, were obtained from the log for boring hole TH12-16. The input reach slope was based on water surface elevations surveyed simultaneously at two locations on the tidal channel, upstream and downstream of the runway. The analysis was run at the high tide water surface elevation surveyed by PDC, Inc in August 2011. The model does not use a discharge value. Analyses were conducted for two flow durations: 4 hours, representing two 2-hour high tide levels in one day, and 1460 hours, representing high tide levels for approximately one year.

Rates of erosion for the bank, bank toe, and bed are found in Table 6 and Appendix 3.

Table 6. BSTEM model results for existing tidal channel.

Cross-section 6515		1 day duration	1 year duration
high tide	average boundary shear stress (Pa)	0.30	0.30
	maximum lateral retreat (cm)	1.1	195

In summary, four potential reasons for bank erosion were considered. There is currently not enough data available to determine if melting permafrost is responsible for bank erosion. The prevalence of easily erodible silt soils, ice lenses, a subarctic climate, and large rapid variations in the tidal hydrograph indicate that pore water pressure and frost heave may both have a role in the ongoing bank erosion. However, rates of erosion due to these factors are extremely difficult to quantify.

The quantitative analysis of channel shear stress indicates an erosion rate for the existing channel of approximately 6 feet per year. Though specific rates may vary with better data for the

BSTEM model, the analysis indicates that the material type, depth, and water velocity found in the tidal channel can be responsible for bank erosion by hydraulic shear stress.

The BSTEM analysis also indicates that erosion rates will increase slightly if the channel length is shortened. It is important to note that the increased erosion predicted by the model is due to the steeper slope of the shortened channel(s). However, it is not clear if a steeper slope in a tidal channel will result in a steeper water surface slope. In non-tidal streams, gravity and riverbed friction are the primary forces that determine the water’s velocity and depth. However, in this tidal channel, where the amount of daily tidal flow far exceeds upland flows, the upstream velocity and depth are determined by the downstream tailwater (tidal elevation).

Analysis of Preferred Alignment Alternative

PDC, Inc. Engineers has prepared a scoping report that describes the development and evaluation of several airport alternatives. Preliminary proposals generally involved altering the size and/or location of the runway embankment and associated safety areas, and analyses were conducted to review the hydrologic aspects of each alternative. The preferred design includes the realignment of the tidal channel to a route approximately 400 feet west of the runway (Figure 4). By moving the channel away from the runway, this design eliminates the need for erosion protection along the west side of the runway embankment.

To realign the tidal channel, a new channel approximately 2500 feet in length must be excavated. To determine how channel geometry affects the channel hydraulic performance, four channel shapes were selected for analysis. The four geometries are described in Table 7 and shown in Figure 5.

Table 7. Four channel design geometry alternatives.

Design A	Design B	Design C	Design D
Shallow V-shaped, no flat channel, banks 7:1 for 6 vertical feet then 2:1 for 4 vertical feet	Shallow V-shaped channel with 10 foot flat middle, banks 7:1 for 6 vertical feet then 2:1 for 4 vertical feet	V-shaped channel with 20 foot flat middle; banks 4:1 for 8 vertical feet then 2:1 for 4 vertical feet	V-shaped channel with 30 foot flat middle, single slope banks 4:1



Figure 4. Proposed tidal channel realignment and HEC-RAS cross-sections.

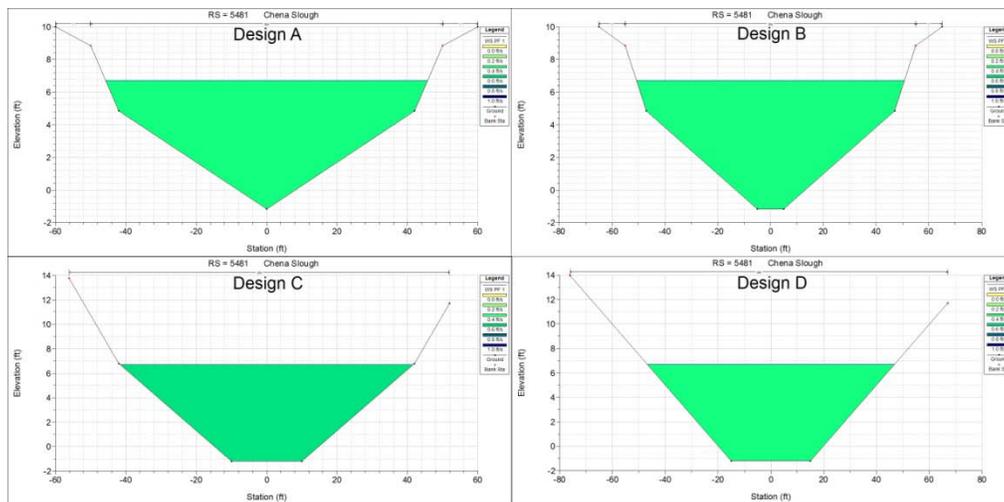


Figure 5. Design shapes for tidal channel realignment.

HEC-RAS Analysis

The tidal channel realignment results in a shorter channel than the existing channel it replaces. The realignment shortens the existing 3270-foot reach by 506 feet, upstream of Cross-section 3969. The slope of the existing channel is 0.0006 ft/ft. The slope of the shortened channel is 0.0007 ft/ft. The hydraulic modeling is based on the assumption that the same quantity of water will flow upstream during the flood tide and downstream during the ebb tide, even though the channel is shorter and slightly steeper. Results shown are from Cross-section 5481, located approximately in the center of the new channel alignment. A comparison of average channel velocities and other characteristics for the four channel design geometries is shown in Table 8. Channel shapes and water surface elevations for the 4 design geometries are shown in Figure 5.

Table 8. HEC-RAS results for 4 channel design alternatives.

	HEC-RAS Results			
	Design A	Design B	Design C	Design D
Flow Area at Cross-section 5481 (Q = 227 cfs)	416.0 ft ²	494.0 ft ²	408.3 ft ²	488.6 ft ²
Average Velocity at Q= 227 cfs	0.55 ft/s	0.46 ft/s	0.56 ft/s	0.46 ft/s
Top Width at 227 cfs (wsel = 6.70 feet)	91.5 ft	101.5 ft	83.3 ft	93.7 ft

Erosion by Shear Stresses

The BSTEM was utilized to estimate erosion of the bank and bank toe by hydraulic shear stress for the four channel design alternatives. For each alternative, the analysis was conducted at cross-section 5481, located mid-channel. Soil layer data from adjacent boring hole logs were used. Layer 1 (0' to 4') was resistant cohesive silt; layer 2 (4' to 12') was erodible cohesive silt. Two tide levels were modeled: mean tide at 5.2 feet MLLW, and high tide at 9.9 ft MLLW. The duration of flow was 1460 hours (2 hours per tide cycle x 2 cycles/day x 365 days/year). The model results are found in Table 9 and Appendix 4.

Table 9. BSTEM model results for 4 channel design alternatives.

Alternative Channel Design		A	B	C	D
mean tide	average boundary shear stress (Pa)	0.11	0.11	0.11	0.11
	maximum lateral annual retreat (cm)	20.5	20.5	41.7	9.3
	total eroded bank area (m ²)	0.57	0.57	0.32	0.33
high tide	average boundary shear stress (Pa)	0.25	0.25	0.15	0.21
	maximum lateral annual retreat (cm)	71.1	71.7	58.6	61.9
	total eroded bank area (m ²)	3.38	3.38	2.18	2.08

Given the lack of detailed soils data and annual tide elevation information, the results from the BSTEM model should be viewed as a general predictive tool, rather than for specific erosion rates. For all alternatives, the maximum lateral erosion rates for the high tide elevation are relatively similar, within 20 percent or so. Design C does indicate the lowest rate of annual erosion. Additionally, the Design C channel shape mimics some existing cross-sections, especially at the upper 4 feet where the banks steepen to a 2:1 (H:V) slope. That feature was noted in several of the surveyed cross-sections.

The cross-sectional area of Design C is somewhat smaller than the other alternatives. This may have the advantage of restricting the upstream flow during the flood tide. As a result, overall discharge in both directions may be smaller than with the other designs, which have larger cross-sectional areas. However, a smaller constructed cross-section will likely erode over time such that it matches the adjacent channel geometry.

The flat 20-ft channel bottom of Design C may be easier to construct, as heavy equipment will have a level platform to operate on.

Tidal Channel Realignment Recommendations

- At the upstream connection, the new channel turns to the north in a left-hand turn away from the older (and subsequently abandoned) existing channel. A large radius of curvature will reduce the bank erosion on the outside bend of the new channel. The radius of curvature for the bend should be no less than 400 ft, to match the existing channel geometry.
- At the downstream connection, the new channel turns slightly to the northwest to rejoin the existing channel. The alignment correction is much less severe, and a smaller radius of curvature, similar to channel bends downstream of the new alignment, can be used.
- New channel junctions: the new channel segment should be blended smoothly into the existing channel at the upstream and downstream connections. At the channel junctions, the existing channel segments should be backfilled with material excavated from the new channel alignment. Countermeasures should be constructed to reduce the potential of backfill erosion. At each end within the channel segment to be filled, geotextile-encapsulated soil lifts should be constructed approximately 20 feet back from the channel toe. The face and tops of the two soil lift structures should be covered with backfill such that there is a seamless transition along the banks and tops of banks from the existing channel to the new channel segment. A preliminary design, based on recommendations from Mitch Miller (ADOT&PF), is shown in Figure 6 (Janke, 2013).
- At the new channel junctions, special effort should be focused on establishing a vegetative mat along the top of the new banks. The vegetative mat should cover the new fill at the junctions and provide a continuous coverage along both banks, from existing channel to new channel to existing channel.
- The new channel alignment is expected to intersect several smaller ponds in the area west of the airstrip. Ponds that are 2 feet or less in depth are not expected to have much effect on channel performance or stability. Ponds that are deeper and are only partially dissected by the new channel alignment may eventually erode such that the bottom of the pond matches the channel thalweg. Additionally, dissected ponds may result in wider channel widths over time. A potential solution would be to fill any deep pond remnants that are dissected but outside of the new channel boundaries.

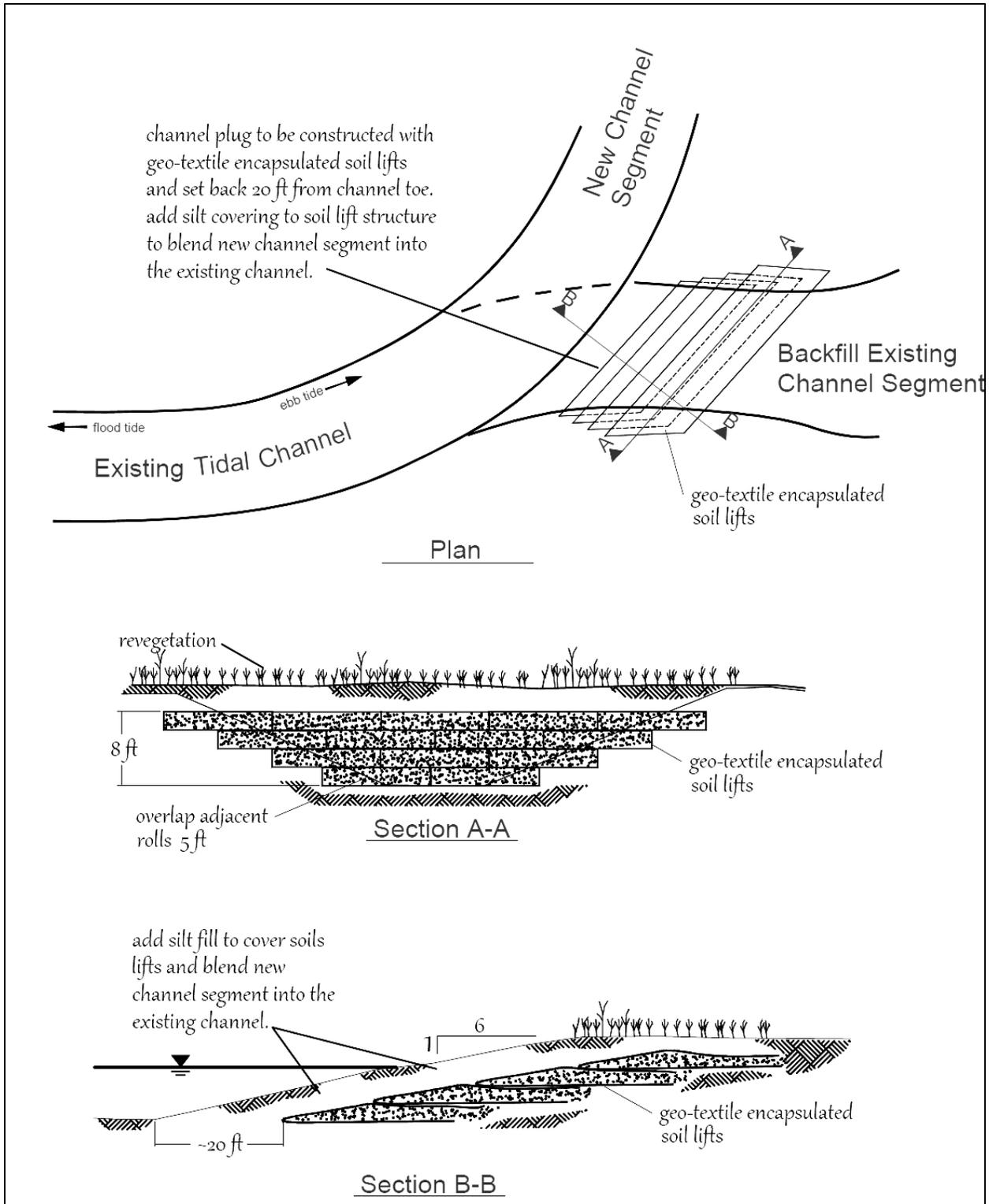


Figure 6. Geo-textile encapsulated soil lift design, to reduce erosion of backfill. Structures are placed in the existing channel segment at the upstream and downstream junctions with the new channel segment.

- The existing channel to be abandoned should be filled with silt to the elevation of the existing undisturbed ground if possible. If sufficient fill is not available, then the channel should be filled starting at both junctions and moving toward each other. Any gaps in the fill should result in a single shallow pond near the center of the existing channel.
- The top of the fill should be revegetated such that the old channel width has a full and complete covering. Rolled erosion control blankets or other bio-degradable methods may be used to assist the revegetation effort. Transplanted vegetation mats harvested during the new alignment excavation may be utilized. This action is especially critical at the junctions, where efforts should focus on restoring a robust and seamless vegetative mat.
- Two borrow sources are proposed to be located in the drained lakebed to the south of the tidal channel (see Figure 2). Within the limits of property boundaries, material quality and other restrictions, the borrow sources should be located as far as possible from the tidal channel. There should be no excavated connection or trench between the borrow pits and the tidal channel.

East Embankment Shoreline

The east side of the runway embankment is located adjacent to two long lakes. Prevailing winds are north/south. The greatest fetch length is also in the north/south direction; the east/west fetch is substantially shorter. A review of photographs taken during the June 2011 field trip to Kwig shows no noticeable erosion of the runway embankment along the lengths of the two lakes.

A shallow embankment slope and successful grass seeding effort should provide erosion protection along the east runway embankment. A rolled erosion control blanket may be used to provide immediate erosion protection following construction until revegetation occurs.

Access Road Culvert

A pond is adjacent to the east portion of the runway south of the apron and adjacent to the south side of the airport access road. This pond occasionally drains north across the airport access road surface and into a second pond. A culvert should be installed across the access road to keep the water below the runway and apron surface and off the road surface. See Figure 4.

The elevation of the culvert inlet invert will control the water surface elevation of the pond. PDC surveyors measured the water surface elevation at multiple points at the edge of the south pond near the proposed culvert crossing area. Survey points 11856 and 11666 were used to determine the water surface elevations of the south and north ponds (12.0 ft and 10.5 ft respectively).

The culvert should be long enough to extend from the south pond to the north pond, approximately 85 feet in length. The USDA program WinTR-55 was used to determine the peak discharge from the south pond drainage basin. The rainfall intensities for the 24-hour 50-year and 24-hour 100-year storms for the Kwigillingok area were obtained from the National Weather Service, which provides precipitation frequency estimates for Alaska (NOAA, 2013). Due to flat terrain, delineation of the drainage area that drains into the south pond is difficult. Two sub-areas were delineated within the small drainage area, with an estimated combined area of 15.6 acres.

The FHWA HY-8 culvert analysis program was used to size the culvert. A 2.0-ft diameter corrugated metal pipe culvert should provide adequate hydraulic capacity for the 24-hour 100-year design storm and minimize long-term maintenance needs. See Appendix 5 for details. Erosion-resistant aprons should be constructed at the inlet and outlet.

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There are no regulated 100-year floodplains on this project.

Conclusion

Flooding in the Kwigillingok area may be the result of two sources, runoff from precipitation events and/or coastal storm surges. An analysis of both types of floods concludes that coastal storm surges are the dominant 100-year flood.

The 100-year storm surge elevation at Kwigillingok is estimated at 18.3 feet. The 1-foot freeboard design elevation for the Kwigillingok runway is 19.3 feet.

The tidal channel is eroding the southwest corner of the existing safety area and the bank adjacent to the northeast corner of the runway. Four possible causes of bank erosion were considered: pore-water pressure, frost heave phenomenon, long-term permafrost melting, and boundary shear stress. There is currently not enough data available to determine if melting permafrost is responsible for the ongoing bank erosion. The prevalence of easily erodible silt soils, ice lenses, a subarctic climate, and large rapid variations in the tidal hydrograph indicate that pore water pressure and frost heave may both have a role in the ongoing bank erosion.

The preferred airport design includes the realignment of the tidal channel to a route approximately 400 feet west of the runway. The primary advantage is to eliminate the need for erosion protection along the west side of the runway embankment. To realign the tidal channel, a new channel approximately 2500 feet in length must be excavated.

At the upstream connection, a large radius of curvature should be constructed to reduce the bank erosion on the outside bend of the new channel. The radius of curvature for the bend should be no less than 400 ft, to match the existing channel geometry.

The new channel segment should be blended smoothly into the existing channel at the upstream and downstream connections. Counter-measures such as geotextile encapsulated soil lifts should be constructed to prevent bank erosion at the junctions.

The new channel alignment is expected to intersect several smaller ponds in the area west of the airstrip. Though smaller ponds are not expected to have much effect on channel performance or stability, deeper dissected ponds may eventually erode such that the bottom of the pond matches the channel thalweg. Additionally, dissected ponds may result in wider channels over time.

The existing channel to be abandoned should be filled with silt to the elevation of the existing undisturbed ground if possible. The top of the fill should be revegetated such that the old

channel width has a full and complete covering, especially at the junctions. Rolled erosion control blankets, harvested vegetated mats, or other bio-degradable methods may be used to assist the revegetation effort.

The borrow sources should be located as far from the tidal channel as possible.

A culvert should be installed across the access road between the south and north ponds adjacent to the east of the runway to keep the water below the runway and apron surface and off the road surface.

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Appendix 1-Flood Magnitudes

This program computes estimates of T-year floods for ungaged sites in Alaska based on the report "Estimating the Magnitude and Frequency of Peak Streamflows for Ungaged Sites on Streams in Alaska and Conterminous Basins in Canada", WRIR 03-4188 See the above publication for equations

- * No warranty, expressed or implied, is made by the
- * USGS as to the accuracy and functioning of the
- * program and related program material.

VERSION 10/04/03

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Flood frequency estimates for

Site: Tidal Channel Watershed

Region 6

Drainage area, in square miles: 2.20
 Percent of area in lakes and ponds: 61.0
 Forest cover, in percent: 0.0

T	DISCHARGE (cfs)	SE (+%)	SE (-%)	CONFIDENCE LIMITS		EQ. YEARS
				5%	95%	
2	35.	61.8	-38.2	16.	79.	2.4
5	59.	64.2	-39.1	26.	135.	3.3
10	77.	69.1	-40.9	32.	184.	4.1
25	100.	76.9	-43.5	39.	260.	5.0
50	119.	83.4	-45.5	43.	327.	5.4
100	138.	90.4	-47.5	47.	405.	5.8
200	158.	97.7	-49.4	51.	494.	6.1
500	186.	108.0	-51.9	55.	631.	6.4

WARNING - Lakes+Ponds out of range of observed data
 Range: 0.00 to 15.00 for Region 6

Flood frequency estimates for

Site: Kwig River Watershed

Region 6

Drainage area, in square miles: 32.80
 Percent of area in lakes and ponds: 23.0
 Forest cover, in percent: 0.0

T	DISCHARGE (cfs)	SE (+%)	SE (-%)	CONFIDENCE LIMITS		EQ. YEARS
				5%	95%	
2	510.	54.9	-35.4	246.	1060.	1.6
5	745.	56.8	-36.2	351.	1580.	2.2
10	909.	60.7	-37.8	411.	2010.	2.7
25	1120.	67.1	-40.2	476.	2640.	3.3
50	1280.	72.5	-42.0	516.	3180.	3.7
100	1440.	78.2	-43.9	550.	3790.	3.9
200	1610.	84.3	-45.7	579.	4460.	4.1
500	1830.	92.8	-48.1	611.	5470.	4.3

WARNING - Lakes+Ponds out of range of observed data
 Range: 0.00 to 15.00 for Region 6

Appendix 2-Surveyed Tidal Elevations

Simultaneous Stage Data

Pt no.	Northing	Easting	Station Elevation	Description	Water Surface Elevation
19057	49029.83	27296.65	6.57	Upstream Tidal Obs Location	6.77' observed at 3:41pm local on 8/15/11
19056	53160.55	30135.94	7.58	Downstream Tidal Obs Location	6.64' observed at 3:41pm local on 8/15/11

Tidal Observations

Tidal observations were observed at point 19057, the Upstream Tidal Observation Location, from 12:00pm local to 3:00pm local on 8/15/11

Time (local)	Water Surface	
12:00 PM	7.01	
12:10 PM	7.29	
12:20 PM	7.56	
12:30 PM	7.87	
12:40 PM	8.04	
12:50 PM	8.34	
1:00 PM	8.40	
1:10 PM	8.54	
1:20 PM	8.62	
1:30 PM	8.67	
1:40 PM	8.69	*Observed High Tide
1:50 PM	8.67	
2:00 PM	8.62	
2:10 PM	8.51	
2:20 PM	8.32	
2:30 PM	8.12	
2:40 PM	7.95	
2:50 PM	7.75	
3:00 AM	7.52	
3:41 AM	6.77	

Water Surface Elevations

Water Surface Elevation Location 1

Pt no.	Northing	Easting	Elevation	Description
11268	50389.65	30065.20	12.35	Water Surface Elevation
11269	50356.79	30074.49	12.28	Water Surface Elevation
11270	50350.89	30095.66	12.32	Water Surface Elevation
11271	50327.70	30094.37	12.21	Water Surface Elevation
11272	50292.79	30068.45	12.05	Water Surface Elevation
11273	50246.78	30020.03	12.15	Water Surface Elevation
11274	50215.02	29963.42	12.22	Water Surface Elevation
11275	50187.92	29910.82	12.36	Water Surface Elevation
11276	50160.87	29885.91	12.24	Water Surface Elevation
11277	50132.00	29852.16	12.13	Water Surface Elevation
11278	50137.69	29808.99	12.17	Water Surface Elevation
11279	50146.68	29776.62	12.16	Water Surface Elevation
11280	50126.23	29752.34	12.19	Water Surface Elevation
11281	50103.53	29736.55	12.31	Water Surface Elevation

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Appendix 3- Erosion Analysis Graphical Output From BSTEM Model for Existing Tidal Channel

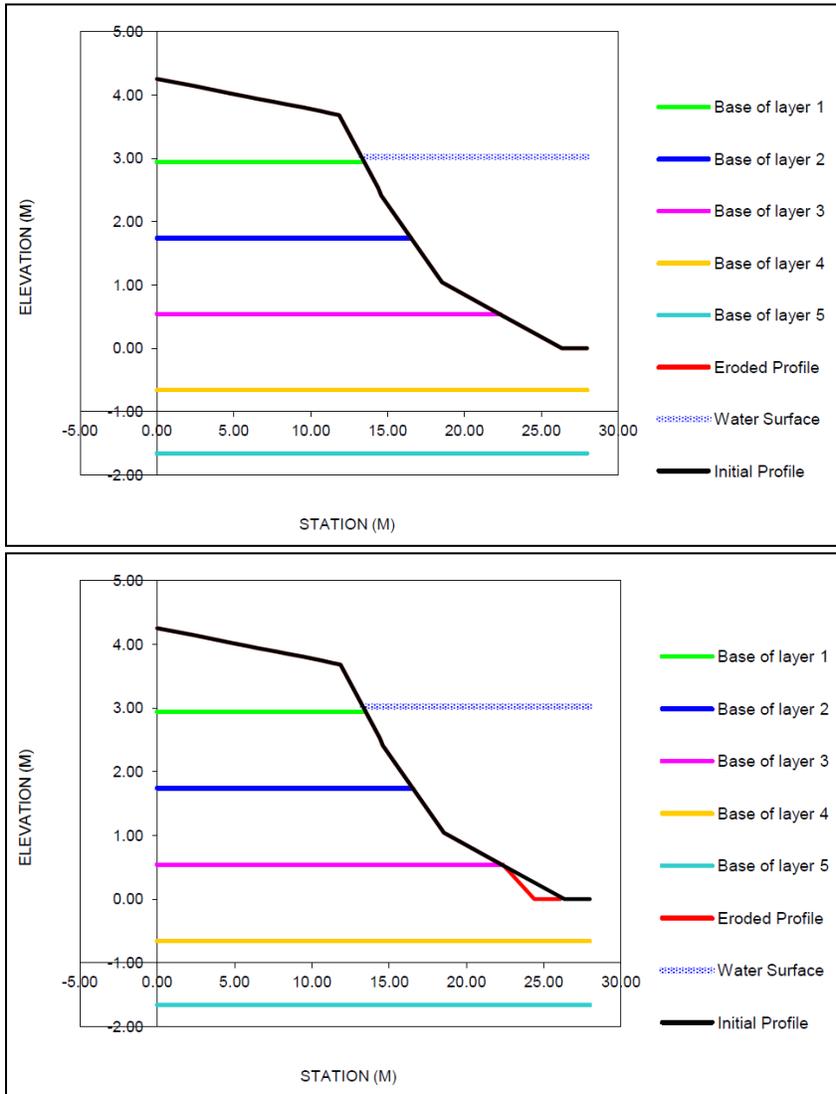


Figure 7. Results from BSTEM analysis of bank erosion at existing tidal channel cross-section 6515, for 1 day (upper) and 1 year (lower).

Appendix 4- Erosion Analysis Graphical Output From BSTEM Model for Four Tidal Realignment Channel Designs

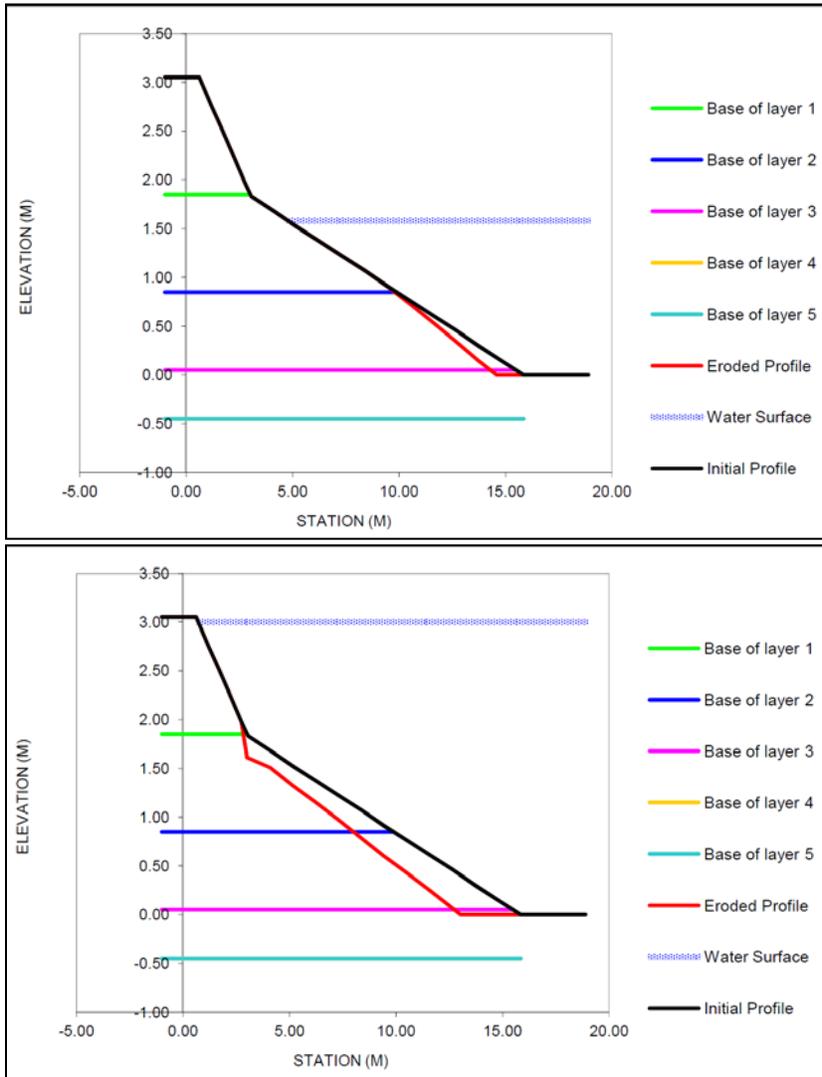


Figure 8. Designs A & B, mean tide (upper) and high tide (lower).

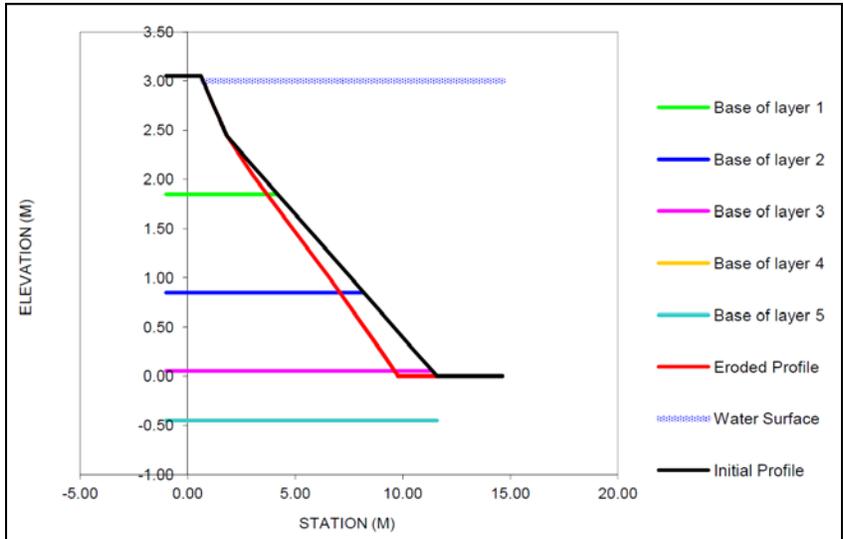
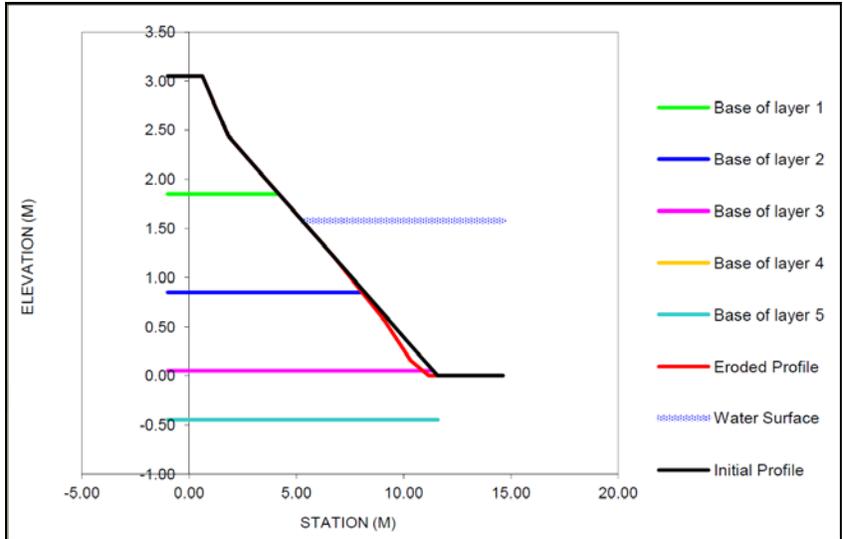


Figure 9. Design C, mean tide (upper) and high tide (lower).

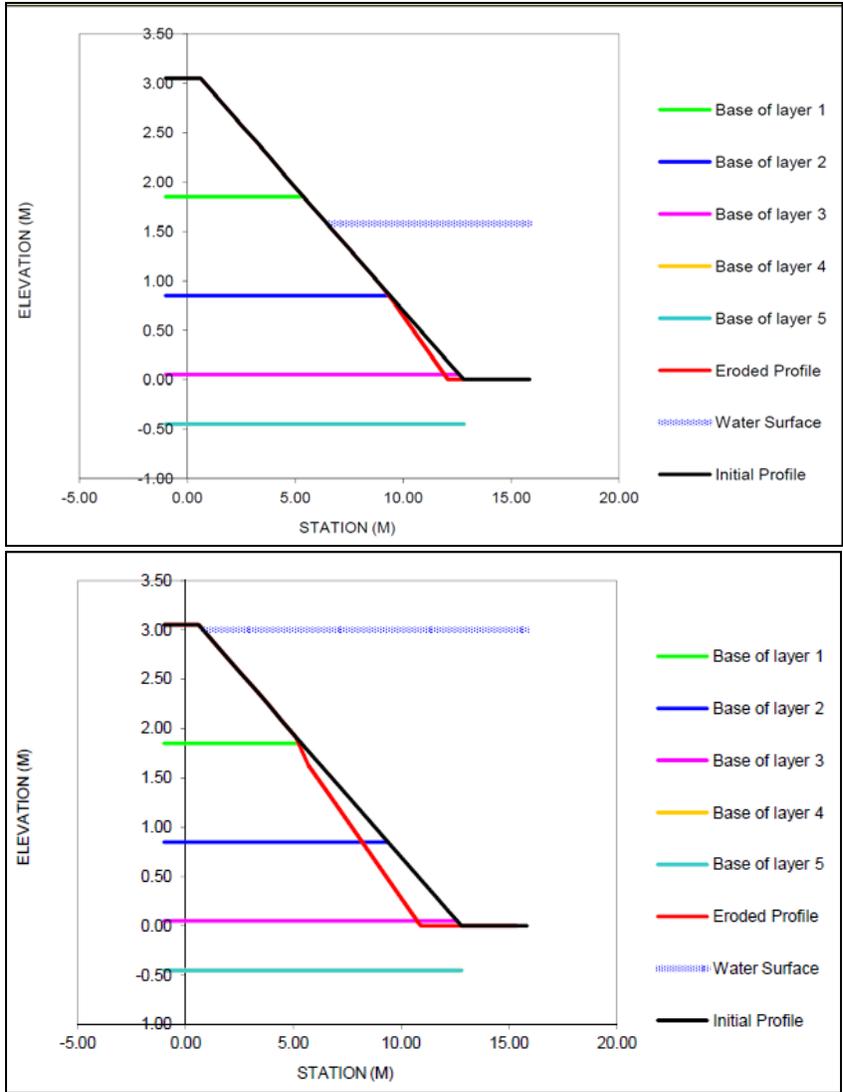


Figure 10. Design D, mean tide (upper) and high tide (lower).

Appendix 5- Access Road Culvert Design

A rainfall runoff hydrologic model was constructed using the WinTR-55 software program. WinTR-55 contains procedures for estimating runoff and peak discharges in small watersheds. WinTR-55 is a single-event rainfall-runoff, small watershed hydrologic model. Two sub-areas were delineated within the small watershed that drains into the south pond, with an estimated combined area of 15.6 acres. For Subarea 1 (13.2 acres), a CN number (65) was selected based on a predominant cover of brush, weed and grass mix in good condition on silty soils. For Subarea 2 (2.4 acres), a weighted CN number (72) was selected based on a combination of a vegetated area and a portion of the gravel runway embankment. Due to flat terrain, the delineated subbasin areas should be considered as approximations.

The National Weather Service provides updated precipitation frequency estimates for Alaska, including the Kwigillingok area; see <http://www.nws.noaa.gov/oh/>. Storm data used in the analysis are found below:

Table 10. NOAA Atlas 14 point precipitation frequency estimates for Kwigillingok.

Rainfall Return Period (yr)	2	5	10	25	50	100
24-hr Rainfall Amount (in)	1.27	1.62	1.91	2.33	2.68	3.06

Based on the rainfall estimates and watershed characteristics, the model determined the Q50 to be 0.43 cfs, and the Q100 to be 0.65 cfs. Discharge results for the Q50 and Q100 were then used in HY8 to analyze culvert characteristics.

The following culvert for the access road was analyzed: 2.0-foot diameter Corrugated Metal Pipe, 85-ft length, culvert inlet 12.0 ft, culvert outlet 10.5 ft, 1.0 ft of fill over culvert. Results are found in the Hydraulic Summary below:

HYDRAULIC SUMMARY		
Drainage Area = 15.6 acres		
Exceedance Probability	2% (Q50)	1% (Q100)
Design Discharge	0.43 cfs	0.65 cfs
Design High Water Elevation at Q50 = 1.64 ft Below Culvert Inlet Crown		
Anticipated Additional Backwater at Q100 = 0.0 ft		
Design Discharge at Hw/D = 1.5 is 17.8 cfs		
Capacity at Roadway Overtopping = 17.8 cfs		