U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 AUGUST 2012

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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

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Ben Middle - Last - White	First - Susan Middle - Last - Cunningham
Company - Alaska Dept. of Transportation & Public Facilites	Company - Vigil-Agrimis, Inc.
E-mail Address - ben.white@alaska.gov	E-mail Address - scunningham@vigil-agrimis.com
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- PO Box 196900	Address- 2718 NW Marken St.
City - Anchorage State - AK Zip - 99519 Country - USA	City - Bend State - OR Zip - 97701 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business c. Fax	a. Residence b. Business 541-633-7283 c. Fax 541-633-7285

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Susan Cunningham 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.

Angela Hunt — SIGNATURE OF APPLICANT

10/4/12 — DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

Kodiak Airport Runway Safety Improvement Project, State Project No. 58537

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
St. Paul Harbor of Chiniak Bay	Address 1647 Airport Way
15. LOCATION OF PROJECT Latitude: °N 57.7499623 Longitude: °W 152.4938203	City - Kodiak State- AK Zip- 99615

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

ENG FORM 4345, OCT 2010 **EDITION OF OCT 2004 IS OBSOLETE** Proponent: CECW-OR

17. DIRECTIONS TO THE SITE
The project is located at the Kodiak Airport on Kodiak Island.

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

The project would improve the Runway Safety Areas (RSA) of Runway 07/25 and Runway 18/36. The project would extend the east end of Runway 25 RSA 600 feet into St. Paul Harbor and install 70-knot Engineered Materials Arresting System (EMAS). The project would extend the south end of Runway 36 RSA by 600 feet into St. Paul Harbor and shift the runway south 240 feet, and install 40-knott EMAS on existing pavement (north end).

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

Two of Kodiak Airport's runways do not meet the Federal Aviation Administration's (FAAs) standards for RSAs (see 14 CFR 139.309, FAA Advisory Circular 150/5300-13). RSAs are areas that reduce the potential for injury or property damage if an aircraft overruns, undershoots, or veers off of a runway. The purpose of this project is to improve the RSAs to meet the FAA's standards to the extent practicable by the statutory deadline of December 31, 2015 (Pub. L. 109-115, Nov. 30, 2005, 119 Stat. 2401).

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

20. Reason(s) for Discharge
See attached sheet

No land is available at either end of the runway to expand the runway length to meet the FAA standards for RSAs.

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

See attached sheet; 338,391CY of fill, rock

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

Acres See attached sheet; 0.11 ac of wetland and 17.80 acres of Other waters

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)
See attached sheet; The project uses EMAS to reduce the amount of RSA lengthening required. EMAS consists of a number of pre-cast, crushable, cellular cement blocks installed at the end of the runway. As an aircraft traverses the EMAS, the tires crush down and through the arresting material causing a deceleration or slowing of the aircraft. The proposed project would provide RSA improvement and safety enhancement within the practicability thresholds and is the least impacting to the natural environment from the alternatives considered. See attached narrative for a more comprehensive description on avoidance and minimization measures and mitigation statement.

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-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

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
ADEC	Section 401 WQ Cert				
NOAA Fisheries	ESA Consultation				
USFWS	ESA Consultation				
ADF&G	Title 16 Fish Habitat				

* 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.

Angela Hunt 10/4/12
SIGNATURE OF APPLICANT DATE

Susan Lee 10/4/12
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.

Item #18: Nature of Activity

Background

Kodiak Airport is wholly owned by the United States federal government, leased by the State of Alaska and operated by the Alaska Department of Transportation and Public Facilities (DOT&PF), and used for civil and military aviation. About 618 acres of land within the airfield, including runways, taxiways, and the terminal area, were leased to the State of Alaska for use as a civilian airport. Kodiak Airport continues to be used for Coast Guard and military operations. As leaseholder, the DOT&PF is responsible for operation and maintenance of the Airport. The terms of the lease allow DOT&PF to use the premises for commercial purposes in order to fund the cost of operating and maintaining the Airport.

Kodiak Airport has three runways:

- Runway 07/25 is the longest at 7,542 feet and is used by commercial and military aircraft and has a generally east-west orientation.
- Runway 11/29 is 5,399 feet in length and, because of the mountainous terrain inland of this runway, is normally used only by smaller general aviation aircraft; it has a generally northwest-southeast orientation.
- Runway 18/36 is the shortest of the three runways, at 5,013 feet, but the runway alignment and generally favorable terrain allow it to be used by both commercial and military aircraft; it has a generally north-south orientation.

Air traffic control tower staff estimates that about half of the aircraft activity at Kodiak Airport takes place on Runway 07/25, which has an almost east-west orientation. Of the remaining operations, slightly more take place on the north-south runway, Runway 18/36 (~28%) than on the northwest-southeast trending Runway 11/29 (~22%).

Because aircraft normally take off and land into the wind, the degree of runway use generally reflects prevailing wind directions. However, due to mountainous terrain west of the Airport, activity on Runway 07/25 is restricted: aircraft generally take off to the east, toward Chiniak Bay, on Runway 07 and land on Runway 25, having approached over Chiniak Bay from the east. Some approaches to Runway 07 (i.e., landings from the west) and departures from Runway 25 (i.e., takeoffs to the west) do occur, but these are almost always limited to small general aviation aircraft operated by local pilots that are familiar with the surrounding terrain.

Runway use information was obtained from several of the commercial passenger and cargo operators, including Alaska Airlines, Era Aviation, the Airport Traffic Control Tower, as well as the Coast Guard. Alaska Airlines stated that 99% of its takeoffs are conducted on Runway 07 and 90% of its landings are conducted on Runway 25. For comparison, Era Aviation stated that 80% of its takeoffs are conducted on Runway 07 and 75% of its arrivals are conducted on Runway 25. The Coast Guard estimates that about 80% of their

annual operations take place on Runway 07/25. From these numbers it is easy to understand why Runway 07/25 has been designated the "Primary Use" runway at Kodiak Airport. Runway 07/25 not only accommodates about as many annual operations as the other two runways combined, a large majority of the "large" aircraft operations take place on it as well.

Runway 18/36 is the designated "crosswind" runway at Kodiak Airport, meaning that it serves to accommodate aircraft operations when the winds are not favorable for takeoffs or landings on the primary use runway (07/25). This runway is used by commercial service, Coast Guard, and general aviation aircraft. Alaska Airlines estimates that five percent of its landings are conducted on Runway 36 and less than 1% of their operations occur on Runway 18. Era Airlines uses Runway 36 approximately 17% of the time for arrivals and departures annually and Runway 18 for 5% of their operations. The Coast Guard uses Runway 36 for approximately 15% of their annual operations and Runway 18 for another 5%.

Runway 07/25

The project would enhance the Runway Safety Area (RSA) at the east end of the Runway 07/25 (Runway End 25) through an extension into St. Paul Harbor and the use of Engineered Materials Arresting System (EMAS). Fill would be placed off Runway End 25 to create a landmass 600 feet long by 500 feet wide in size. The expanded landmass would meet FAA standards for undershoots by providing 600 feet of RSA. The Airport's existing runway length of 7,542 feet would be maintained. The Runway End 25 EMAS bed would be approximately 170 feet wide and 385 feet in length with a minimum setback of 35 feet from the runway threshold. The site design would also include sufficient area around the perimeter of the EMAS bed footprint to allow emergency vehicle access. **Figure 5** illustrates this design.

The EMAS would provide a 70-knot stopping capability on the Runway End 25 to serve the runway's design aircraft. The existing RSA would be enhanced for aircraft overruns on Runway End 25 (i.e., for takeoffs to the east), the primary operational flow of the Airport for departures, providing an equivalent level of safety for aircraft overruns as that offered by a traditional graded 1,000-foot RSA. The runway's existing takeoff and landing distances would be maintained for each runway use configuration, and the specified declared distances would be the same as those currently in place at Kodiak Airport.

Approximately 257,000 cubic yards of fill would be required to construct the new landmass needed to support the EMAS. The potential environmental impacts related to Runway 07/25 would be associated with the loss of marine habitat from the placement of this fill to construct a 600-foot landmass expansion on Runway End 25 (see **Figures 5 and 6)**.

Runway 18/36

The project will enhance the RSA at the north and south end of Runway 18/36 through a 600-foot long by 500-foot wide landmass extension at the south, beyond Runway End 36 and shifting the runway 240 feet to the south. An EMAS bed, approximately 170 feet wide and 165 feet in length, would be placed beyond Runway End 18 (north) and installed on existing pavement with a minimum setback of 35 feet from the

runway threshold. The EMAS bed would provide a 40-knot stopping capability. This meets the minimum standards of the runway's design aircraft requirements. The proposed Runway 18/36 design is shown in **Figure 7**.

The existing runway length of 5,013 feet would not change but the runway end thresholds would be shifted 240 feet south of their current locations. This would provide 360 feet of undershoot protection for landings from the south to Runway End 36 and 240 feet of undershoot protection for landings from the north to Runway End 18. This would provide 40-knot stopping capability for overruns beyond Runway End 18 and would be provide 360 feet of overrun protection for landings and takeoffs to the south.

Approximately 462,000 cubic yards of fill would be required to construct the new 600-foot landmass extension to the south beyond Runway End 36, shift the runway 240 feet, and install a 40-knot EMAS beyond the north end of the runway. The potential environmental impacts related to Runway 18/36 improvements would be associated with the immediate consequences of fill placement into St. Paul Harbor and the long-term changes resulting from new landmass in the marine environment. This is the only alternative that was considered that avoids placement of fill north of the runway toward the Buskin River.

Material Sources

Potential material sources were identified from previous gravel studies and a review of existing sources. A total of 23 potential material sites were identified. Fifteen of these sites have been used as material sources in the past, but not all are currently in use. The large quantity of gravel fill required suggests that several sites would be needed as material sources. The ultimate selection of material sources would likely be made by the construction contractor hired by DOT&PF to complete the projects. The selection of sites by the construction contractor would be expected to be a function of whether certain sites are being used for other projects at the time of construction and which sites have already or can obtain environmental permits.

Most of the rock on Kodiak Island is of fairly poor quality and breaks apart easily when disturbed. Therefore, the potential for finding large armor rock on the island is low. Only one of the potential sources is thought to be a source of granite suitable as large armor rock. This site, Shakmanof Cove, is located on the far north end of Kodiak Island and is off the road system. This site has never been used as a material source in the past, but the owners have indicated that they would like to develop it as such. Material from Shakmanof Cove or other Kodiak locations off the road system would have to be barged to the Airport, and would likely have costs similar to material brought from other sites off the island. Medium-sized underlayer stone can be found at some locations on Kodiak Island, but its occurrence varies from site to site. It is estimated that sufficient quantities of underlayer stone would be found at sites on the Kodiak road system.

Based upon the cost estimates developed using each potential material source, the most affordable fill material would likely be supplied from a combination of existing Kodiak Island quarry sites and from regional commercial quarry sources, potentially as far as Southeast Alaska. Because of high costs involved in site development and material extraction, a new quarry is presumed not to be prudent.

Marine Fill Placement

In order to lengthen the landmass for the RSA improvements, fill materials must be placed off the Runway 25 and Runway 36 ends. Table 1 shows the quaintly of fill for the RSA improvements.

Table 1. Quantities of Fill for RSAs improvements

	Total Project (cubic yards)	Intertidal and Subtidal (cubic yards)	Freshwater Wetland (cubic yards)
Runway 07/18	257,000	156,000	0
Runway 18/36	462,000	183,000	90
Total	**719,000**	**339,000**	**90**

Armor stone would be placed at a 2:1 slope off the existing filled surfaces to provide a structurally stable top surface for RSA improvements. The smaller types of fill will be placed by front loader or dump truck and the larger types by excavator or crane with a clamshell. Some of the materials will be placed in the water and some will be placed above the waterline under dry conditions. Smaller fill types will be graded with a bulldozer or grader and compacted with a roller. Existing concrete shoreline armoring units or rocks will be removed in advance and stockpiled on-site. These salvaged armoring units will then be incorporated into the new shoreline with additional armoring units or rock.

Runway 18/36 Construction

Runway 18/36 will be shifted approximately 240 feet to the south. Runway construction is much like roadway construction. Subgrades of crushed rock will be placed, bulldozed into place, graded, and then compacted. Finished subgrade carries structural layers of crushed aggregate base and asphalt.

Conservation Measures

Several construction observation and reporting conservation measures have been developed for protected species. These measures are included in the Environmental Impact Statement and the Biological Assessment prepared for the project. The conservation measures listed in **Table 2** have been developed to minimize impacts to waters of the U.S. and wetlands during construction.

Best Management Practices (BMPs) will also be employed to minimize the temporary effects of construction activities. These would come mainly in the form of BMPs designed to minimize the risk of fuel spills, minimize erosion from new construction surfaces, and prevent sediment-laden stormwater from leaving the airport.

Table 2. Conservation Measures For The Kodiak Airport RSA Improvement Project

Conservation Measure	Purpose
Fill materials will be obtained from existing permitted sources if possible (along road system, if possible) and will be clean (i.e., contain minimal fine particles such as silt and clay) to minimize sediment releases and turbidity outside of the fill zone	Minimize sediment releases and turbidity outside of the fill zone
A construction stormwater management plan and a construction oil spill prevention plan will be prepared to avoid or minimize discharges of sediment or hydrocarbons during construction	Minimize discharges of sediment or hydrocarbons
Silt curtains will be the primary method of containment at both runway ends. If silt curtains are determined to not adequately contain fine sediments during fill activities, other techniques will be used to minimize sedimentation dispersion in the marine environment, such as alternative fill placement methods or washing the fill. These alternative methods will be developed for and documented in the SWPPP. If methods included in the SWPPP are not successful, the SWPPP will be modified to identify alternative methods for sediment containment and USFWS will be provided an opportunity to review the revisions prior to implementation.	Minimize sediment releases and turbidity outside of the fill zone
Material barges will not be grounded in kelp stands that are not within the RSA fill footprint	Minimize impacts to marine environment
Project limits of authorized sites shall be clearly identified in the field (e.g., staking, flagging, silt fencing, use of buoys, existing footprint for maintenance activities, etc.) prior to clearing and construction to ensure avoidance of impacts to waters of the U.S. (including wetlands) beyond project footprints.	Minimizes fill outside of permitted area. Standard Corps BMP
To the extent practicable, excavation equipment shall work from an upland site (e.g., the top of the bridge or culverted road crossing) to minimize adding fill into waters of the U.S.	Minimize impacts to marine environment. Standard Corps BMP
Locate all extra work areas at least 50 feet away from water's edge and wetlands. Utilize previously disturbed areas before open ground and open ground before forested areas.	Minimize impacts to marine environment. Standard Corps BMP
Equipment shall not be stored, maintained or repaired in waters of the U.S.	Minimize impacts to marine environment. Standard Corps BMP

Schedule For RSA Improvements

Construction of the proposed projects would take approximately two years. If the Federal Aviation Administration (FAA) approves the RSA projects in 2013, major construction activities would probably begin in 2014 and be completed in 2015. In-water work would occur during the work window negotiated and approved by the U.S. Fish and Wildlife Service and NOAA Fisheries.

Item #19: Project Purpose

The FAA has determined that designated safety areas for Runway 18/36 and Runway 07/25 at Kodiak Airport do not meet federal standards. **Figure 2** illustrates the existing dimensional criteria for the RSAs, as well as the general airport layout and facilities. These standards are based in large part on the types of aircraft using a runway and, more specifically, the size of those aircraft and speeds at which they approach the runway.

FAA defines an RSA as a "defined surface surrounding a runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or other excursion from the runway." The RSA must be capable, under normal (dry) conditions, of supporting aircraft that overrun the runway without causing structural damage to the aircraft or injury to its occupants. An RSA is found at either end of a runway, for undershoot and overshoot protection, and along the runway sides in case an aircraft veers off during landing or takeoff. RSAs make airports and flying safer, and reduce the potential for aircraft damage or injuries if a landing or takeoff has problems. RSAs also make it easier to get firefighting and rescue personnel and equipment to the scene of an accident.

Public Law 109-115 states that the owner or operator of an airport certificated under 49 U.S.C. 44706 (such as the Kodiak Airport) shall improve the airport's RSAs to comply with the FAA design standards contained in the FAA Advisory Circular 150/5300-13, by the end of 2015.

The minimum size for a particular RSA (known as the Design Standard) can vary depending on the type of aircraft expected to use the runway and, generally speaking, the largest and heaviest aircraft regularly operating on a runway dictates the RSA size. The FAA reviewed current and recent aircraft operational data for the Kodiak Airport and identified the Boeing 737-400 (which is operated by Alaska Airlines) as the "Design Aircraft" for Runways 07/25 and 18/36. The Boeing 737-400 falls within the wingspan category of Group III and approach category of C[1].

The RSA design standard for this classification of aircraft at the runway ends is a 600-foot undershoot protection and 1,000 feet of overrun protection, with 250 feet of protection along each side of the runway centerline or 500-feet wide. Because the design aircraft could land and takeoff on either runway end, the

[1] All of the B737-series aircraft using or potentially using Kodiak Airport, such as the B737-200 or newer -700/800/900, fall within the same design categories and would require the same RSA dimensions.

RSA dimension for each of these runways can more simply be described as a 500-foot wide rectangular area centered upon the runway and extending 1,000 feet beyond each runway end.

The need for the project is to remedy the deficiency of RSAs at the Kodiak Airport. The RSAs around Runway 07/25 and Runway 18/36 at Kodiak Airport do not meet the FAA's standards (see 14 CFR 203 139.309, FAA Advisory Circular 150/5300-13), standards that Kodiak Airport must meet by December 31, 2015 (Pub. L. 109-115, Nov. 30, 2005, 119 Stat. 2401).

The purpose of this project is to improve the RSAs for these runways to meet the FAA's standards to the extent practicable.

Item #20: Reason for Discharge

Kodiak Airport has natural physical barriers constraining runway location changes. St. Paul Harbor is to the east of the Airport, Barometer Mountain is to the west, and Buskin River is to the north. In addition, U.S. Coast Guard facilities are south of the Airport. Recognizing these constraints to physical and airspace constraints, insufficient landmass exists at Kodiak Airport for the runways to be re-aligned or relocated such that the runway length is maintained while providing RSA improvements. Therefore, there is no other option but to fill into St. Paul Bay in order to get the required landmass for the RSA improvements.

In order to lengthen Runway 07/25, relocating Chiniak Highway was considered. Except for tunneling, relocating Chiniak Highway is not possible. The construction and operation of a tunnel for Chiniak Highway was not considered feasible and prudent due to local terrain, roadway alignment, and cost.

Item #21: Types of Materials Being Discharged

Table 3 shows the type and volume of fill materials that will be used at each end of the runways. The placement of each type of fill material is shown in **Figures 6 and 8**.

Table 3. Type and Approximate Volume of Fill for RSA Improvements

Fill Type	Runway End 25 (cubic yards)	Runway End 36 (cubic yards)	Total (cubic yards)
Borrow	218,000	394,000	612,000
Subbase Course	3,000	3,000	6,000
Primary Armor Stone (large)	21,000	37,000	58,000
Underlayer Stone (medium)	13,000	26,000	39,000
Crushed Aggregate Base Course	1,000	2,000	3,000

Several assumptions have been made in order to estimate these quantities. These include the following:

1. Side slope of embankment will be 2:1 (fill) or 7:1 (cut).
2. All unclassified excavation assumed unstable

3. EMAS bed base surface: 2" HMA, 4" CABC, and 18" subbase
4. Primary Armor Stone (large) – Stone is at least 5-ft in diameter installed in 2 layers with a total thickness of 8 ft.
   - Installed on sides of Runway End 25 RSA
   - Installed only on east, north, and south sides of Runway End 18 RSA to an elevation of 20-ft MSL
5. Underlayer Stone (medium)
   - Installed beneath all larger rip-rap
   - Underlayer stone about 2-3 ft in diameter installed in 2 layers with a total thickness of 5-ft.

Item #22: Surface Area of Wetlands and other Waters Filled

Table 4 shows the surface area of wetlands and other waters filled by the RSA improvements. **Table 5** shows the marine habitat that would be impacted by the RSA improvements.

Table 4. Surface Area of Wetlands and Other Wetlands Filled

	Marine Waters (acres)	Freshwater Wetlands (acres)	Total (acres)
Runway 07/25	9.1	0.0	**9.1**
Runway 18/36	8.7	0.1	**8.8**
Total	**17.8**	**0.1**	**17.9**

Table 5. Marine Habitats Filled by RSA Improvements

Habitat Type	Dominant Substrate	Runway End 25 RSA (acres)	Runway End 35 RSA (acres)
Intertidal	Sand	0.6	0.4
	Sand and gravel	--	0.2
	Gravel and cobble	--	0.2
	Bedrock	--	<0.1
	Armor rock	0.2	0.8
Subtidal	Sand	2.0	4.9
	Sand and gravel	--	0.2
	Gravel	0.3	--
	Gravel and cobble	6.0	2.3
	Bedrock	--	<0.1
	Armor rock	--	<0.1
	TOTAL	***9.1***	***8.7***

The marine impacts include 12.1 acres of impacts to kelp and algae beds (0.9 acres intertidal and 11.2 acres subtidal). The remaining 5.7 acres is unconsolidated bottom habitat.

The wetland that would be filled is identified as Wetland D on **Figure 3.** This wetland is a 0.1-acre palustrine emergent wetland that is located in a linear depression adjacent to Runway 18/36 (Figure 5 and 7). A culvert conveys water to the wetland at its southeastern tip. The wetland is entirely within the study area. The boundary of the wetland coincides with a distinct break in vegetation from sedge to upland grasses, weeds and mown upland trees and shrubs. Surface saturation is coincident with this change in vegetation. The wetland gets shallower as it extends to the northwest and ends at a catch basin that drains to St Paul Harbor at Runway End 29. Wetland D is saturated from precipitation and surface water flow from adjacent uplands associated with rainfall events. The surface topography of the wetland is a shallow linear depression that originates at a culvert outfall. The wetland is highly altered. The national HGM classification is depressional outflow.

Item #23: Description of Avoidance, Minimization and Compensation

Applicant's Proposed Avoidance, Minimization, and Mitigation Statements

1. **<u>Avoidance of impacts to waters of the U.S., including wetlands</u>:** ***Please describe how, in your project planning process, you avoided impacts to waters of the U.S., including extent practicable. Examples of avoidance measures include site selection, routes, design configurations, etc…***

   Planning efforts for Kodiak Airport indicate that standard RSAs may not be practicable using traditional means because of environmental impacts, physical constraints, and costs. Additionally, the FAA took into consideration the aircraft that regularly operate on the runways. While RSA design standards are dictated by the largest and heaviest aircraft regularly operating on a runway, many of the aircraft using the Kodiak runways are often smaller in size and do not require the same RSA areas. Therefore, the FAA is allowing RSA improvements that do not fully meet FAA standards. This greatly reduces the impacts to the waters of the U.S. that would have resulted from constructing RSA design standards for larger aircraft.

   The FAA used the following priorities to determine the minimum RSA enhancement required. Existing runway use is dictated by the runway's existing wind coverage and instrument approach capabilities. Runway use was examined along with the aircraft accident and fatality data correlated to the flight phase (i.e., takeoffs vs. landings) for both commercial service and general aviation aircraft to determine RSA improvement priorities. The RSA enhancement projects at Kodiak Airport are ranked as follows:

   Runway 07/25 Priorities

   1) Runway 07 overrun RSA (Runway End 25 RSA)
   2) Runway 25 undershoot RSA (Runway End 25 RSA)
   3) Runway 25 overrun RSA (Runway End 07 RSA)

Runway 18/36 Priorities

1) Runway 36 overrun RSA (Runway End 18 RSA)
2) Runway 36 undershoot RSA (Runway End 36 RSA)
3) Runway 18 overrun RSA (Runway End 36 RSA)
4) Runway 18 undershoot RSA (Runway End 18 RSA)

The FAA has developed guidance concerning EMAS and its potential application in lieu of standard RSAs (FAA Order 5200.9). After years of testing and analysis, the FAA has determined that EMAS can be constructed to provide a level of overshoot/overrun safety generally equivalent to a standard RSA. However, for runways such as those at Kodiak Airport with vertical guidance (for example, instrument approach or visual guidance lighting), a standard EMAS installation still requires 600 feet of RSA (including the EMAS) to protect aircraft landing short of the runway.

Placement of the EMAS at the Runway 18 end is the only alternative that was considered that avoids placement of fill north of the runway toward the Buskin River. Aquatic habitat at the Buskin River barrier bar (north of Runway End 18) is unique in Chiniak Bay and offers one of the few low-gradient, soft-bottom areas available to juvenile salmonids from the Buskin River. These species enter marine waters via the Buskin River freshwater plume and require a transitional rearing period during which they are dependent on areas reached by the plume. Loss of this habitat north of Runway End 18 would cause significant long term adverse effects to aquatic 30 species and populations in the Buskin River area (Runway 18/36 Alternatives 2-6). Overall, the selected alternative for Runway 18/36 7 would have the least (moderate level) impacts of all alternatives evaluated because it would avoid filling toward the Buskin River and no fill would occur in areas of freshwater influence.

In order to lengthen Runway 07/25, relocating Chiniak Highway was considered. Except for tunneling, relocating Chiniak Highway is not possible. The construction and operation of a tunnel for Chiniak Highway was not considered feasible and prudent due to local terrain, roadway alignment, and cost.

2. <u>Minimization of unavoidable impacts to waters of the U.S., including wetlands</u>: *Please describe how your project design incorporates measures that minimize the unavoidable impacts to waters of the U.S., including wetlands, by limiting fill discharges to the minimum amount/size necessary to achieve the project purpose.*

This application is based on the least environmentally damaging practicable alternative. The Environmental Impact Statement prepared for the project evaluated several alternatives. These included:

- No Action
- Use of Smaller Aircraft and Other Modes of Travel
- Use of Other Airports
- Alternative Physical Airport Improvements
- RSA Improvement Options

The project footprint was minimized to reduce impacts to waters of the U.S. by proposing non-standard RSAs that would meet FAA standards for the aircraft type using the runway most often and provide a minimum level of improvement for all aircraft types. Based upon the Runway 18/36 usage by a variety of

aircraft types in both directions, the FAA has determined that it is practicable to provide overrun and undershoot protection for both ends of Runway 18/36 of at least 240 feet for smaller aircraft. Providing 240 feet of RSA beyond each runway end, would meet FAA standards for the aircraft type using the runway most often and would provide a minimum level of improvement for all aircraft types. The alternatives evaluation process is included in Chapter 2 of the EIS.

The Runway 07/25 design aircraft requires a 1000-foot long RSA. The use of a EMAS on the Runway 25 end reduces the length of RSA required by 400 feet (which reduces the fill into marine waters by 6.1 acres). In addition, steep 2:1 slopes will be used to minimize fill width and length.

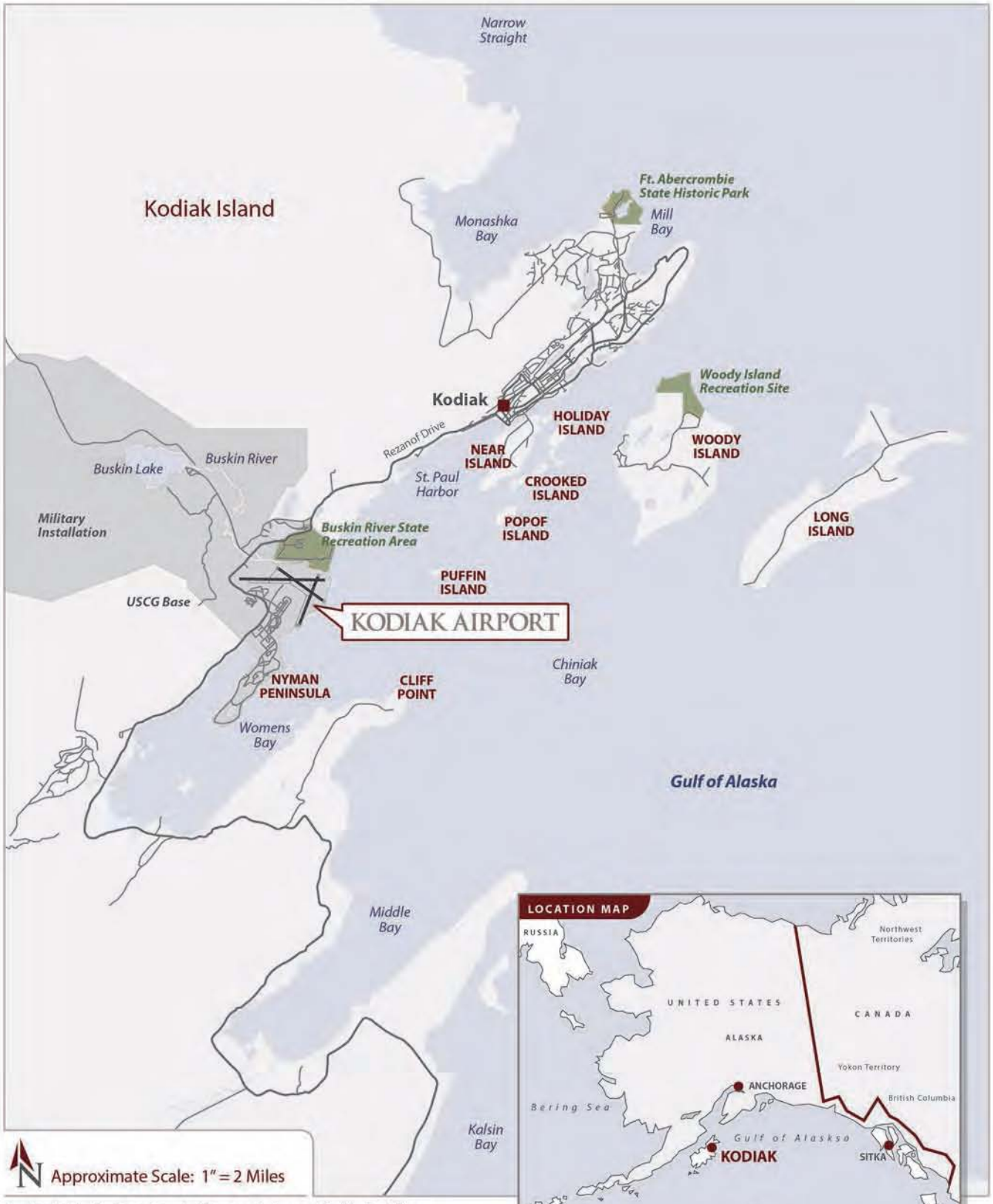
3. **Compensation for unavoidable impacts to waters of the U.S., including wetlands:** ***Please describe your proposed compensatory mitigation to offset unavoidable impacts to waters of the U.S., or alternatively, why compensatory mitigation is not appropriate or practicable for you project. Compensatory mitigation involves actions taken to offset unavoidable adverse impacts to waters of the U.S., including wetlands, streams and other aquatic resources (aquatic sites) authorized by the Corps permits. Compensatory mitigation may involve the restoration, enhancement, establishment (creation), and/or the preservation of aquatic sites. The three mechanisms for providing compensatory mitigation are mitigation banks, in-lieu fee for mitigation, and permittee-responsible mitigation.***

While the U.S. Fish and Wildlife Service and NOAA Fisheries have expressed a preference for on-site water quality improvements instead of fee-in-lieu payment, inquiries into on-site mitigation options have provided minimal feasible options for on-site water improvements. DOT&PF has consequently proposed a fee-in-lieu proposed at a 2:1 ratio. DOT&PF has been in contact with the Conservation Fund, who is the only organization eligible to accept fee in-lieu payments for projects in the Kodiak area.

Item #26: List of Other Certifications or Approvals

DOT&PF is concurrently applying for the following permits:

- Alaska Department of Fish & Game Title 16 Fish Habitat permit
- Alaska Department. of Environmental Conservation design plan approval, 401 Certificate of Reasonable Assurance, and AK Pollution Discharge Elimination System (APDES) Construction Stormwater General Permit (NOI)
- U.S. Fish and Wildlife Service Section 7 of the Endangered Species Act Consultation
- NOAA Fisheries Section 7 of the Endangered Species Act Consultation



Applicant: Alaska Department of Transportation and Public Facilities
Proposed Activity: Fill for RSA Improvement
Sections 14, 15, 16, and 22 Township 28S Range 20 West Seward
Lat. N 57.7499623 Long W 152.4938203
Date: Sept 14, 2012

Figure 1 **Airport Location/Vicinity Map**

Source: Google 2008, Map Data, Tele Atlus, 2008

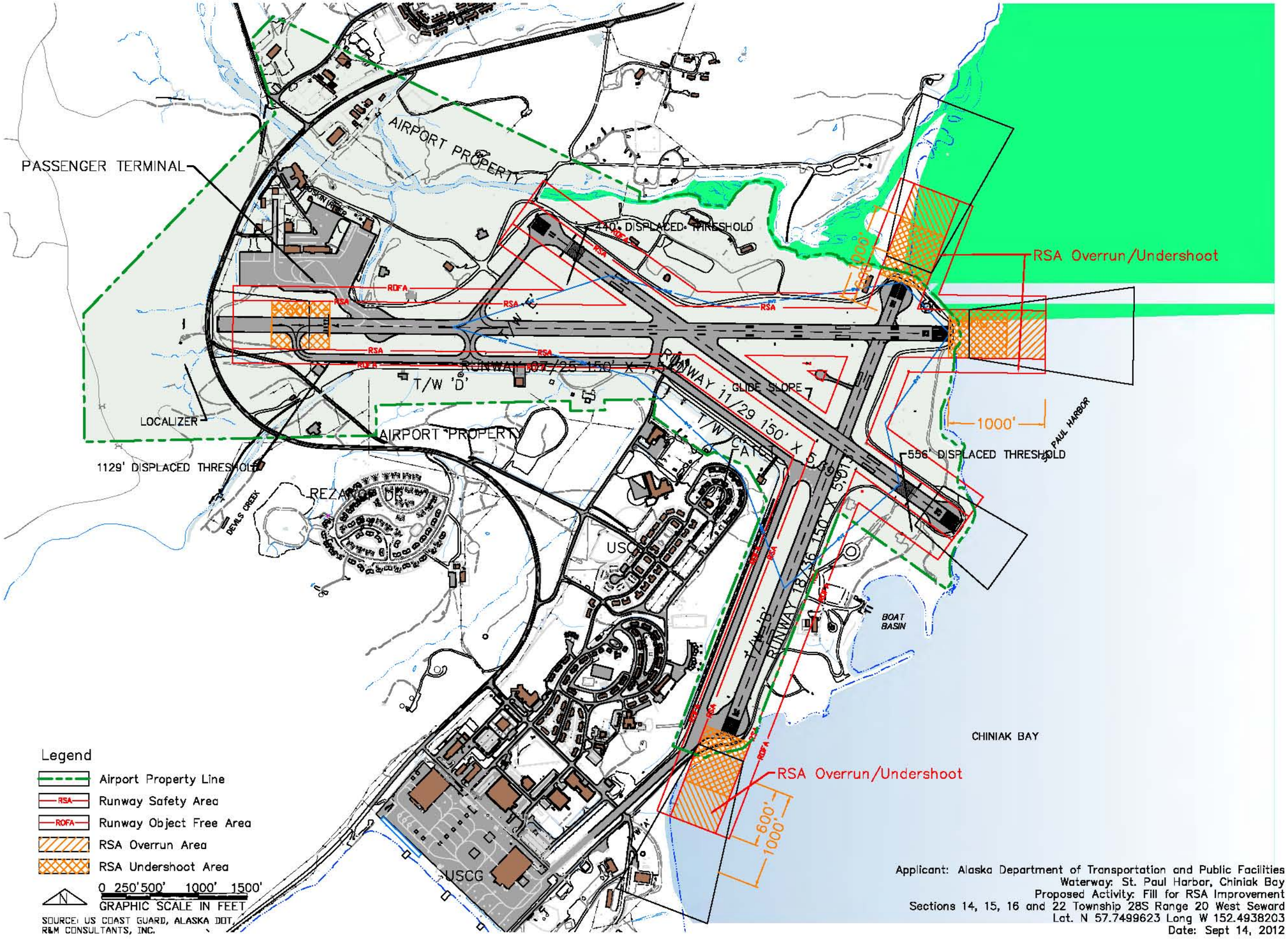


Figure 2
Existing Airport Dimensional Criteria

Applicant: Alaska Department of Transportation and Public Facilities
Proposed Activity: Fill for RSA Improvement
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Date: Sept 14, 2012

Legend

- Wetlands
- Wetlands Delineation Boundary
- High Tide Line (Area below HTL indicates waters of the U.S.)

0 375 750 1,500
Graphic Scale in Feet

Source: Kodiak Island Borough GIS
Vigil-Agrimis, Portland, OR

Figure 3
Wetlands and Other Waters of the U.S.

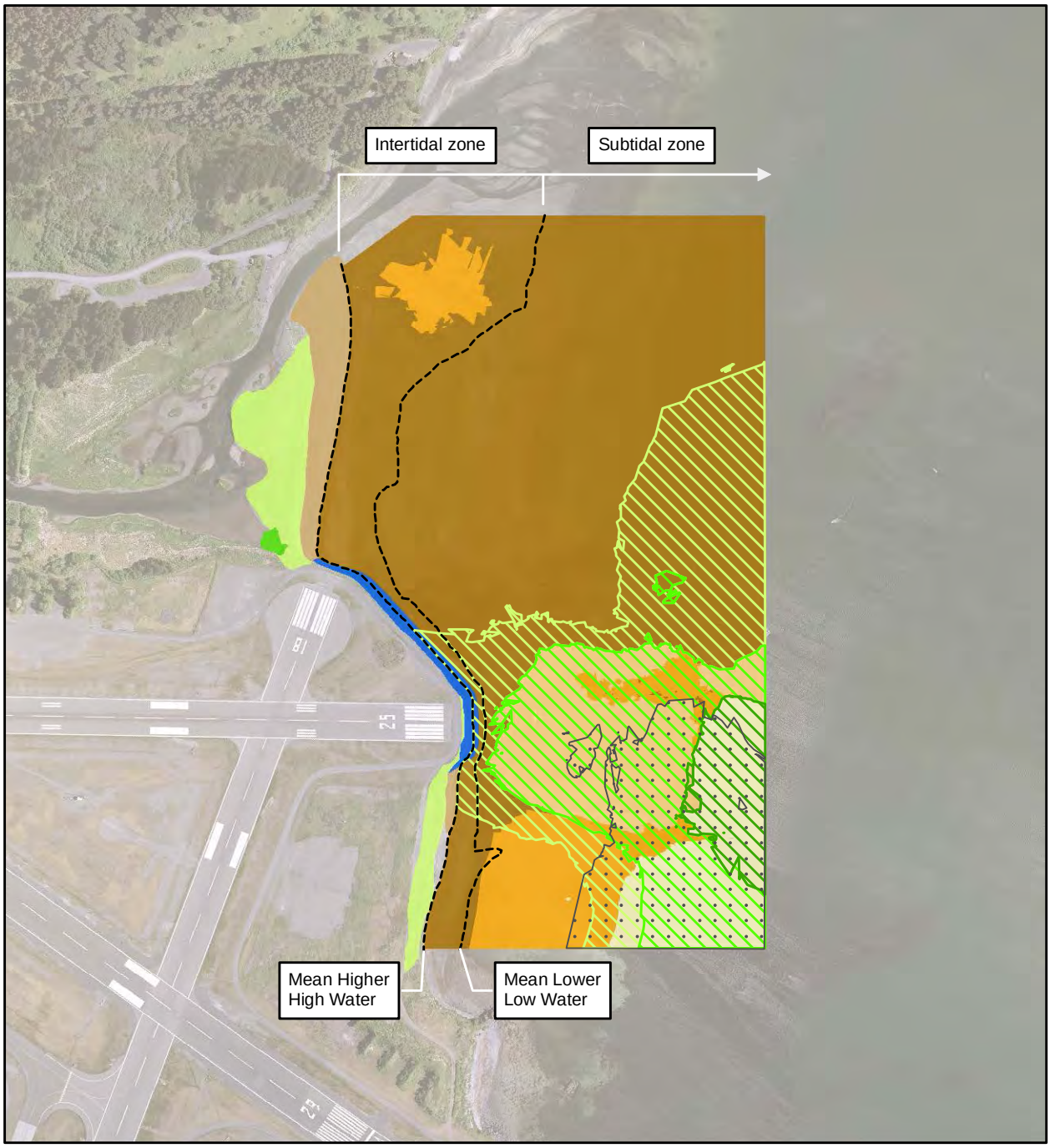
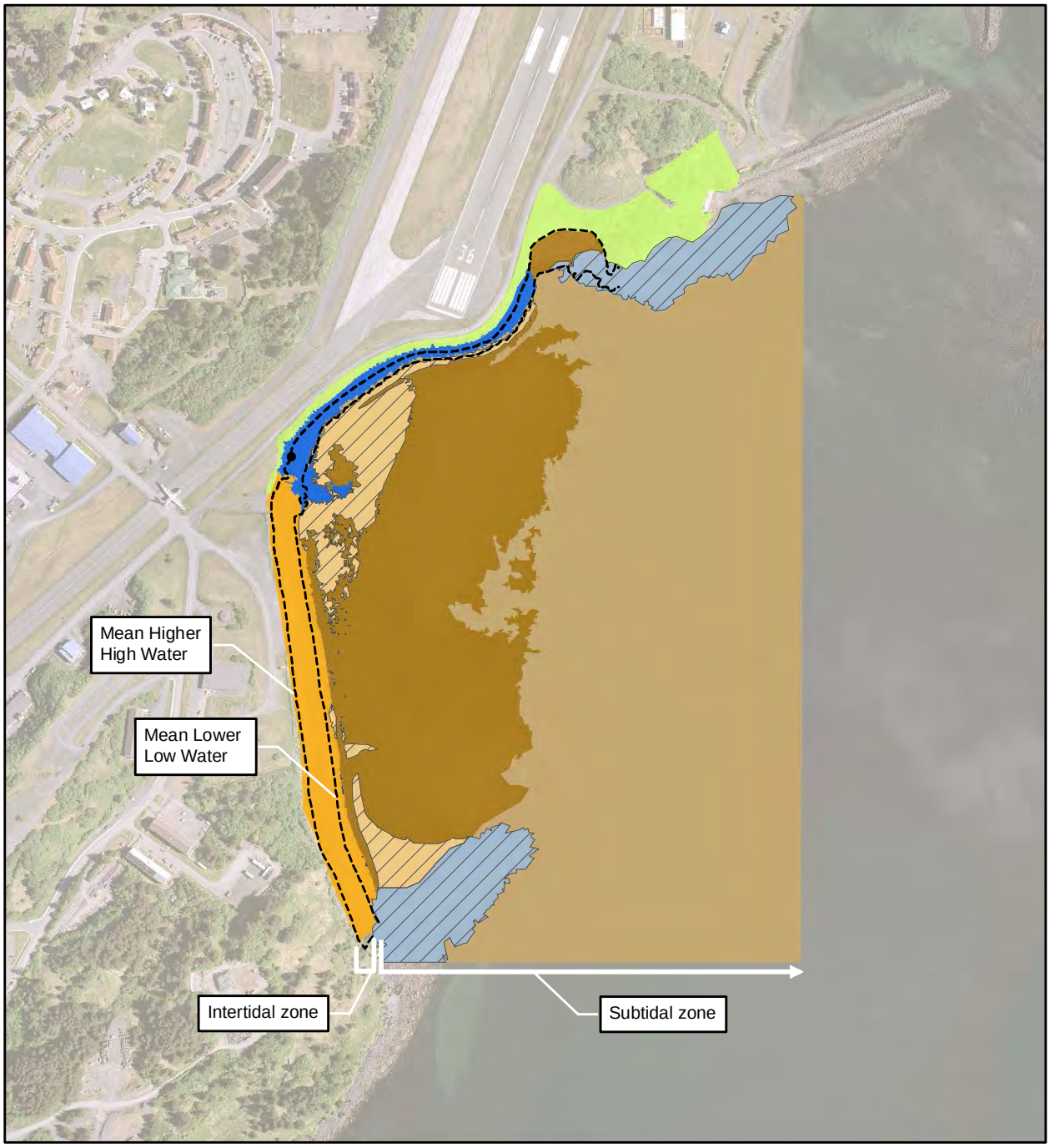


Figure 4a
Dominant Substrates and Algal Presence in Northern Marine Portion of Airport Project Area



0 100 200 400 600
Feet
Meters
0 50 100 200

Source: Imagery Kodiak Island Borough, 2002

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Legend

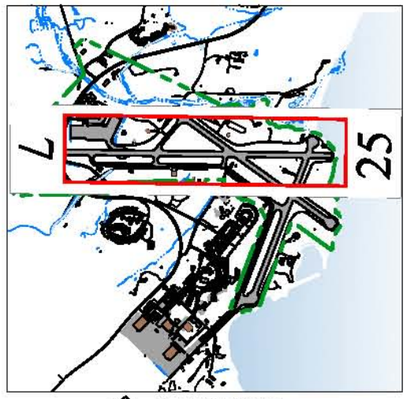
- Kelp and algae
- Bedrock
- Sand
- Sand and gravel
- Gravel
- Gravel and cobble
- Rock armor
- Riparian

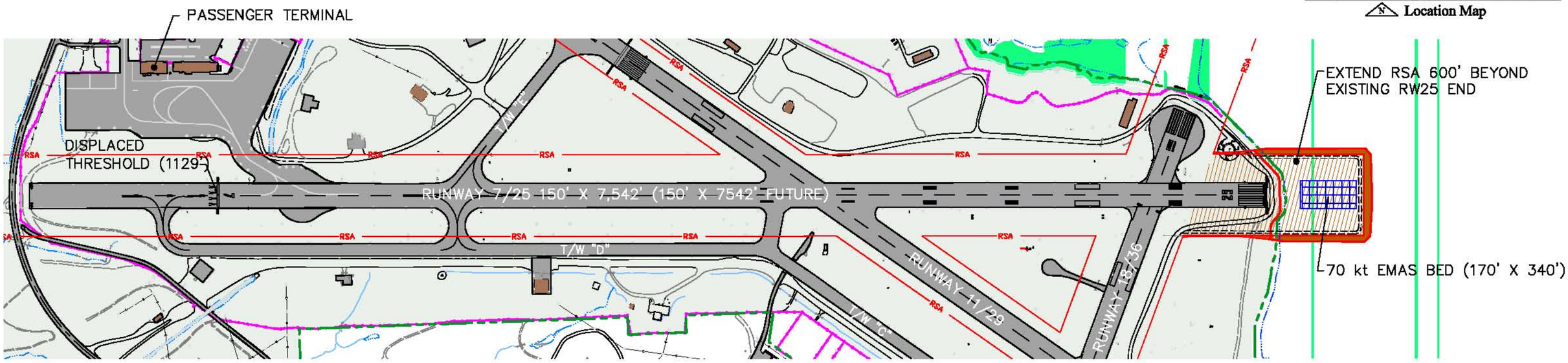
Figure 4b
Dominant Substrates And Algal Presence in Southern Marine Portion of Airport Project Area

Runway Safety Area Data

Runway End	RSA Undershoot Existing/Future	RSA Overrun Existing/Future
Runway 7	1,129'/1,129'	0'/600'(1)
Runway 25	0'/600'(1)	0'/0'

(1) Dimension includes EMAS bed length.





Legend

- Airport Property Line
- Airport Security Fence
- RSA — Runway Safety Area
- RSA Improvement/Fill Footprint Boundary

0 150' 300' 600' 900'
GRAPHIC SCALE IN FEET

SOURCE: US COAST GUARD, ALASKA DOT, R&M CONSULTANTS, INC.

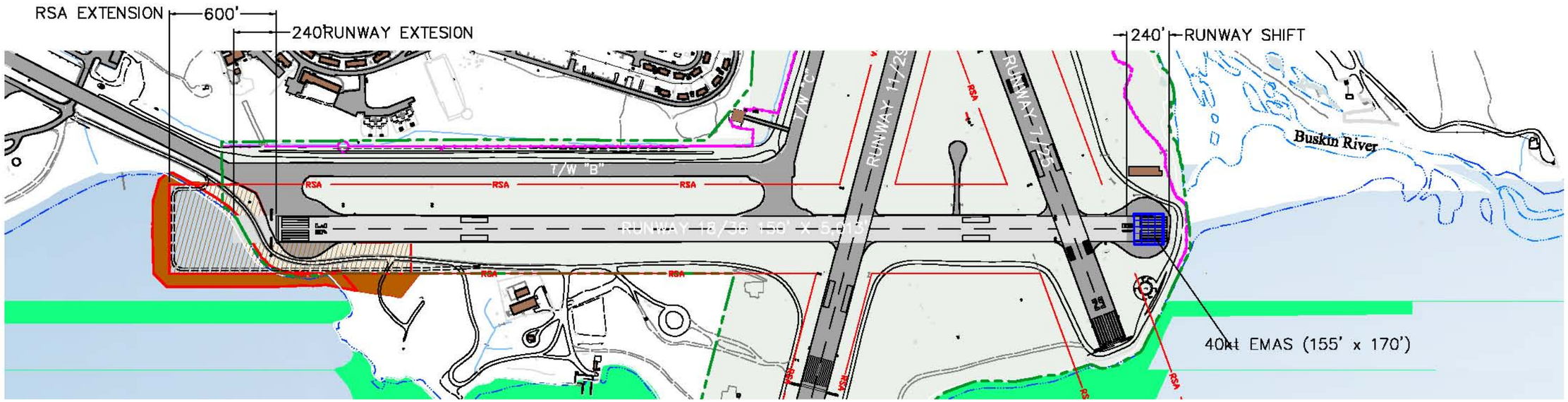
Applicant: Alaska Department of Transportation and Public Facilities
Waterway: St. Paul Harbor, Chinick Bay
Proposed Activity: Fill for RSA Improvement
Sections 14, 15, 16 and 22 Township 28S Range 20 West Seward
Lat. N 57.7499623 Long W 152.4938203
Date: Sept 14, 2012

■ Figure 5 RW 7/25
Extend Runway 25 RSA landmass by 600 feet and install 70kt EMAS on newly constructed landmass

Runway Safety Area Data

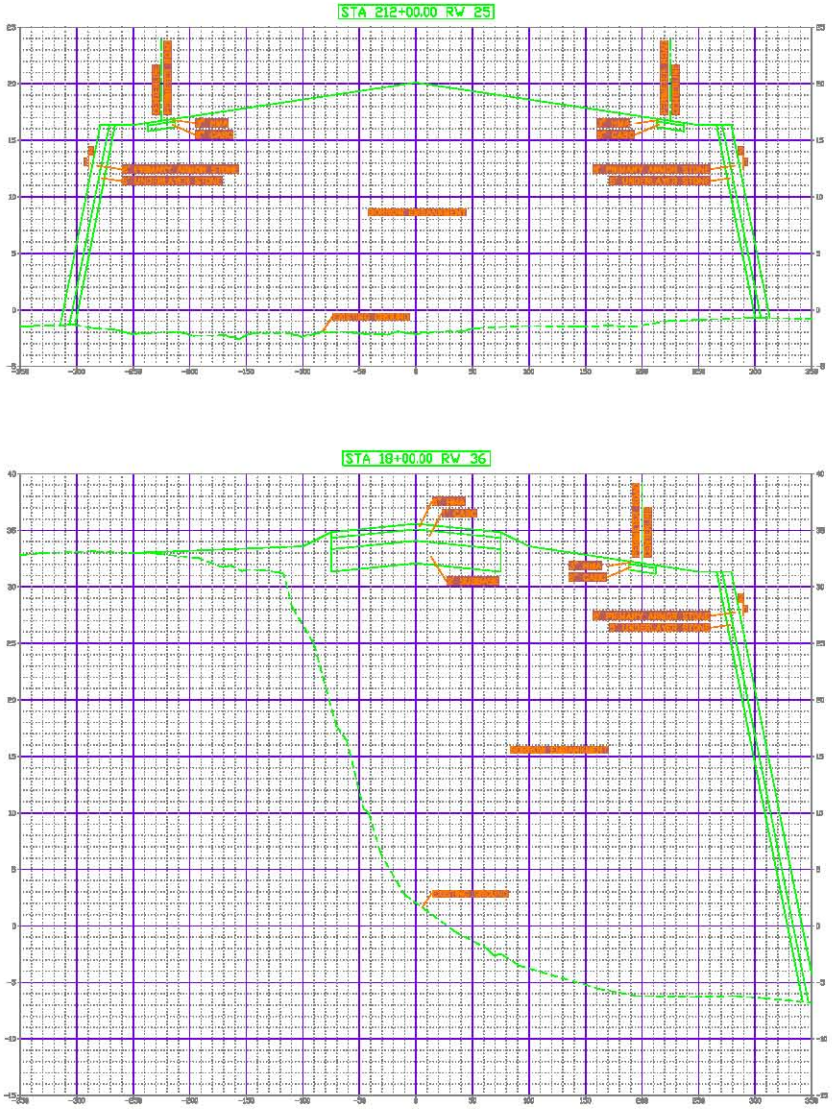
Runway End	RSA Undershoot Existing/Future	RSA Overrun Existing/Future
Runway 18	0'/240'(1)	0'/600'
Runway 36	0'/600'	0'/240'(1)

(1) Dimension Includes EMAS.



Applicant: Alaska Department of Transportation and Public Facilities
Waterway: St. Paul Harbor, Chiniak Bay
Proposed Activity: Fill for RSA Improvement
Sections 14, 15, 16 and 22 Township 28S Range 20 West Seward
Lat. N 57.7499623 Long W 152.4938203
Date: Sept 14, 2012

■ Figure 6 RW18/36
Extend Runway RSA to south by 600 feet, shift runway south 240',
and install 40kt EMAS on existing pavement



Applicant: Alaska Department of Transportation and Public Facilities
Waterway: St. Paul Harbor, Chiniak Bay
Proposed Activity: Fill for RSA Improvement
Sections 14, 15, 16 and 22 Township 28S Range 20 West Seward
Lat. N 57.7499623 Long W 152.4938203
Date: Sept 14, 2012

SCALE: NTS
SOURCE: US COAST GUARD, ALASKA DOT, R&M CONSULTANTS, INC.

Figure 7
Typical Cross Section