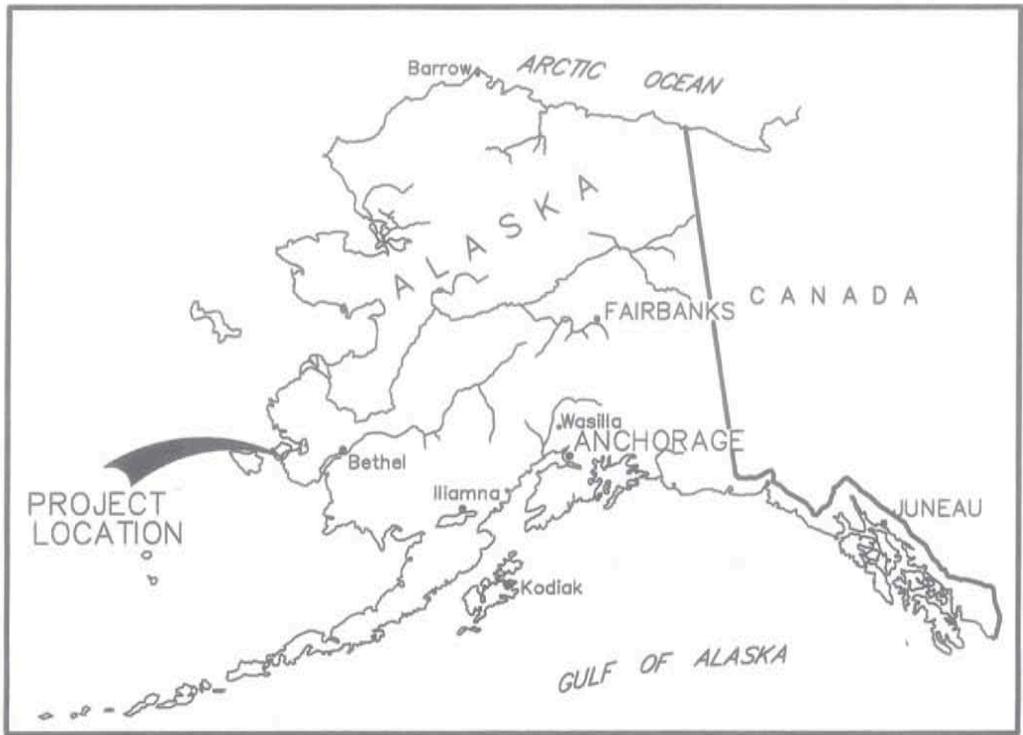
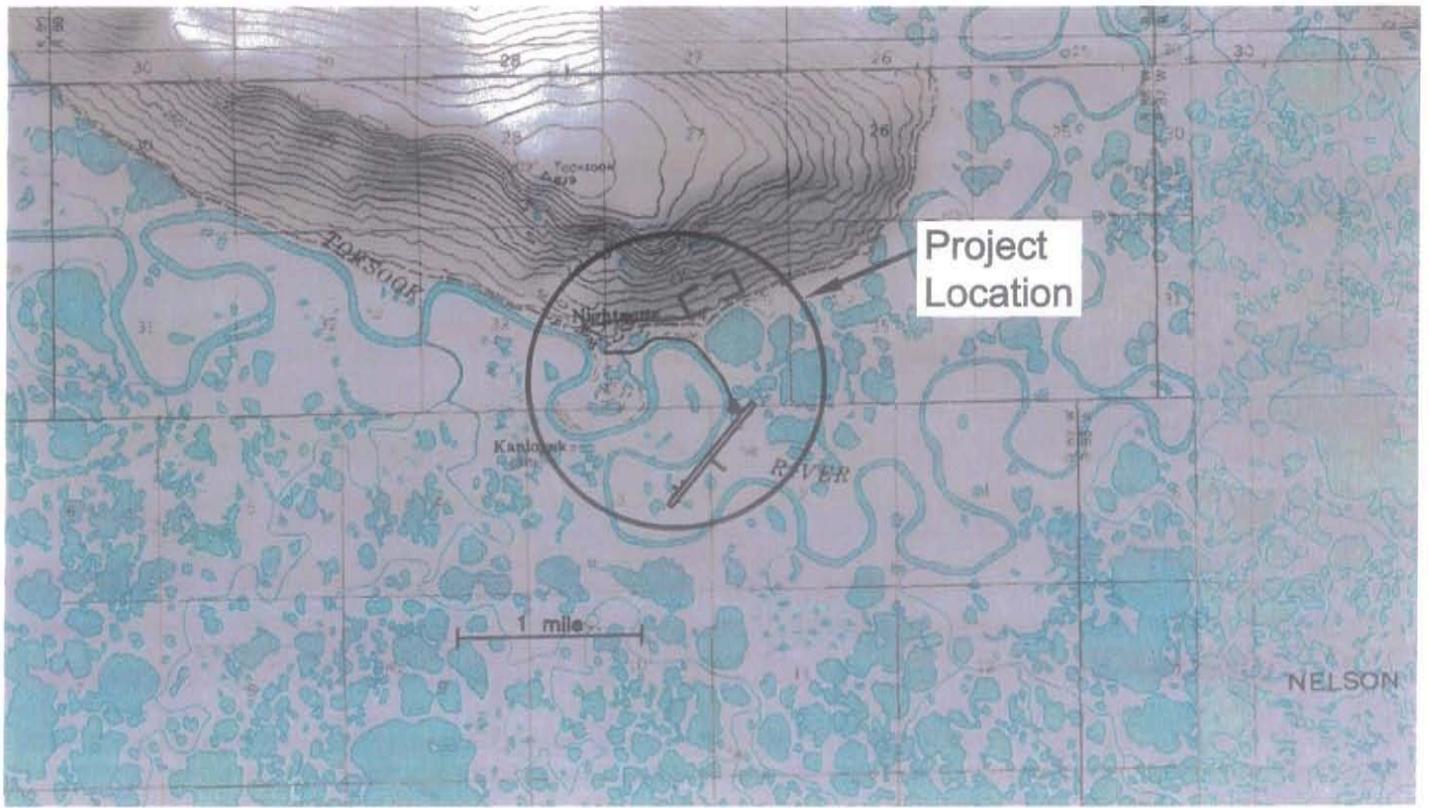


**APPENDIX A**

**FIGURES**



T 5 N, R 88 W, SEC 34 & 33  
T 4 N, R 89 W, SEC 2 & 3  
SEWARD MERIDIAN  
U.S.G.S. BAIRD INLET (B-7,B-8,C-7,C-8) ALASKA



STATE OF ALASKA  
**DEPARTMENT OF TRANSPORTATION  
AND PUBLIC FACILITIES**  
CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

Nightmute Airport Improvements  
51809

Location and Vicinity Maps  
Figure 1

DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ DATE \_\_\_\_\_

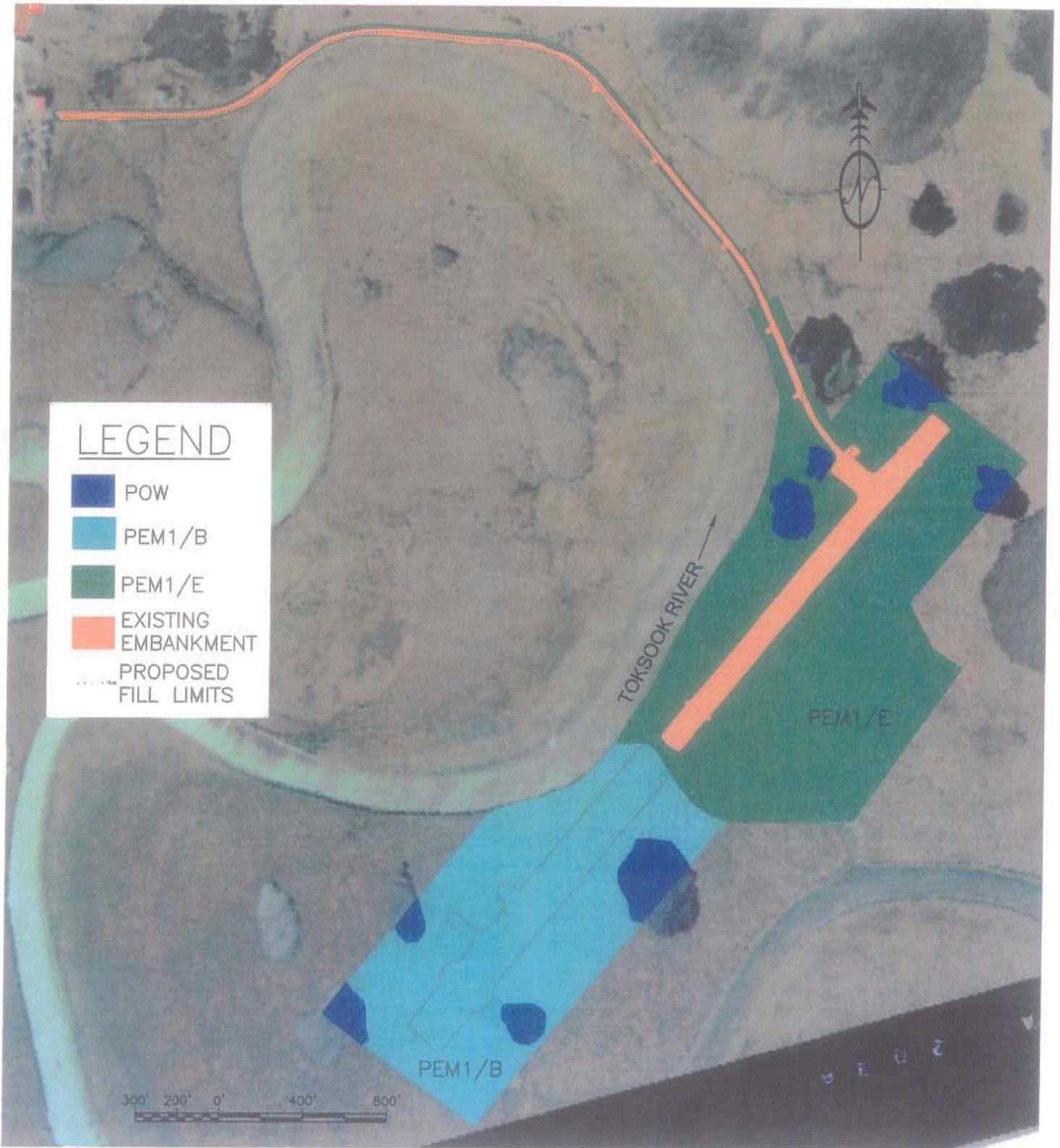


STATE OF ALASKA  
**DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES**  
 CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

Nightmute Airport Improvements  
 51809

Area of Potential Impact  
 Figure 2

DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ DATE \_\_\_\_\_

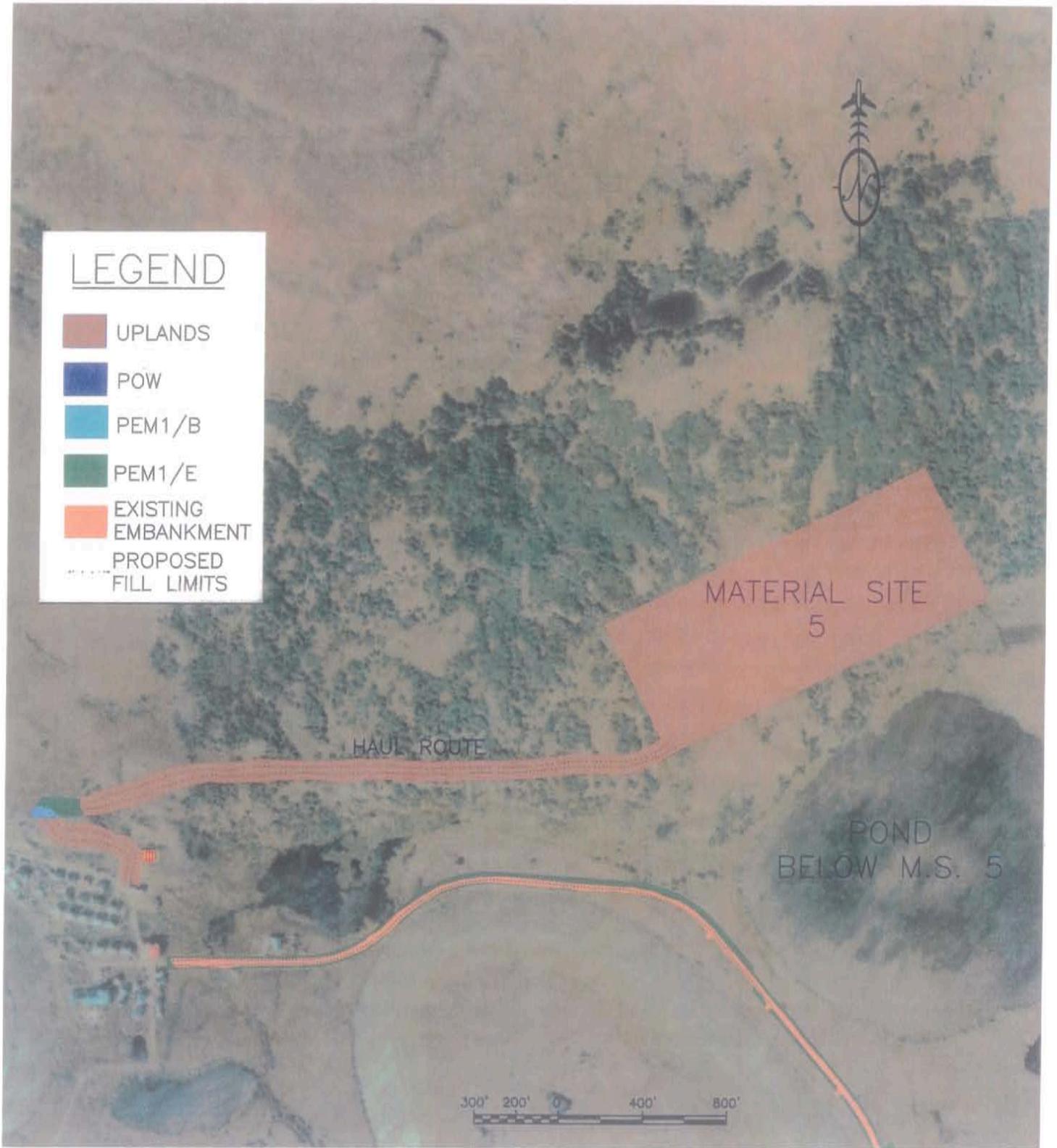


STATE OF ALASKA  
**DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES**  
 CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

Nightmute Airport Improvements  
 51809

Wetlands Mapping  
 FIGURE 3A

DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ DATE \_\_\_\_\_

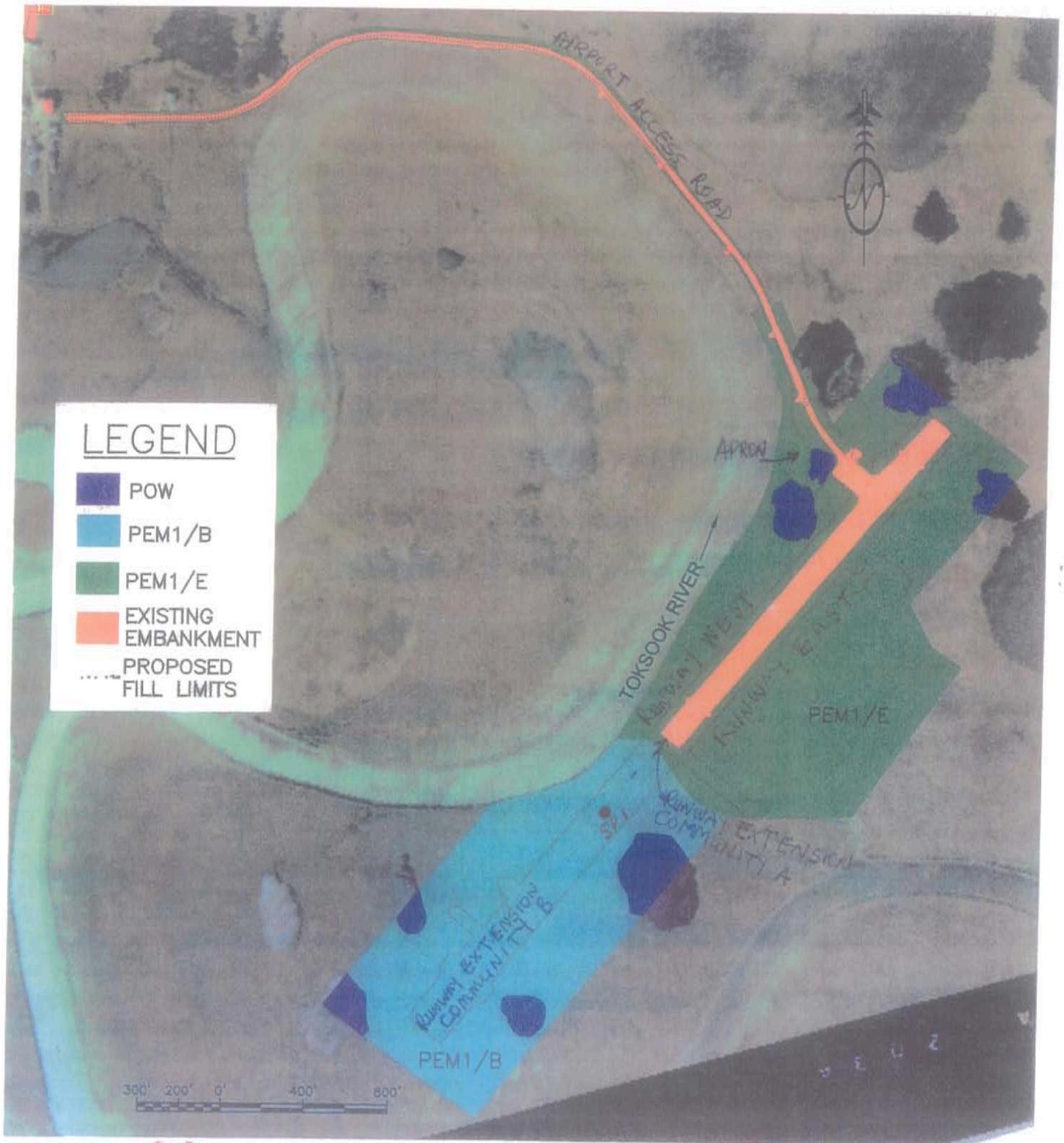


STATE OF ALASKA  
**DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES**  
 CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

Nightmute Airport Improvements  
 51809

Wetlands Mapping  
 FIGURE 3B

DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ DATE \_\_\_\_\_



**LEGEND**

- POW
- PEM1/B
- PEM1/E
- EXISTING EMBANKMENT
- PROPOSED FILL LIMITS

• Soil Pit (SP)

STATE OF ALASKA  
**DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES**  
 CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

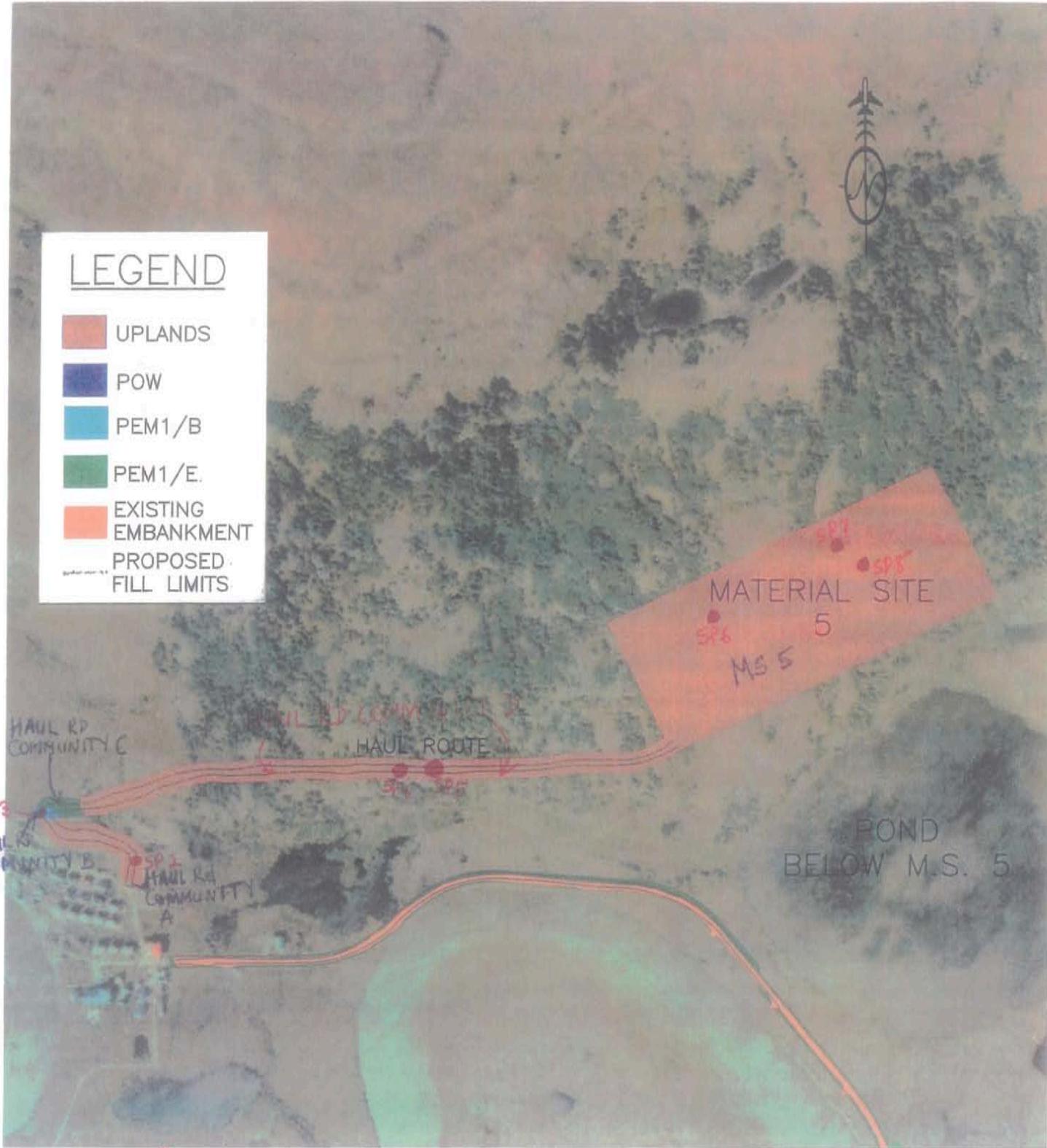
Nightmute Airport Improvements  
 51809

Wetlands Mapping **WITH SP**  
 FIGURE 3A-2

DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ DATE \_\_\_\_\_

# LEGEND

- UPLANDS
- POW
- PEM1/B
- PEM1/E.
- EXISTING EMBANKMENT
- PROPOSED FILL LIMITS



• Soil Pit (SP)

STATE OF ALASKA  
**DEPARTMENT OF TRANSPORTATION  
 AND PUBLIC FACILITIES**  
 CENTRAL REGION—DESIGN AND CONSTRUCTION—AVIATION

Nightmute Airport Improvements  
 51809  
 Wetlands Mapping WITH SP

FIGURE 3B-2

DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ DATE \_\_\_\_\_

**APPENDIX B**

**BIRD SPECIES FOUND IN NIGHTMUTE**

**BIRDS THAT MAY BE FOUND IN THE PROJECT VINITY** (Ann G. Rappoport,  
USF&WS, April 2000 letter to John Mazzitello, ADOT&PF).

Pacific and common loon  
Tundra swan  
Mallard  
American wigeon  
Greater scaup  
Black scoter  
Golden eagle  
Willow ptarmigan  
Black-bellied plover  
Bar-tailed godwit  
Western sandpiper  
Rock sandpiper  
Common snipe  
Parasitic jaeger  
Glaucous-winged  
Sabine gull  
Tree swallow  
Cliff swallow  
Northern wheatear  
Varied thrush  
American pipit  
Yellow warbler  
Northern waterthrush  
Savannah sparrow  
Golden-crowned sparrow  
Lapland longspur  
Redpoll spp

Red-necked grebe  
Green-winged teal  
Northern pintail  
Canvasback  
Oldsquaw  
Red-breasted merganser  
Peregrine falcon  
Sandhill crane  
Pacific golden plover  
Black turnstone  
Pectoral sandpiper  
Dunlin  
Red-necked phalarope  
Long-tailed jaeger  
Glaucous gull  
Arctic tern  
Bank swallow  
Common raven  
Gray-cheeked  
Yellow wagtail  
Orange-crowned  
Wilson's warbler  
American tree sparrow  
Fox sparrow  
White crowned sparrow  
Snow bunting

**APPENDIX C**

**USACE STANDARD WETLAND DELINEATION DATA  
FORMS**

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Nightmute Runway West</u> Applicant/Owner: _____ Investigator: <u>Abigail Ogbe</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area? Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

**VEGETATION**

Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Eriophorum Scheuchzeri</u>	<u>70</u>	<u>H</u>	<u>Obl</u>	9. _____		
2. <u>Potentilla Palustris</u>	<u>10</u>	<u>H</u>	<u>Obl</u>	10. _____		
3. <u>Sphagnum spp</u>				11. _____		
4. <u>Alnus tenuifolia</u>	<u>5</u>	<u>S</u>	<u>FAC</u>	12. _____		
5. _____				13. _____		
6. _____				14. _____		
7. _____				15. _____		
8. _____				16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: Water logged with dead shrubs. Some areas covered with peat moss (Sphagnum spp)

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>0</u> (in.)  Depth to Free Water in Pit: <u>0</u> (in.)  Depth to Saturated Soil: <u>0</u> (in.)	Remarks: _____ _____ _____ _____



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Nightmire Runway East</u> Applicant/Owner: _____ Investigator: <u>Abigail Dyse</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <span style="float: right;">Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></span> Is the area a potential Problem Area? <span style="float: right;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION						
Dominant Plant Species	% cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Eriophorum Scheuchzeri</u>	<u>80</u>	<u>H</u>	<u>Obl</u>	9. _____		
2. <u>Equisetum hiemale</u>	<u>10</u>	<u>H</u>	<u>FACW</u>	10. _____		
3. <u>Potentilla Palustris</u>	<u>5</u>	<u>H</u>	<u>Obl</u>	11. _____		
4. <u>Sphagnum Spp</u>	-	<u>H</u>	-	12. _____		
5. _____				13. _____		
6. <u>Alnus tenuifolia</u>	<u>5</u>	<u>S</u>	<u>FAC</u>	14. _____		
7. _____				15. _____		
8. _____				16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: Equisetum hiemale (horse tail) were localized in one area, and less than 2% in other areas of the east side of the runway

HYDROLOGY	
<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>Swampy, free water on surface</u>	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Nightmute Airport Access Road</u> Applicant/Owner: _____ Investigator: <u>Angela Ege</u>	Date: <u>8/8/05</u> County: _____ State: <u>Ark</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input type="checkbox"/> No Is the area a potential Problem Area? <input type="checkbox"/> Yes <input type="checkbox"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION						
Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Eriophorum Schuchzeri</u>	<u>60</u>	<u>H</u>	<u>Obl</u>	9. _____		
2. <u>Potentilla Palustris</u>	<u>10</u>	<u>H</u>	<u>Obl</u>	10. _____		
3. <u>Alnus tenuifolia Nutt</u>	<u>15</u>	<u>S</u>	<u>FAC</u>	11. _____		
4. <u>Sphagnum Spp</u>		<u>H</u>	<u>-</u>	12. _____		
5. _____				13. _____		
6. _____				14. _____		
7. _____				15. _____		
8. _____				16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC): 100%

Remarks: The thinleaf alder - Alnus tenuifolia are localized along the disturbed section of the roads

HYDROLOGY	
<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Swampy, Very wet.</u>



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Runway extension Community A</u> Applicant/Owner: _____ Investigator: _____	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? <span style="float: right;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></span> Is the area a potential Problem Area? <span style="float: right;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION						
Dominant Plant Species	% cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Eriophorum Scheuchzeri</u>	<u>60</u>	<u>H</u>	<u>Obl</u>	9. _____		
2. <u>Potentilla Palustris</u>	<u>10</u>	<u>H</u>	<u>Obl</u>	10. _____		
3. <u>S</u>				11. _____		
4. <u>Alnus tenuifolia</u>	<u>5</u>	<u>S</u>	<u>FAC</u>	12. _____		
5. <u>Sphagnum spp</u>				13. _____		
6. _____				14. _____		
7. _____				15. _____		
8. _____				16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: Water logged with dead grass. Covered with peat moss (Sphagnum spp)

HYDROLOGY	
<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: _____ _____ _____	

**SOILS**

Map Unit Name -  
(Series and Phase): \_\_\_\_\_

Drainage Class: \_\_\_\_\_  
Field Observations  
Confirm Mapped Type? YES  NO

Taxonomy (Subgroup): \_\_\_\_\_

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.

**Hydric Soil Indicators:**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                    | <input type="checkbox"/> Concretions  |
| <input type="checkbox"/> Histic Epipedon             | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor               | <input type="checkbox"/> Organic Streaking in Sandy Soils                     |
| <input type="checkbox"/> Aquic Moisture Regime       | <input type="checkbox"/> Listed on Local Hydric Soils List                    |
| <input type="checkbox"/> Reducing Conditions         | <input type="checkbox"/> Listed on National Hydric Soils List                 |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (Explain in Remarks)                           |

Remarks: Soil pits were not dug due to inundation & then  
of obligate vegetation.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?  YES  NO  
Wetland Hydrology Present?  YES  NO  
Hydric Soils Present?  YES  NO

Is this Sampling Point Within a Wetland?  YES  NO

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Runway extension Community B</u> Applicant/Owner: _____ Investigator: <u>Abigail Egbe</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>SP1 (see figure 3A-2)</u>

VEGETATION						
Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alnus tenuifolia</u>	<u>7</u>	<u>SH</u>	<u>FAC</u>	9. _____		
2. <u>Betula nana L.</u>	<u>20</u>	<u>SH</u>	<u>FAC</u>	10. _____		
3. <u>Vaccinium vitis-idaea</u>	<u>25</u>	<u>SH</u>	<u>FAC</u>	11. _____		
4. <u>Ledum L.</u>	<u>20</u>	<u>SH</u>	<u>FACW</u>	12. _____		
5. <u>Eriophorum Schreb.</u>	<u>15</u>	<u>H</u>	<u>Obl</u>	13. _____		
6. _____				14. _____		
7. _____				15. _____		
8. _____				16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC): 100%

Remarks: \_\_\_\_\_

HYDROLOGY	
<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>6</u> (in.) Depth to Saturated Soil: <u>2</u> (in.)	
Remarks: _____ _____ _____	



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Nightmute Haul Rd Community A</u> Applicant/Owner: <u>0</u> Investigator: <u>Abigail Ogbe</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the site significantly disturbed (Atypical Situation)? <del>Yes</del> No <input type="checkbox"/> Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input type="checkbox"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>SP2 (see figure 3B-2)</u>

**VEGETATION**

Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Betula Nana</u>	<u>25</u>	<u>S</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Equisetum pratense</u>	<u>10</u>	<u>H</u>	_____	10. _____	_____	_____
3. <u>Agrostis Sp</u>	<u>15</u>	<u>H</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Epilobium angustifolium</u>	<u>10</u>	<u>H</u>	<u>FACU</u>	12. _____	_____	_____
5. <u>Alnus tenuifolia Nutt</u>	<u>7</u>	<u>H</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>Empetrum nigrum</u>	<u>15</u>	<u>H</u>	<u>FAC</u>	14. _____	_____	_____
7. _____	_____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100

Remarks: Extremely difficult to dig.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>None</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>No surface water. The area is dry.</u>

Community A is the vegetation community at the beginning of the haul Rd.

~~A Parkman Wildflower by Verena E. Pratt~~

~~vegetation community~~

**SOILS**

Map Unit Name  
(Series and Phase): \_\_\_\_\_

Drainage Class: \_\_\_\_\_

Taxonomy (Subgroup): \_\_\_\_\_

Field Observations  
Confirm Mapped Type? YES  NO

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.

**Hydric Soil Indicators:**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                    | <input type="checkbox"/> Concretions  |
| <input type="checkbox"/> Histic Epipedon             | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor               | <input type="checkbox"/> Organic Streaking in Sandy Soils                     |
| <input type="checkbox"/> Aquic Moisture Regime       | <input type="checkbox"/> Listed on Local Hydric Soils List                    |
| <input type="checkbox"/> Reducing Conditions         | <input type="checkbox"/> Listed on National Hydric Soils List                 |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (Explain in Remarks)                           |

Remarks: Extremely difficult to dig. Sand and rock.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  NO

Wetland Hydrology Present? YES  NO

Hydric Soils Present? YES  NO

Is this Sampling Point Within a Wetland? YES  NO

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Hawl Rd Community B</u> Applicant/Owner: _____ Investigator: <u>Abigail Ogbe</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>SP 2 (see Figure 3B-2)</u>

**VEGETATION**

Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Collinagrostis Canadensis</u>	<u>30</u>	<u>H</u>	<u>FAC</u>	9. _____		
2. <u>Eriophorum nigrum</u>	<u>56</u>	<u>H</u>	<u>FAC</u>	10. _____		
3. <u>Vaccinium cespitosum</u>	<u>56</u>	<u>H</u>	<u>FACW</u>	11. _____		
4. <u>Petasites hyperboreus</u>	<u>56</u>	<u>H</u>	<u>—</u>	12. _____		
5. <u>Betula Nana</u>	<u>25</u>	<u>S</u>	<u>FAC</u>	13. _____		
6. <u>Salix reticulata</u>	<u>7</u>	<u>H</u>	<u>FAC</u>	14. _____		
7. <u>Arctophila fulva</u>	<u>20</u>	<u>H</u>	<u>Obl</u>	15. _____		
8. _____				16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC): 100%

Remarks: Coltsfoot — Petasites hyperboreus was localized in one area, about 40% in that section however, when compared to the other (relative cover) vegetation within 30ft radius from the soil pit, the percent cover is about 56.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.)  Depth to Free Water in Pit: _____ (in.)  Depth to Saturated Soil: <u>2</u> (in.)	Remarks: <u>Soil was saturated right at the surface. few drops of water were squeezed from the soil</u>

**SOILS**

Haul Rd Community B

Map Unit Name  
(Series and Phase): \_\_\_\_\_

Drainage Class: \_\_\_\_\_  
Field Observations  
Confirm Mapped Type? YES  NO

Taxonomy (Subgroup): \_\_\_\_\_

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
7		Grey 1 5/10 7	5 YR 4/6		

**Hydric Soil Indicators:**

- |   |   |
|---|---|
| <input type="checkbox"/> Histosol                               | <input type="checkbox"/> Concretions  |
| <input type="checkbox"/> Histic Epipedon                        | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor                          | <input type="checkbox"/> Organic Streaking in Sandy Soils                     |
| <input type="checkbox"/> Aquic Moisture Regime                  | <input type="checkbox"/> Listed on Local Hydric Soils List                    |
| <input type="checkbox"/> Reducing Conditions                    | <input type="checkbox"/> Listed on National Hydric Soils List                 |
| <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (Explain in Remarks)                           |

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> YES <input type="radio"/> NO	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> YES <input type="radio"/> NO
Wetland Hydrology Present?	<input checked="" type="radio"/> YES <input type="radio"/> NO	
Hydric Soils Present?	<input checked="" type="radio"/> YES <input type="radio"/> NO	

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
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**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>Nightmute Haul Rd Community B</u> Applicant/Owner: _____ Investigator: <u>Abigail Ogbe</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <span style="float: right;">(Yes) No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;">Yes (No)</span> Is the area a potential Problem Area? <span style="float: right;">Yes (No)</span> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION						
Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator	
1. <u>Arctophila fulva</u>	<u>35</u> #	<u>Obl</u>	9. _____	_____	_____	
2. <u>Eriophorum Scheuchzeri</u>	<u>50</u> #	<u>Obl</u>	10. _____	_____	_____	
3. _____	_____	_____	11. _____	_____	_____	
4. _____	_____	_____	12. _____	_____	_____	
5. _____	_____	_____	13. _____	_____	_____	
6. _____	_____	_____	14. _____	_____	_____	
7. _____	_____	_____	15. _____	_____	_____	
8. _____	_____	_____	16. _____	_____	_____	

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC): 100%

Remarks: The Cotton grass dominated to almost 80% as we moved further away from the haul rd Community B (vegetation Community just before Community C).

HYDROLOGY	
<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>0</u> (in.)  Depth to Free Water in Pit: <u>0</u> (in.)  Depth to Saturated Soil: <u>0</u> (in.)	

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Blackian Wildflower by Verna E. Pratt



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Haul Rd Community D</u> Applicant/Owner: _____ Investigator: <u>Abigail Ogbe</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>SP 4 &amp; SP 5 (see Figure 3B-2)</u>

**VEGETATION**

Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alnus tenuifolia</u>	<u>65</u>	<u>S</u>	<u>FAC</u>	9. _____		
2. <u>Empetrum angustifolium</u>	<u>15</u>	<u>H</u>	<u>FACU</u>	10. _____		
3. <u>Arctostaphylos latifolia</u>	<u>5</u>	<u>H</u>	<u>FACW</u>	11. _____		
4. <u>Equisetum silvaticum</u>	<u>5</u>	<u>H</u>	<u>FACU</u>	12. _____		
5. <u>Agrostis - spp</u>	<u>7</u>	<u>H</u>	<u>FAC</u>	13. _____		
6. <u>Empetrum nigrum</u>	<u>10</u>	<u>H</u>	<u>FAC</u>	14. _____		
7. <u>Betula Nana</u>	<u>5</u>	<u>H</u>	<u>FAC</u>	15. _____		
8. <u>Robus Arctica</u>	<u>2</u>	<u>H</u>	<u>FAC</u>	16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 75%

Remarks: There were open areas with very high percent of fireweed. The dense cover of thick Alder (Alnus tenuifolia) dominated the area with open areas of fireweed and grass mixed with Crowberry (Empetrum nigrum).

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: <u>None (in.)</u> Depth to Free Water in Pit: <u>No free water (in.)</u> Depth to Saturated Soil: <u>None (in.)</u>	None          None
Remarks: _____ _____ _____ _____	

**SOILS**

Haul Rd Community D

Map Unit Name:  
(Series and Phase): \_\_\_\_\_

Drainage Class: \_\_\_\_\_  
Field Observations  
Confirm Mapped Type? YES  NO

Taxonomy (Subgroup): \_\_\_\_\_

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-7"		2.5YR 2.5/3			

**Hydric Soil Indicators:**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol                    | <input type="checkbox"/> Concretions  |
| <input type="checkbox"/> Histic Epipedon             | <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils |
| <input type="checkbox"/> Sulfidic Odor               | <input type="checkbox"/> Organic Streaking in Sandy Soils                     |
| <input type="checkbox"/> Aquic Moisture Regime       | <input type="checkbox"/> Listed on Local Hydric Soils List                    |
| <input type="checkbox"/> Reducing Conditions         | <input type="checkbox"/> Listed on National Hydric Soils List                 |
| <input type="checkbox"/> Gleyed or Low-Chroma Colors | <input type="checkbox"/> Other (Explain in Remarks)                           |

Remarks: Very rooty. Difficult to dig. Soil forms a ball from dampness but when compressed but no free water drops of water. Roots and rocks almost at the surface.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? YES  NO   
Wetland Hydrology Present? YES  NO   
Hydric Soils Present? YES  NO

Is this Sampling Point Within a Wetland? YES  NO

Remarks: Using the 50/20 calculation hydrophytic vegetation is present, however, the prevalence index calculation indicates that the vegetation is non-hydrophytic. A prevalence index of 3-13 was obtained. A prevalence index of 3 or less indicates the presence of hydrophytic vegetation.

R. 115

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <del>East</del> <u>MS 5</u> Applicant/Owner: _____ Investigator: <u>Abigail Oye</u>	Date: <u>8/8/05</u> County: _____ State: <u>AK</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: <u>SP 6, SP 7 and SP 8</u> (See Figure 3B-2)

**VEGETATION**

Dominant Plant Species	% Cover	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alnus tenuifolia</u>	<u>65</u>	<u>S</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Epilobium angustifolium</u>	<u>15</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Agrostis spp.</u>	<u>10</u>	<u>H</u>	<u>FAC</u>	11. _____	_____	_____
4. _____	_____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 65

Remarks: Dense cover of thin leaf alder (Alnus tenuifolia) with open areas of sedge and grass.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>None</u> (in.) Depth to Free Water in Pit: <u>No free water</u> (in.) Depth to Saturated Soil: <u>None</u> (in.)	Remarks: _____ _____ _____ _____

SOILS

Map Unit Name (Series and Phase): \_\_\_\_\_

Drainage Class: \_\_\_\_\_  
Field Observations Confirm Mapped Type? YES  NO

Taxonomy (Subgroup): \_\_\_\_\_

Profile Description:

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

- Histosol
- Histic Epipedon
- Sulfidic Odor
- Aquic Moisture Regime
- Reducing Conditions
- Gleyed or Low-Chroma Colors
- Concretions
- High Organic Content in Surface Layer in Sandy Soils
- Organic Streaking in Sandy Soils
- Listed on Local Hydric Soils List
- Listed on National Hydric Soils List
- Other (Explain in Remarks)

Remarks: Gravelly dry soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ~~YES~~ NO  
 Wetland Hydrology Present? YES ~~NO~~  
 Hydric Soils Present? YES ~~NO~~

Is this Sampling Point Within a Wetland? YES ~~NO~~

Remarks: A prevalence index of 3.17 was obtained. This indicates a prevalence index of 3 or less indicates the presence of hydrophytic vegetation. Since the index for this community is above 3.17, it is therefore non-hydrophytic.

**APPENDIX D**

**50/20 CALCULATIONS  
&  
PREVALENCE INDEX CALCULATIONS**

Nightmute Haul Rd Community D 50/20 Calculation.

Shrub

Alnus tenuifolia = 65% FAC

Herb

Epilobium	A	15%	FACU
Empetrum	N	10%	FAC
Agrostis	Spp	7%	FAC
	Total	<u>32%</u>	

① Relative % Cover for Shrubs = 100% FAC

② Relative % Cover for Epilobium A =  $\frac{15}{32} = 47\%$  <sup>FACU</sup> ~~FAC~~

③ Relative % Cover for Empetrum N =  $\frac{10}{32} = 31\%$  FAC

④ Relative % Cover Agrostis Spp =  $\frac{7}{32} = 21\%$  FAC

Dominance using 50/20 rule for FAC, OBL & FACW

$\frac{3}{4} = 75\%$  indicating hydrophytic vege

## Calculation of Prevalence Index

Site: Runway extension community A

Obl. % absolute cover	FACW % absolute cover	FAC % absolute cover	FACU % absolute cover	UPL % absolute cover
60			5	
10				
70	0		5	0

Prevalence Index = 1.13

Prevalence index of 3 or less indicates the presence of hydrophytic vegetation

# Calculation of Prevalence Index

Site: Runway extension community B

OBL % absolute cover	FACW % absolute cover	FAG % absolute cover	FACU % absolute cover	UPL % absolute cover
15	20	25		
		20		
		7		
15	20	52	0	

Prevalence Index = 2.43

Prevalence index of 3 or less indicates the presence of hydrophytic vegetation

## Calculation of Prevalence Index

Site: Haul Rd community A

ObL % absolute cover	FACW % absolute cover	FAC % absolute cover	FACU % absolute cover	UPL % absolute cover
		25	10	
		10		
		7		
		15		
0	0	57	10	

Prevalence Index =                     3.15                    

Prevalence index of 3 or less indicates the presence of hydrophytic vegetation

## Calculation of Prevalence Index

Site: Haul Rd community D

OBL % absolute cover	FACW % absolute cover	FAC % absolute cover	FACU % absolute cover	UPL % absolute cover
	5	86	15	
		7	5	
		10		
		5		
		2		
0	5	89	20	

Prevalence Index = 3.13

Prevalence index of 3 or less indicates the presence of hydrophytic vegetation

# Calculation of Prevalence Index

Site: Material site #5

OhL % absolute cover	FACW % absolute cover	FAC % absolute cover	FACU % absolute cover	UPL % absolute cover
		65	15	
		10		
0	0	75	15	

Prevalence Index = 3.17

Prevalence index of 3 or less indicates the presence of hydrophytic vegetation

**APPENDIX E**

**FUNCTIONAL ASSESSMENT FORMS**

## Wetland Functional Assessment Form\*

Project/Site:	Nightmute Airport Improvements	Date:	8/8/05
Wetland Type:	Palustrine Emergent and POW (pond)	Investigator:	Abigail Egbe
Vegetation Class(es):	See Wetland data forms		

HYDROLOGICAL FUNCTIONS	Other YES/NO LIKELY	Comments/Reference
<b>Flood Flow Alteration Assessment:</b>		
Wetland occurs in the upper portion of its watershed		
Wetland is in a relatively flat area and is capable of retaining higher volumes of water during storm events.	Yes	
Wetland is a closed (depressional) system.	NO	
Wetland has dense woody vegetation.	NO	
Wetland receives floodwater from an adjacent watercourse.	NO	
Floodwaters come as sheet flow rather than channel flow.	NO	
<b>Erosion Control and Shoreline Stabilization</b> <i>If associated with watercourse or shoreline.</i>		
Wetland has dense, energy absorbing vegetation bordering the watercourse and no evidence of erosion.	No	The only section of the wetland associated with shoreline is well eroded.
A herbaceous layer is part of this dense vegetation.	NO	
Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	NO	
Other hydrological observation:		
The likelihood to provide hydrological functions is: <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">LOW</span>		MEDIUM    HIGH
The opportunity to provide hydrological functions is: LOW    MEDIUM <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">HIGH</span>		
WATER QUALITY FUNCTIONS		
<b>Sediment Removal</b>		
Sources of excess sediment (from tillage or construction) are present upgradient of the wetland.	NO	
Slow-moving water and/or a deepwater habitat are present in the wetland.	Yes	
Dense herbaceous vegetation is present. <i>SOME AREAS</i>	Yes	
Interspersion of vegetation and water is high in wetland.	NO	
Ponding of water occurs in the wetland.	Yes	
Sediment deposits are present in wetland.	NO	
<b>Nutrient and Toxicant Removal</b>		
Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland.	NO	
Wetland is inundated or has indicators that flooding is a seasonal event during the growing season.	Yes	
Wetland provides long duration for water detention.	Yes	
Wetland has at least 30% areal cover of live dense herbaceous vegetation.	Yes	

\* Adapted from the Washington State Department of Transportation Wetland Characterization Tool for Linear Projects (2000) and the U.S. Army Corps of Engineers and US Department of Transportation Wetland Evaluation Technique (WET) Volume II (1987).

Wetland Functional Assessment Form\*

Fine-grained material or organic soils are present in the wetland.	Yes	
Other water quality observation:		
The likelihood to provide water quality functions is:		LOW MEDIUM <b>HIGH</b>
The opportunity to provide water quality functions is:		<b>LOW</b> MEDIUM HIGH
<b>ECOLOGICAL FUNCTIONS</b>		
<b>General Habitat Suitability</b>		
Wetland is fragmented by development.	Yes	Low plant diversity and high degree of human disturbance does not make this a very suitable habitat for animals. Several birds have been observed breeding and nesting in the area.
Upland surrounding wetland is undeveloped.	Yes	
Wetland has connectivity with other habitat types.	Yes	
Diversity of plant species is high.	NO	
Wetland has more than one Cowardin Class, i.e., (PFO, PSS, <b>PEM</b> , PAB, <b>POW</b> ) etc.)	Yes	
Has high degree of Cowardin Class interspersion.	NO	
Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc. is present.	NO	
<b>Habitat For Aquatic Invertebrates</b>		
Wetland must have permanent or evidence of seasonal inundation for this function to be provided. Is the wetland inundated?	Yes	
Various water depths present in wetland.	Yes	
Aquatic bed vegetation present.	Yes	
Emergent vegetation present within ponded area.	Yes	
Cover (i.e., woody debris, rocks, and leaf litter) present within the standing water area.	NO	
A stream or another wetland within 2 km (1.2 mile) of wetland.	Yes	
Likelihood to provide habitat for aquatic invertebrates is:		LOW <b>MEDIUM</b> HIGH
<b>Habitat for Wetland-Associated Mammals</b>		
Permanent water present within the wetland. (Must be present for this function to be provided.)	Yes	The proximity to the Toksook River and connectivity of the shrub thicket at the slope of the mountain could make this a suitable habitat for mammals.
Presence of emergent vegetation in areas of permanent water.	Yes	
Areas containing dense shrubs and/or trees are present within wetland or its buffer.	NO	
Interspersion between different strata of vegetation.	NO	
Interspersion between permanent open water (without vegetation) and permanent water with vegetation.	NO	
Presence of banks suitable for denning.	NO	
Evidence of wildlife use, e.g., dens, tracks, scat, gnawed stumps, etc., is present.	NO	
Likelihood to provide habitat for wetland-associated mammals:		LOW <b>MEDIUM</b> HIGH
<b>Habitat for Wetland-Associated Birds</b>		
Wetland has 30 to 50% shallow open water and/or aquatic bed classes present within the wetland.	Yes	The disturbed section of the road a runway are lined with alder shrub. Several birds have been observed breeding and nesting in the area.
Emergent vegetation class present within the wetland.	Yes	
Forested and scrub-shrub classes present within the wetland or its buffer.	NO	
Snags present in wetland or its buffer.	NO	

\*Adapted from the Washington State Department of Transportation Wetland Characterization Tool for Linear Projects (2000) and the U.S. Army Corps of Engineers and US Department of Transportation Wetland Evaluation Technique (WET) Volume II (1987).

Wetland Functional Assessment Form\*

Sandbars and/or mud flats present within the wetland.	NO	Wetlands may contain aquatic invertebrates
Wetland contains invertebrates, amphibians, and/or fish. <i>None observed</i>	likely	
Buffer contains relatively undisturbed grassland shrub and/or forest habitats.	N/A	
Lands within 1 km (0.6 mile) of the wetland are greater than or equal to 40% undeveloped (e.g., green belts, forest, grassland, agricultural).	<del>NO</del> Yes	
Likelihood to provide habitat for wetland-associated birds is: <b>LOW</b> <b>MEDIUM</b> <b>HIGH</b>		
<b>General Fish Habitat (Must be associated with fish-bearing water.)</b>		
Wetland has perennial or intermittent surface water connection to a fish-bearing water body.	Yes	The ponds within the wetlands freeze completely during the winter.
Wetland has sufficient size and depth of open water so as not to freeze completely during winter.	NO	
Observation of fish.	NO	The Toksook River is a fish bearing water body.
Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.	Yes	
Spawning areas are present (aquatic vegetation and/or gravel beds).	NO	
The likelihood to provide habitat for fish is: <b>LOW</b> <b>MEDIUM</b> <b>HIGH</b>		
Other habitat observation:		
<b>SOCIAL VALUES</b>		
<b>Native Plant Richness</b>		
Dominant and codominant plants are native.	NO	Some areas of the emergent wetlands have ponds. The ponds are classified as Palustrine Open Water
Wetland contains two or more Cowardin Classes.	Yes	
Wetland has three or more strata of vegetation.	NO	
Wetland has mature trees.	NO	
<b>Educational or Scientific Value</b>		
Site has documented scientific or educational use.	NO	
Wetland is in public ownership.	NO	
Parking at site is suitable for a school bus.	N/A	
<b>Uniqueness and Heritage</b>		
Wetland contains documented occurrence of a state or federally listed threatened or endangered species.	NO	
Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service.	NO	
Wetland is part of a National Natural Landmark designated by the National Park Service or ADFG Refuge, Critical Habitat & Sanctuaries.	NO	
Wetland has biological, geological, or other features that are determined rare by the local jurisdiction.	NO	
Wetland has been determined significant by the local jurisdiction because it provides functions scarce for the area.	NO	
Other social observation:		
The likelihood to provide the above social values is: <b>LOW</b> <b>MEDIUM</b> <b>HIGH</b>		
<b>OTHER ATTRIBUTES AND VALUES</b>		
<b>Archeological/Cultural Values</b>		
Wetland possesses archeological resources	Yes	The wetland has an identified archeological site

\*Adapted from the Washington State Department of Transportation Wetland Characterization Tool for Linear Projects (2000) and the U.S. Army Corps of Engineers and US Department of Transportation Wetland Evaluation Technique (WET) Volume II (1987).

Wetland Functional Assessment Form\*

Has the potential to possess archeological resources	Yes	
The likelihood to provide archeological/cultural values is: LOW MEDIUM <b>HIGH</b>		
<b>Recreational Values</b>		
Wetland is part of a park or public land	No	
Has the potential to provide active recreation such as hunting, boating or fishing etc.	Yes	
Has the potential to provide passive recreation such as bird watching, photography etc.	likely	
Other recreational observations:		
The likelihood to provide recreational values is: LOW MEDIUM <b>HIGH</b>		
<b>Subsistence Values</b>		
Wetland is used for subsistence activities	likely	
Other subsistence observation: The nearby Toksook River is a subsistence food source for the Community		
The likelihood to provide subsistence values is: LOW MEDIUM <b>HIGH</b>		
<b>General Comments:</b>		

\*Adapted from the Washington State Department of Transportation Wetland Characterization Tool for Linear Projects (2000) and the U.S. Army Corps of Engineers and US Department of Transportation Wetland Evaluation Technique (WET) Volume II (1987).



State of Alaska  
Department of Transportation  
& Public Facilities  
Statewide Design &  
Engineering Services

## Wetland Avoidance and Minimization Checklist

**Project Name:** Nightmute Airport Improvements  
**Project Number:** 51809

**I. Project Scope:** Provide a brief description of and reason for the project.

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Aviation Administration (FAA), is developing a project to improve the Nightmute Airport. A Wetland Avoidance and Minimization Checklist has previously been completed for this project; however, the scope of the project has changed.

Detailed information about the proposed project within the updated footprint is presented below.

**Reason for the Project:** The Nightmute Airport, originally constructed in 1976, does not meet the current FAA safety and design criteria. The purpose of the Nightmute Airport Improvements project is to provide facility improvements that would resolve current safety and operational issues. The Nightmute airport currently provides the only year round means of transportation for the village of Nightmute, and it is the only means of medical evacuation. The following deficiencies were identified: (1) The runway length and width do not meet FAA safety design standards. (2) The inadequate apron size, lack of taxiway, and proximity of the snow removal equipment building (SREB) to the runway, all fall short of the FAA safety design standards. (3) The differential subsidence exhibited by the airport runway and the airport access road is a hazard to users of the airport. (4) There is no power to the airport; therefore, no runway lighting. This is a serious safety concern especially during the dark winter days, and subsequently limits the airport operating hours. (5) The Toksook River bank erosion threatens the airport access road. (6) Crosswinds jeopardize landings on the existing runway as the existing facility provides only 67% wind coverage.

**Project Description:** The proposed project will: (1) Expand the existing 50 ft by 1,600 ft runway to 75 ft by 3,200 ft to meet B-II airport standards (2) Extend the existing 100 ft by 2,000 ft runway safety area to 150 ft by 3,800 ft (3) Provide a 50 ft by 260 ft taxiway on a 79 ft wide safety area. (4) Provide a new 150 ft by 255 ft parking apron. (5) Provide a 100 ft by 100 ft pad for a two-single bay Snow Removal Equipment Building. (6) Install insulation under the runway extension to prevent permafrost thaw. (7) Install a medium intensity lighting system. (8) Install a lighted wind cone and segmented circle

on a 125 ft by 125 ft pad. (9) Provide a 30 ft by 60 ft Automated Weather Observation System (AWOS) Pad, two Precision Approach Path Indicator (PAPI) Pads, and install an unlighted wind cone. (10) Extend the power line from the village to the airport. (11) Rehabilitate the existing 4,800 ft by 15 ft airport access road to repair the extreme differential settlement of the road and also realign it within the right of way. (12) Provide erosion protection along the airport access road. (13) Acquire airport property. The current property lease has expired.

The total wetland impacts for the current project footprint is approximately 19 acres.

## **II. Avoidance Measures:**

1. Can the proposed project or project components be located in a non-wetland area? If not, explain in detail why not? (Refer to preliminary jurisdictional wetland determination.)

No. Complete avoidance of wetlands is not feasible. Nightmute is located in the Yukon – Kuskokwim Delta and surrounded by low lying wetlands. Uplands are only located at the mountain and mountain slope. The material site and a large portion of the haul road to the material site are on uplands. Construction of the airport on top of the Toksook Mountain is cost prohibitive and does not meet the purpose and need of the project because it would be too far from the community.

1.a. If yes, does this non-wetland area provide unique habitat to the area or contain other protected resources (e.g., cultural resource, federally listed or candidate species, bald eagles or other raptors)? Consult with the agency with jurisdiction or expertise if appropriate e.g., Corps, FWS, NMFS, ADF&G.

1.b. Are there other project related impacts to the non-wetland area that are considered substantial (e.g., subsistence use or other socio-economic factors)? Consult with the agency with jurisdiction or expertise if appropriate e.g., Corps, FWS, NMFS, ADF&G.

2. In consideration of forecast changes in aircraft use, future airport projects, expected community growth and maintenance considerations, have facilities been sited to avoid wetland impacts? Has this been applied to all individual components of the airport (e.g., the runway, taxiways, aprons, lease lots, navigational aids)?

Yes. The proposed project will improve the airport to B-II standards, accommodating future growth and a broader range of aircraft types. A significant increase in community growth is not expected, and future development within the community will primarily occur on higher ground. By utilizing the existing airport, wetland impacts have been minimized. Avoidance measures have incorporated all parts of the existing facilities into the project design, including the use of the existing airport access road, runway, apron, and taxiway, rather than constructing a new airport on undisturbed ground. The width of the existing airport access road would be maintained at its current 15 ft, and all construction will be within the existing right of way (ROW). All construction activities will be conducted from the existing embankment to minimize impacts to adjoining wetlands.

2.a. Can dimensions of facilities be traded off; i.e., length vs. width of the apron in order to lessen impacts?

No. All areas around the existing airport are classified as wetlands. Re-orientating the apron or other facilities would not reduce impacts to wetlands, as the overall area of wetland impacts would remain the same. In addition, the PAPI, REIL, and AWOS pads cannot be re-orientated, as these components require certain dimensions and orientation. See discussion under II, Avoidance Measures.

2.b. Can the footprint of specific project components be reduced to avoid wetlands i.e., steeper side slopes on support facilities?

No, the airport will be constructed with 4/1 side slopes as recommended by FAA for safety and stability. If the embankments were constructed with steeper side slopes, there would be greater erosion potential and likely a potential increase in maintenance costs.

2.c. Can facilities be consolidated to avoid impacts?

No, the airport is designed with the minimum amount of facilities to allow for GPS approaches and to accommodate B-II standards. All existing facilities are being utilized in the design.

2.d. Have existing roads, pads, runways and other facilities been incorporated into the design of the proposed project to avoid wetland impacts?

Yes. The existing airport access road, runway, and apron will be utilized for the proposed project.

2. Have crossings of fish streams been avoided? (Consult the Anadromous Fish Catalog or contact ADF&G for information on fish bearing waters.)

Not applicable. The project does not involve stream crossing.

4. If the Regional Environmental Coordinator has determined that the project may adversely affect Essential Fish Habitat (EFH) list the preliminary EFH conservation measures.

The following mitigation measures will minimize impacts to anadromous fish habitat:

- Erosion protection riprap will be limited to the absolute minimum necessary to stabilize the road.
- Riprap will be clean of all fine-grained materials.
- Project specifications will include special conditions for the implementation and maintenance of Best Management Practices (BMPs) during construction to minimize the project's impact on water quality.

5. Are bald eagle nest trees at least 330 feet from the project? If not, consult FWS.

No bald eagle nest trees have been located near the airport or the community of Nightmute. Habitat surrounding the Nightmute airport is comprised of grasses, shrubs,

and small birch trees. Trees stable enough for eagle nests were not identified during the wetland delineation. (See in Appendix B.)

6. Have abandoned pads, roads, runways and other fills associated with the airport project been considered for gravel re-use, rehabilitation, and/or restoration?

No pads, roads, or runway will be abandoned. All existing facilities associated with the present airport will be utilized for the proposed project. The material site is located in upland (non-wetland).

### III. Minimization Measures (If the impacts can't be avoided continue):

1. Can the proposed project or project components be located in a lower value wetland area? If not, explain in detail why not? (Refer to appropriate resource mapping or functional value assessment.)

The proposed project would impact palustrine emergent persistent wetlands and a 120-ft by 60-ft palustrine open water (pond) wetland. Most areas surrounding the community except for the mountain area consist of palustrine emergent persistent wetlands and palustrine open water wetlands. Lower value wetlands do not exist in the project area. These wetlands are neither unique nor limited in the Nightmute area.

1.a. If yes, would construction affect other protected resources (e.g., cultural resource, federally listed or candidate species, bald eagles or other raptors)? Consult with the agency with jurisdiction or expertise if appropriate e.g., Corps, FWS, NMFS, ADF&G and SHPO.

1.b. Are there other project related impacts to this lower value wetland considered substantial (e.g., cultural resource, subsistence use or other socio-economic factors)? Consult with the agency with jurisdiction or expertise if appropriate.

2. In consideration of forecast changes in aircraft use, future airport projects, expected community growth and maintenance considerations, have facilities been sited to minimize wetland impacts? Has this been applied to all individual components of the airport (e.g., the runway, taxiways, aprons, lease lots, navigational aids)?

Yes. All existing facilities associated with the present airport will be utilized for the proposed project minimizing additional wetland fill.

2.a. Can dimensions of facilities be traded off; i.e., length vs. width of the apron in order to lessen impacts?

No, because the total impacted area would remain the same.

2.b. Can the footprint of specific project components be a reduced i.e., steeper side slope on support facilities?

No, see IIb.

2.c. Can facilities be consolidated to minimize impacts?

No, the airport is designed with the minimum facilities necessary to be classified as a B-II airport.

2.d. Have existing roads, pads, runways and other facilities been incorporated into the design of the proposed project to minimize wetland impacts?

Yes, the existing airport, apron, and access road will be utilized.

3.. Have crossings of fish streams been located to minimize adverse impacts to the extent practicable? (Contact agencies with jurisdiction or special expertise as appropriate. )

No fish streams will be crossed as a result of this project.

3.a. Has adverse affects to fish spawning habitat been minimized?

Yes, no fill will be placed below OHW of fish spawning habitat. Riprap placed along the airport access road will be the minimal necessary for protection, and has been coordinated with the respective agencies.

3b. Have stream crossings been designed in accordance with the DOT&PF/ADF&G culvert design and construction memorandum of agreement?

N/A

4. If the Regional Environmental Coordinator has determined that the project may adversely affect Essential Fish Habitat (EFH) list the preliminary EFH conservation measures.

The following mitigation measures will minimize impacts to anadromous fish habitat:

- Erosion protection riprap will be limited to the absolute minimum necessary to stabilize the road.
- Riprap will be clean of all fine-grained materials.
- Project specifications will include special conditions for the implementation and maintenance of Best Management Practices (BMPs) during construction to minimize the project's impact to water quality. (See section

5. Have abandoned pads, roads, runways and other fills associated with the airport project been considered for gravel re-use, rehabilitation, and/or restoration?

N/A. All existing facilities associated with the present airport will be utilized for the proposed project. The material site is located in uplands (non-wetland).

#### IV. Material Site Considerations:

Contractor supplied and commercial material sites are not to an avoidance and minimization review.

1. Has a material site designated for the project? If yes continue, if no go to V.

Yes

1.a. If a new material site is required, have you considered locating and accessing material an adequate distance from the airport so that it can be reclaimed as wetlands or other wildlife habitat?

Yes, however the material site is located in the only upland area in the community.

1.b. Would a new site, located a safe distance from the airport, require a new road, resulting in additional wetland resource or community use impacts? Are there means to avoid a new access road? Would development of this new site result in more or less wetland impacts than a new or existing material site located closer to the airport?

Access to the new material site will impact additional 0.17 acres of wetland. The access road was re-routed to avoid a blackfish habitat area and a cultural site. Use of the existing material site is not feasible. The existing material site is no longer geotechnically sound and would not provide sufficient material needed for the proposed project. The new material site is located on an upland habitat area, and will not result in wetland impacts.

1.c. If a new or existing material site has been selected that would be located a safe distance from the airport and requires minimal additional road building, has a mine reclamation plan? If located an appropriate distance from the airport can the material site be reclaimed to provide open water habitat such as, shallows, islands, and irregular shorelines? (Consult agencies with jurisdiction or special expertise.)

The material site will be located on the hillside. The entire area surrounding Nightmute is a wetland, with the exception of this hillside. Creating an open water habitat area in the only upland area in the community is not feasible or necessary.

1.d. Has geotechnical and hydrological information been collected and used to maximize gravel exploitation while minimizing wetland impacts (e.g., mining deeper, adjusting material site boundaries, and using portions of the pit for temporary stockpiling of material)?

Not applicable. The material site is located in upland. The material site was redefined to exclude the wetlands at the lower end of the mountain slope. No stockpiling will occur in wetland habitat.

1.e. Has a long-term material site been considered? If so, can a portion of the site be closed and reclaimed at the end of this project?

No, the material site will be reclaimed and graded to prevent precipitation accumulation and a formation of a pond, which could destabilizes the hillside.

## **V. Additional Material Site Considerations:**

1. Will project overburden be stockpiled (preferably in uplands) for use as "top soil" or in reclamation of material sites or previously disturbed areas?

The overburden will be stockpiled at the material site and on existing embankments, and used to reclaim the material site after construction. The material site will be graded to drain so that a pond is not created.

2. How will access roads and other fills associated with the material site be restored upon project completion?

The airport access road will continue to provide access to the airport. The haul road will not be reclaimed because the Nightmute community wants to keep it as a route for future development. Side slopes on all embankments will be fertilized and seeded.

3. Can development of the material site be timed to avoid or minimize affects during spawning, migration and nesting periods? (Consult agencies with jurisdiction or special expertise).

Vegetation clearing will be avoided between May 5<sup>th</sup> and July 25<sup>th</sup> to avoid impacts to migratory birds as recommended by the USF&WS.