

APPENDIX B

**USACE Jurisdictional Determination
and Wetland Analysis**

USACE Jurisdictional Determination



DEPARTMENT OF THE ARMY
 U.S. ARMY ENGINEER DISTRICT, ALASKA
 P.O. BOX 898
 ANCHORAGE, ALASKA 99506-0898

REPLY TO
 ATTENTION OF:

FEBRUARY 05 2002

Regulatory Branch
 South Section
 9-2002-0112

RECEIVED

FEB 12/02

52503

ACTION	
COPY	
Team Design Environmental Section	
D&E Engr.	
Project Mgr.	
Team Coord.	
Team Leader	SD
Staff	4
07/06/01 ML	CS
Permits Hydrologist	
Project File	2
Central File	

Ms. Kristen J. Hansen
 Alaska Department of Transportation and Public Facilities
 4111 Aviation Drive
 Anchorage, Alaska 99519-6900

Dear Ms. Hansen:

This is regarding your request for a Department of the Army (DA) jurisdictional determination in response to the New Seward Highway, Rabbit Creek Road to 36th Avenue, Preliminary Wetlands Jurisdictional Determination, prepared by HDR Alaska, Inc. (HDR), dated November 2001. HDR performed wetland delineations within the New Seward Highway right-of-way, from 36th Avenue to Rabbit Creek Road, located within sections 29 & 32, T. 13 N.; sections 5, 8, 17, 29, 32, & 33, T. 12 N; R. 3 W., Seward Meridian; in Anchorage, Alaska.

Based on our review of the information furnished, information available to our office, and our on-site field inspections, we concur with the wetland delineations depicted in the above-cited report. The report identified 16 wetland areas and several creeks (Fish Creek, Campbell Creek, North Fork of Little Campbell Creek, South Fork of Little Campbell Creek, Furrow Creek, and Rabbit Creek) within the project vicinity defined above. We have determined that all of the aforementioned creeks and wetland areas identified as 1, 4, 6, 9, 10, 11, 12, 15, & 16 are waters of the U.S., under our regulatory jurisdiction (see enclosures titled, "BASIS FOR JURISDICTIONAL DETERMINATION"). Furthermore, we have determined that the wetland areas identified as 2, 3, 5, 7, 8, 13, & 14 are isolated wetlands, which are not subject to our regulatory jurisdiction. This jurisdictional determination does not establish any precedent with respect to any other jurisdictional determination under Section 404 of the Clean Water Act.

The DA exerts regulatory jurisdiction over waters of the United States, including wetlands, pursuant to Section 404 of the Clean Water Act. If development plans entail a discharge or placement of dredged and/or fill material into any of the aforementioned creeks or wetland areas identified as 1, 4, 6, 9, 10, 11, 12, 15, & 16, issuance of an individual DA permit may be required prior to initiating work. The upland and isolated wetland areas identified above within the project area may be developed without DA authorization.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to this office before the expiration date. Also, enclosed is a Notification of Administrative Appeals Options and Process and Request for Appeal form regarding this Department of the Army Approved Jurisdictional Determination.

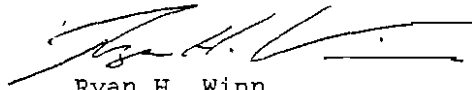
Nothing in this letter shall be construed as excusing you from compliance with other Federal, State, or local statutes, ordinances, or regulations that

may affect any proposed work. For informational purposes, a copy of this letter is being sent to the agencies and individuals on the enclosed list.

Please take a moment to complete and return the enclosed questionnaire. Our interest is to see how we can continue to improve our service to you and how best to achieve these improvements. Upon your request, you may also provide additional comments by telephone or a meeting. We appreciate your efforts and interest in evaluating the regulatory program.

We appreciate your cooperation with the Corps of Engineers' Regulatory Program. Please refer to file number 9-2002-0112 in future correspondence or if you have any questions concerning this determination. You may contact me at the letterhead address, ATTN: CEPOA-CO-R-S, at (907) 753-2712, or by FAX at (907) 753-5567. For additional information about our Regulatory Program, visit our web site at www.poa.usace.army.mil/reg.

Sincerely,



Ryan H. Winn
Project Manager

Enclosures

Copies Furnished:

Mr. Tim Rumfelt
Alaska Department of Environmental
Conservation
555 Cordova Street
Anchorage, Alaska 99501-2617

Anne Leggett
HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, Alaska 99503-2639

Project Coordinator
Office of Management and Budget
Division of Governmental Coordination
550 West 7th Avenue, Suite 1660
Anchorage, Alaska 99501-3568

Ms. Ann Rappoport
Field Supervisor
U.S. Fish and Wildlife Service
Ecological Service Anchorage
605 West 4th Avenue, Room 62
Anchorage, Alaska 99501-2249

Supervisor
Western Alaska Ecological
National Marine Fisheries Service
222 West Seventh Avenue, # 43
Anchorage, Alaska 99513-7577

Ms. Judith Bittner
Department of Natural Resources
State Historic Preservation Office
550 W. 7th Avenue, Suite 1310
Anchorage, Alaska 99501-3565

Mr. Richard B. Thompson
State of Alaska
Department of Natural Resources
Division of Land
550 W. 7th Avenue, Suite 900C
Anchorage, Alaska 99501-3577

Mr. Gary Prokosch
State of Alaska
Department of Natural Resources
Division of Water
550 W. 7th Avenue, Suite 900A
Anchorage, Alaska 99501-3577

Mr. Lance Trasky
Regional Supervisor
Habitat Division Region II
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518-1599

Alaska Operations Office
Environmental Protection Agency
222 West Seventh Avenue, # 19
Anchorage, Alaska 99513-7588

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: ADOT&PF		File Number: 9-2002-0112	Date: February 2002
Attached is:		See Section below	
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
	PERMIT DENIAL	C	
X	APPROVED JURISDICTIONAL DETERMINATION	D	
	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I: The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecw/req> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II: REQUEST FOR APPEAL OR OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION

If you have questions regarding this decision and/or the appeal process you may contact:

Ryan H. Winn, Project Manager
Alaska District Corps of Engineers
CEPOA-CO-R-
PO BOX 898
Anchorage, AK 99506-0898
(907) 753-2712
(800) 478-2712 (toll free in AK)

If you only have questions regarding the appeal process you may also contact:

Commander
ATTN: ET-C/Michael Lee
USAED, Pacific Ocean
Building 230
Fort Shafter, HI 96858-5440

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.	Date:	Telephone number:
----------------------------------	-------	-------------------

Mail to:

Commander
ATTN: ET-C/Michael Lee
USAED, Pacific Ocean
Building 230
Fort Shafter, HI 96858-5440

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;

(1) , (2) , (3) , and (4) . <check the number as appropriate>

(6) A territorial sea;

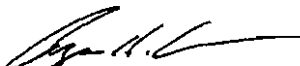
(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list

Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of the wetland

2. **SOME INDICATORS SUPPORTING THE DETERMINATION:** indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. **Rationale:** Wetland 1 drains directly into the piped channel of Fish Creek via a storm drain that is located at the southern end of the wetland. The wetland is hydrologically contiguous with a tributary to navigable waters of the U.S. and is therefore subject to Corps regulatory jurisdiction under Section 404 of the Clean Water Act.



Ryan H. Winn
Project Manager
South Section

2/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;
(1) , (2) , (3) , and (4) . <check the number as appropriate>

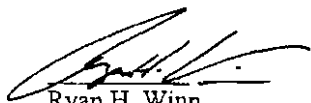
(6) A territorial sea;

(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list
 Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of adjacent non-tidal wetlands

2. SOME INDICATORS SUPPORTING THE DETERMINATION: indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. Rationale: Wetland 4 represents an open channel of Fish Creek and its riparian wetland fringe that borders it. The wetland exchanges water directly with Fish Creek and is therefore hydrologically contiguous with a tributary to navigable waters of the U.S. and is subject to Corps regulatory jurisdiction under Section 404 of the Clean Water Act


Ryan H. Winn
Project Manager
South Section

7/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;

(1) , (2) , (3) , and (4) . <check the number as appropriate>

(6) A territorial sea;

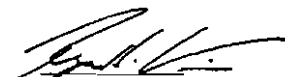
(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list

Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of adjacent non-tidal wetlands

2. **SOME INDICATORS SUPPORTING THE DETERMINATION:** indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. **Rationale:** Wetland 6 represents an open channel of Campbell Creek and the riparian wetland fringe that borders it. The wetland directly exchanges water with Campbell Creek. The wetland is hydrologically contiguous with a tributary to navigable waters of the U.S. and is therefore subject to Corps regulatory jurisdiction under Section 404 of the Clean Water Act.


Ryan H. Winn
Project Manager
South Section

2/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;
(1) , (2) , (3) , and (4) . <check the number as appropriate>

(6) A territorial sea;

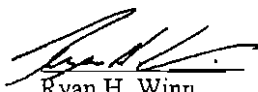
(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

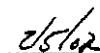
B. Limits of jurisdiction: Section 10: pick list Limits: pick list

Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of adjacent non-tidal wetlands

2. SOME INDICATORS SUPPORTING THE DETERMINATION: indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. Rationale: Wetland 9 represents an open channel of the North Fork of Little Campbell Creek and several wetland areas that border it. These wetlands directly exchange water with the North Fork of Little Campbell Creek and are therefore hydrologically contiguous with a tributary to navigable waters of the U.S. and subject to DA regulatory jurisdiction under Section 404 of the Clean Water Act.


Ryan H. Winn
Project Manager
South Section


Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;

(1) , (2) , (3) , and (4) . <check the number as appropriate>

(6) A territorial sea;

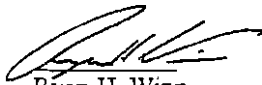
(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list

Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of the wetland

2. SOME INDICATORS SUPPORTING THE DETERMINATION: indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. Rationale: Wetland 10 is hydrologically contiguous with an open channel of the North Fork of Little Campbell Creek, which crosses through the middle of this wetland. These wetlands are hydrologically contiguous with a tributary to navigable waters of the U.S. and are therefore subject to DA regulatory jurisdiction under Section 404 of the Clean Water Act


Ryan H. Winn
Project Manager
South Section

2/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commeree, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;

(1) , (2) , (3) , and (4) . <check the number as appropriate>

(6) A territorial sea;

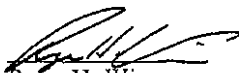
(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list

Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of the wetland

2. SOME INDICATORS SUPPORTING THE DETERMINATION: indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydrie on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. Rationale: Wetland 11 represents the open channel of the South Fork of Little Campbell Creek and its bordering wetland fringes, where it transects the NSHW. These riparian wetlands directly exchange water with the South Fork of Little Campbell Creek and are therefore hydrologically contiguous with a tributary to navigable waters of the U.S. and subject to DA regulatory jurisdiction under Section 404 of the Clean Water Act.


Ryan H. Winn
Project Manager
South Section

2/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

- (1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);
(2) An interstate water, including interstate wetlands;
(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
(a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
(b) From which fish or shellfish are, or could be taken and sold in interstate or foreign commerce; or
(c) Which are used or could be used for industrial purpose by industries in interstate commerce;
(d) Other;
(4) An impoundment of water otherwise defined as a water of the United States under the definition;
(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;
(1) , (2) , (3) , and (4) . <check the number as appropriate>
(6) A territorial sea;
(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list
 Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of adjacent non-tidal wetlands

2. SOME INDICATORS SUPPORTING THE DETERMINATION: indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. Rationale: Wetland 12 drains into a historically piped tributary of the South Fork of Little Campbell Creek, which empties into the open channel of the South Fork of Little Campbell Creek. This wetland is hydrologically contiguous with a tributary to waters of the U.S. and is therefore subject to Corps regulatory jurisdiction under Section 404 of the Clean Water Act.

Ryan H. Winn
Project Manager
South Section

2/5/02
Date

1 Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;

(1) , (2) , (3) , and (4) . <check the number as appropriate>

(6) A territorial sea;

(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10: pick list Limits: pick list

Limits of jurisdiction: Section 404: non-tidal water Limits: to limit of adjacent non-tidal wetlands

2. **SOME INDICATORS SUPPORTING THE DETERMINATION:** indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. **Rationale:** Wetland 15 corresponds to AWMP identified wetland #66 (a.k.a. Moose Meadows). This wetland is described in the AWMP as containing the headwaters of the North Fork of Furrow Creek. This wetland also drains directly into Furrow Creek to its south. This wetland area is hydrologically contiguous with a tributary to waters of the U.S. and is therefore subject to Corps regulatory jurisdiction under Section 404 of the Clean Water Act.


Ryan H. Winn
Project Manager
South Section

2/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

BASIS FOR JURISDICTIONAL DETERMINATION

Applicant: ADOT & PF File #: 9-2002-0112

The U.S. Army Corps of Engineers, Alaska District, Regulatory Branch has evaluated your project site to determine the presence or absence waters of the United States, including wetlands, which are subject to regulatory jurisdiction under Section 404 of the Clean Water Act and/or Section 9 and/or Section 10 of the Rivers and Harbors Act of 1899.

1. DETERMINATION:

A. This site has jurisdictional Waters of the United States, which are defined in 33 CFR 328.3. Your site has:

(1) A waterway which is currently used, or was used in the past, or may be susceptible to use in interstate or foreign commerce, including all water which is subject to the ebb and flow of the tide (navigable water);

(2) An interstate water, including interstate wetlands;

(3) A water such as an intrastate lake, river, stream (including intermittent streams), mudflat, sandflat, wetland, slough, prairie pothole, wet meadow, playa lake, or a natural pond, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- (a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- (b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- (c) Which are used or could be used for industrial purpose by industries in interstate commerce;
- (d) Other;

(4) An impoundment of water otherwise defined as a water of the United States under the definition;

(5) A tributary to a water identified in paragraphs (A)(1) through (4) above;
(1) , (2) , (3) , and (4) . <check the number as appropriate>

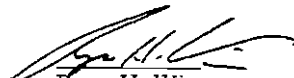
(6) A territorial sea;

(7) A wetland adjacent¹ to waters (other than waters that are themselves wetlands) identified in paragraphs (A) (1) through (6) above: (1) , (2) , (3) , (4) , (5) , (6) ; <check the number as appropriate>

B. Limits of jurisdiction: Section 10; pick list Limits: pick list
 Limits of jurisdiction: Section 404; non-tidal water Limits: to limit of adjacent non-tidal wetlands

2. SOME INDICATORS SUPPORTING THE DETERMINATION: indicated as wetland on National Wetland Inventory map; aerial photography interpretation; wetland hydrology; soils listed as hydric on soils map; hydric soils as determined by field inspection; hydrophytic plant community; adjacency to navigable or interstate waters; linkage to interstate or foreign commerce; other:

3. Rationale: Wetland 16 represents wetland areas that consist of a pond and adjacent wetlands, which span between AWMP identified wetland #66 (a.k.a Moose Meadows) and the open channel of Furrow Creek and AWMP identified wetland #76. These wetlands drain directly into the historically buried/piped Furrow Creek. These wetlands are hydrologically contiguous with a tributary to waters of the U.S. and are therefore subject to Corps regulatory jurisdiction under Section 404 of the Clean Water Act.


Ryan H. Winn
Project Manager
South Section

2/5/02
Date

¹ Adjacency is defined in 33 CFR 328.3 (c) as "bordering, contiguous, or neighboring," with the further clarification that "[w]etlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands'."

Wetland Analysis

**New Seward Highway:
Rabbit Creek Road to 36th Avenue Project**

WETLANDS ANALYSIS

**Project Number: FRAF-CA-MGS-NH-A3-1(27)
ADOT&PF Project No. 52503**



**Prepared for:
Alaska Department of Transportation
and Public Facilities
Central Region
and
CH2M Hill**

**Prepared by:
HDR Alaska, Inc.
Anchorage, Alaska**

November 2005

Table of Contents

Section	Page
1.0 INTRODUCTION	1
2.0 WETLAND BOUNDARIES, TYPES, AND FUNCTIONS.....	1
2.1 Methods	1
2.2 Results.....	3
2.2.1 Locations.....	3
2.2.2 Management Designations.....	3
2.2.3 Individual Wetland Descriptions and Functions.....	3
Wetland 1	10
Wetland 2	10
Wetland 3	10
Wetland 4.....	11
Wetland 5.....	11
Wetland 6.....	11
Wetland 7.....	12
Wetland 8.....	13
Wetlands 9, 10, and 11.....	13
Wetland 13.....	14
Wetland 14.....	14
Wetland 15.....	15
Wetland 16.....	15
Wetland 17.....	16
3.0 REFERENCES	17

List of Tables

Table 1 – Summary of Types and Functions of Wetland within the Project Right-of-Way4

List of Figures

Figure 1 – Project Vicinity

Figure 2 – Anchorage Wetlands Management Plan Wetland Boundaries and Designations

Figures 3 through 12 – Wetland Boundaries

1.0 INTRODUCTION

The Alaska Department of Transportation and Public Facilities (ADOT&PF) is developing transportation improvements to the New Seward Highway from Rabbit Creek Road to 36th Avenue (Figure 1). A significant portion of the New Seward Highway is at or over capacity during peak hours and as South Anchorage continues to grow demand on this corridor will increase. Within the project limits, the New Seward Highway has several deficiencies including a lack of pedestrian and bicycle facilities, substandard structure clearance, substandard illumination, and an incomplete frontage road system. In addition, the New Seward Highway demonstrates accident rates above the national average for freeways. The potential role of a variety of transportation system components will be considered including added lanes and interchanges along the New Seward Highway; improved public transit, bicycle, and pedestrian pathway improvements; and traffic engineering development options. The proposed action would provide the opportunity to redesign deficient areas and add facilities to the corridor to meet current standards (CH2M Hill 2001).

This report identifies the location of wetlands within the New Seward Highway right-of-way from Rabbit Creek Road to 36th Avenue. The following describes the wetland types and locations, and the probable functions of those wetlands. The project's effects on Campbell Creek and other non-wetland water resources will be addressed in the appropriate sections of the project's Environmental Impact Statement.

2.0 WETLAND BOUNDARIES, TYPES, AND FUNCTIONS

Prior to development of Anchorage in the past century, much of the present New Seward Highway Project corridor from 36th Avenue to Huffman Road was wetland. The area from Huffman Road to Rabbit Creek Road was, however, primarily upland. Most of the wetlands within the project limits are remnants of once larger wetland complexes. Extensive wetlands existed in areas contiguous with Fish Creek, Campbell Creek, North Fork of Little Campbell Creek, South Fork of Little Campbell Creek, and Furrow Creek. Development has led not only to the fragmentation but also to the isolation of many of the extant wetlands in the project area.

2.1 Methods

Delineations followed the methods defined in the U.S. Army Corps of Engineers' (ACOE) 1987 wetland delineation manual (ACOE 1987). Information used to initially define locations of wetlands along the alignment includes: Anchorage Wetlands Management Plan (AWMP; Municipality of Anchorage (MOA) 1996), stereoscopic interpretation of June 1990 aerial photographs, digital orthophotos (Aeromap 2000, MOA 2005), National Wetland Inventory (NWI) maps (Anchorage A-8), and the Anchorage Soil Survey (U.S. Department of Agriculture 1979). The primary field investigation was conducted in July and August 2001 to define the extent of wetlands within the project area and to collect information on those wetlands' potential ecological functions. Additional field work was completed in July 2003 to define wetland boundaries based on the updated project area and identify changes to the previously mapped wetlands resulting from the new construction. Where wetland boundaries were not immediately

clear, site vegetation, soils, and hydrology were more closely examined so a boundary could be defined. Each wetland was classified using Cowardin's wetland classification system (Cowardin et al. 1979). General locations of wetlands in the project corridor are shown on Figures 3 through 12.

A preliminary wetlands jurisdictional determination was submitted to the Corps of Engineers for this project in December 2001. Wetland delineation and jurisdictional determination were not straightforward in the New Seward Highway right-of-way. A recent court decision (SWANCC vs. ACOE limits Corps jurisdiction over wetlands that do not have a direct surface connection to navigable waters ("isolated wetlands"). During field investigation an attempt was made to determine if a wetland was isolated or connected to tributaries of navigable waters. A wetland was determined to be hydrologically connected to tributaries of navigable waters if there was a continuous surface water connection or an indirect connection via a wetland ditch. Wetlands that were connected to waters via a storm drain system were considered connected only if the storm drain system represents a piped stream channel. The Corps of Engineers issued a jurisdictional determination for this project in February 2002. Several project area wetlands were determined to be isolated and therefore, non-jurisdictional. The jurisdictional status of each wetland, as determined by the Corps, is listed in Table 1.

According to the Corps, non-tidal drainage ditches constructed on previously dry land are generally not considered to be waters of the U.S. The Corps, however, reserves the right on a case-by-case basis to determine whether or not a particular drainage ditch represents a water of the U.S. A meeting was held with Corps of Engineers staff to evaluate and determine which roadside areas within the New Seward Highway right-of-way would be considered road ditches that are not considered waters of the U.S. Based on our discussions and field investigations with the Corps, several roadside areas possessing wetland characteristics within the project area (including all ditches within the central median) were considered by the Corps to be 'road ditches' in both function and design and therefore not waters of the U.S. These areas were typically located at the toe of fill slopes, were linear and narrow in shape, were located in previously upland areas, and were not connected to other waters of the U.S., including wetlands. Most of these areas had been shallowly filled. Hydrophytic vegetation in these ditches consisted of opportunistic, pioneer plants unlike the climax species found in mature wetland communities.

In addition to wetland delineation and mapping, a determination of specific wetland functions was completed. The MOA assessed the functions of Anchorage wetlands to support classifying each area for regulatory and management purposes in the AWMP. The functions of the mapped wetlands were reviewed. The probable functions of the wetlands were then determined based primarily on professional judgment. Information considered in determining functions includes: topographic setting of the wetland, surface water and groundwater inputs, soil type (peat versus mineral), subsurface layers that would retard internal drainage, presence of a surface water outlet, potential for flooding, nearby land uses, vegetation types, reported and observed uses by wildlife, and types and degree of disturbance.

2.2 Results

2.2.1 Locations

Wetland boundaries are shown in detail on Figures 3 through 12. AWMP boundaries and designations are shown on Figure 2. Project area wetlands were generally both small and isolated (generally limited to within the right-of-way) or were parts of wetland complexes that continued well outside the highway right-of-way. The complete boundaries of wetlands that extend outside of the right-of-way are not mapped; only the boundaries falling within the right-of-way were delineated. During field investigations, it was noted that many AWMP wetland boundaries were inaccurate. At these locations, the entire wetland boundary was not re-delineated; accurate boundaries were only drawn within the highway right-of-way. Accurate field-delineated boundaries are shown in red or green depending on their jurisdictional status. Any boundaries shown outside the right-of-way are approximate only, and are drawn simply to show the proximity of the wetlands to the right-of-way.

2.2.2 Management Designations

The MOA classified its wetlands in the AWMP. The designation of wetlands as “A”, “B”, or “C” wetlands was based on the functions each wetland is thought to perform, and the value of each of those functions within the context of the Anchorage Bowl. “A” wetlands are designated for preservation, and are to be maintained in their natural state to the maximum extent practicable. Minor encroachments for roads, utilities, and trails at these wetlands’ fringes will be considered if no other alternatives exist. “B” wetlands are slated for retention of their functions, while also allowing for their economically viable use. Development in these wetlands is to be planned to preserve key functions. “C” wetlands are the least valuable of Anchorage wetlands. Development within them is to be allowed, as necessary, to allow for community expansion. The AWMP has stated that development of “C” wetlands in accordance with the policies presented in that plan “should have an insignificant cumulative impact on overall functions and values of Municipality of Anchorage wetlands”. Most of the mapped wetlands along the New Seward Highway are designated as “B” or “C” wetlands although “A” wetlands occur near Campbell Creek. Many of the smaller wetland complexes identified during field investigation are not mapped in the AWMP.

2.2.3 Individual Wetland Descriptions and Functions

Table 1 lists the jurisdictional status, size, NWI type, and function(s) of each wetland in the right-of-way. Humans have altered all of the project area wetlands; the ways in which each wetland has been disturbed are also listed in Table 1.

Table 1
Summary of Types and Functions of Wetlands within the Project Right-of-Way

Wetland Location, Report #, and ACOE Jurisdictional Status	AWMP ^a Wetland #	Approx. Size	NWI Wetland Type ^b	AWMP ^a Wetland Class and Assessment Scores	Types of Existing Human-Caused Disturbances	Wetland Functions
North of Tudor, west of NSH #1 Jurisdictional	Not mapped	0.37 acre	PEM2H	N/A	<ul style="list-style-type: none"> • Encroachment of fill from highway and parking lots • Light tower • Poor water quality input from parking areas and roads • Area has been excavated, filled, and re-graded 	<ul style="list-style-type: none"> • Retains sediment and other pollutants from local runoff • Detains storm water • Aesthetic value
North of Tudor, west of NSH #2 Non-Jurisdictional	Not mapped	0.11 acre	PEM1C	N/A	<ul style="list-style-type: none"> • Contains road fill • Adjacent to parking area and road fill • Poor water quality input 	<ul style="list-style-type: none"> • Detains storm water • Retains sediment and other pollutants from local runoff
North of Tudor, east of NSH #3 Non-Jurisdictional	Not mapped	0.03 acre	PEM1C	N/A	<ul style="list-style-type: none"> • Contains road fill • Poor water quality input • Isolated from fork of Fish Creek 	<ul style="list-style-type: none"> • Detains storm water • Retains sediment and other pollutants from local runoff
North of Tudor, east of NSH, fork of Fish Creek and fringe wetlands #4 Jurisdictional	Part of wetland 42	N/A	R3UBH & PEM1C	<p>B</p> <p>Hydrology = 105 Habitat = 85 Species Occur. = 28 Social Fxn = 54</p>	<ul style="list-style-type: none"> • Adjacent to road fill • Poor water quality input • Creek enters storm drain at this location • Urbanized watershed has altered flow regime • Alterations to the creek and floodplain 	<ul style="list-style-type: none"> • Conveys flows • Fish and wildlife habitat • Exports organic matter and nutrients to creek (fringe wetlands) • Removes sediments and pollutants (fringe wetlands) • Slows flow of local runoff to Fish Creek (wetlands)

Table 1
Summary of Types and Functions of Wetlands within the Project Right-of-Way

Wetland Location, Report #, and ACOE Jurisdictional Status	AWMP ^a Wetland #	Approx. Size	NWI Wetland Type ^b	AWMP ^a Wetland Class and Assessment Scores	Types of Existing Human-Caused Disturbances	Wetland Functions
North of Tudor, east of NSH #5 Non-Jurisdictional	Part of wetland 42	0.36 acre	PSS1C	B Hydrology = 105 Habitat = 85 Species Occur. = 28 Social Fxn = 54	<ul style="list-style-type: none"> • Contains fill • Large amount of trash • Poor water quality input • Isolated from larger wetland complex 	<ul style="list-style-type: none"> • Adjacent to larger wetland complex • Detains storm water • Retains sediment and other pollutants from local runoff
Campbell Creek #6 (Waters of the U.S.)	N/A	N/A	R3UBH	N/A	<ul style="list-style-type: none"> • Urbanized watershed has altered flow regime • Poor water quality input • Trampled banks • Change in floodplain due to highway construction • Sanitary sewer line • Adjacent to road fill 	<ul style="list-style-type: none"> • Aesthetic values • Conveys flows • Fish and wildlife corridor and habitat • Recreation
Fringe wetlands surrounding Campbell Creek #6 Jurisdictional	Not Mapped	N/A	PEM1C	N/A	<ul style="list-style-type: none"> • Clearing of banks for highway construction • Change in floodplain due to highway and utility fills • Areas of trampled banks • Sanitary sewer line • Adjacent to road fill 	<ul style="list-style-type: none"> • Aesthetic value • Exports organic matter and nutrients to creek • Human recreation • Removal of sediment from creek • Retention of sediment from storm water entering Campbell Creek • Slows flow of local runoff to Campbell Creek • Stores creek overflow during floods • Travel corridor for wildlife
North of Dowling, west of Seward Highway (plus extension) #7 Non-Jurisdictional	46	28 acres	PSS1/E M1C	C Hydrology = 106 Habitat = 50 Species Occur. = 18 Social Fxn = 39	<ul style="list-style-type: none"> • Adjacent to road fill • Low quality water input • Sanitary sewer line 	<ul style="list-style-type: none"> • Aesthetic values • Detains storm water • Retains sediment and other pollutants from local runoff • Wildlife habitat

Table 1
Summary of Types and Functions of Wetlands within the Project Right-of-Way

Wetland Location, Report #, and ACOE Jurisdictional Status	AWMP ^a Wetland #	Approx. Size	NWI Wetland Type ^b	AWMP ^a Wetland Class and Assessment Scores	Types of Existing Human-Caused Disturbances	Wetland Functions
North of Dowling, east of NSH, in median and off frontage road #8 Non-Jurisdictional	Not Mapped	0.35 acre	PEM2H	N/A	<ul style="list-style-type: none"> • Area has been excavated and re-graded • Poor quality water input from roads and snow dump • Area of fill from highway road sign is partially blocking drainage ditch 	<ul style="list-style-type: none"> • Detains storm water • Retains sediment and other pollutants from local runoff
Between 68 th and 70 th Ave, west and east of NSH, North Fork of Little Campbell Creek and fringe wetlands #9 Jurisdictional	Not Mapped	N/A	PEM1C	N/A	<ul style="list-style-type: none"> • Urbanized watershed has altered flow regime • Alterations to the creek and floodplain from highway construction • Poor quality water input • Sanitary sewer line • Adjacent to road fill 	<ul style="list-style-type: none"> • Conveys flows • Export of detritus to creek (fringe wetlands) • Fish and wildlife habitat • Sediment and pollutant removal (fringe wetlands) • Slows flow of local runoff to Little Campbell Creek
South of North Fork of Little Campbell Creek, east of NSH # 10 Jurisdictional	Not Mapped	2.0 acres	PEMIC	N/A	<ul style="list-style-type: none"> • Poor water quality input • Adjacent to highway and frontage road fills • Area has been excavated and re-graded • Sanitary sewer line 	<ul style="list-style-type: none"> • Conveys flows to Little Campbell Creek • Detains storm water • Retains sediment and other pollutants from local runoff • Slows flow of local runoff to Little Campbell Creek • Stores creek overflow during floods

Table 1
Summary of Types and Functions of Wetlands within the Project Right-of-Way

Wetland Location, Report #, and ACOE Jurisdictional Status	AWMP ^a Wetland #	Approx. Size	NWI Wetland Type ^b	AWMP ^a Wetland Class and Assessment Scores	Types of Existing Human-Caused Disturbances	Wetland Functions
South fork of Little Campbell Creek and fringe wetlands, west and east of NSH #11 Jurisdictional	Not Mapped	N/A	R3UBH & PEM1C	N/A	<ul style="list-style-type: none"> Urbanized watershed has altered flow regime Alterations to the creek and floodplain from highway construction Poor quality water input Adjacent to road fill 	<ul style="list-style-type: none"> Conveys flows Exports organic matter and nutrients to creek (fringe wetlands) Fish and wildlife habitat Removes sediment and pollutants (fringe wetlands) Slows flow of local runoff to Little Campbell Creek (wetlands)
North of O'Malley, west of NSH #13 Non-Jurisdictional	60C	1.8 acres	PEM1/2 H _x	C Not assessed	<ul style="list-style-type: none"> Poor quality water input including snow dump effluent Bike path Adjacent to bike path and highway fill 	<ul style="list-style-type: none"> Aesthetic value Detains storm water Retains sediment and other pollutants from local runoff Wildlife habitat
South of O'Malley, east of NSH #14 Non-Jurisdictional	Not Mapped	0.3 acre	PSS1/E M1C	N/A	<ul style="list-style-type: none"> Adjacent to road fill Poor quality water input 	<ul style="list-style-type: none"> Detains storm water Retains sediment and other pollutants from local runoff Wildlife habitat
North of Huffman, east of NSH, (Moose Meadows) #15 Jurisdictional	66	69 acres	PSS1/E M1C	B Hydrology = 112 Habitat = 110 Species Occur. = 65 Social Fxn = 57	<ul style="list-style-type: none"> Golf course Fill pad for driving range Adjacent to road fill Poor quality water input Sanitary sewer line 	<ul style="list-style-type: none"> Headwaters of North Fork of Furrow Creek Retains sediment and other pollutants from local runoff Slows flow of local runoff to Furrow Creek Wildlife habitat

Table 1
Summary of Types and Functions of Wetlands within the Project Right-of-Way

Wetland Location, Report #, and ACOE Jurisdictional Status	AWMP ^a Wetland #	Approx. Size	NWI Wetland Type ^b	AWMP ^a Wetland Class and Assessment Scores	Types of Existing Human-Caused Disturbances	Wetland Functions
North of Huffman, east of NSH – pond and infield wetland # 16 Jurisdictional	Not Mapped	0.78 acre	PEM1C	N/A	<ul style="list-style-type: none"> • Encroachment of highway fill • Poor quality water input • Infield wetland is re-graded • Drainage from wetland confined to storm drain 	<ul style="list-style-type: none"> • Aesthetic value (pond) • Detains storm water • Retains sediment and other pollutants from local runoff • Wildlife habitat (pond)
South of Dimond, east NSH-in the center of the clover leaf #17 Jurisdictional	Not Mapped	0.22 acre	PEM1F	N/A	<ul style="list-style-type: none"> • Encroachment of highway fill and fill from highway on-ramp • Poor quality water input • Drainage from wetland confined to storm drain • Area has been excavated and regarded with construction of on-ramp 	<ul style="list-style-type: none"> • Detains storm water • Retains sediment and other pollutants from highway runoff • Wildlife habitat

^aAWMP = Anchorage Wetlands Management Plan (Municipality of Anchorage 1996)
 The following score breaks from the wetland assessment process are general guidelines for delineating wetlands into A, B, or C designations.
 A Wetlands: Hydrology Values >100 – 86, Habitat Values >85-66, Species Occurrence Values >55-26, and Social Function Values >55-36
 B Wetlands: Hydrology Values 85-100, Habitat Values 65-85, Species Occurrence Values 25-55, and Social Function Values 35-55
 C Wetlands: Hydrology Values <85, Habitat Values <65, Species Occurrence Values <25, and Social Function Values <35

Table 1
Summary of Types and Functions of Wetlands within the Project Right-of-Way

Wetland Location, Report #, and ACOE Jurisdictional Status	AWMP ^a Wetland #	Approx. Size	NWI Wetland Type ^b	AWMP ^a Wetland Class and Assessment Scores	Types of Existing Human-Caused Disturbances	Wetland Functions
<p>^bNational Wetlands Inventory uses the following abbreviations to signify wetland characteristics:</p> <p>Wetland System: P = Palustrine. A wetland system including all non-tidal wetlands dominated by trees, shrubs, emergent vegetation, mosses, or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt.; R = Riverine. Wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water; R3 = Upper perennial riverine.</p> <p>Vegetation and Substrate Classes: SS I= Broad-leaved deciduous scrub- shrub; EM1 = Persistent emergent; EM2 = Non-persistent emergent; UB = unconsolidated bottom</p> <p>Water Regime C = Seasonally flooded; H = Permanently flooded; F = Semi-permanently flooded; / = A slash indicates a combination of two wetland classes is present, each representing more than 30 percent of the areal cover. For example, SS/EM indicates that both shrubs and emergent herbs dominate the vegetation type; x = Excavated</p>						

Wetland 1

This wetland is located within the right-of-way on the west side of the New Seward Highway, north of Tudor Road (Figure 3). The dominant vegetation includes water horsetail (*Equisetum fluviatile*), marsh five-finger (*Comarum palustre*), and bluejoint reedgrass (*Calamagrostis canadensis*). Other species present include sweet gale (*Myrica gale*) and cattail (*Typha latifolia*). This wetland has a large area of standing water with soils saturated at the surface.

Extensive development in the area has significantly altered this wetland, which is surrounded by several parking lots, buildings, and the New Seward Highway. Wetland 1 is a remnant of a once larger wetland complex adjacent to a fork of Fish Creek, which is now entirely confined in this section to a storm drain system. A field inlet to this storm drain system is located at the southern end of this wetland. Drainage from this wetland is confined to this storm drain system before discharging into Fish Creek. The wetland contains several inches of fill and fill from the surrounding parking areas is encroaching into the wetland. A light tower for the highway has been constructed in the center of the wetland. The quality of water entering this wetland is degraded as it contains sediment and other pollutants from adjacent parking lots and the highway.

Although this wetland is small in size it retains sediment and other pollutants in runoff from the adjacent parking areas. This function is important to the water quality of Fish Creek. The wetland also retains storm water and the area has some aesthetic value.

Wetland 2

This remnant wetland is located west of the New Seward Highway and north of Tudor Road, south of wetland 1 (Figure 3). It lies within the historical corridor of a fork of Fish Creek. Dominant vegetation includes beaked sedge (*Carex rostrata*), water horsetail, and bluejoint reedgrass. The wetland is inundated with water for most of the growing season. Several inches of soil is disturbed with fill material.

Although this wetland was once part of a large wetland complex surrounding a fork of Fish Creek, it is now isolated. There is no outlet for flows from this wetland and it is not connected to wetland 1. The highway and a parking lot are adjacent to this wetland. Due to its small size and isolation, the functions of this wetland are limited. The wetland retains sediment and other pollutants from local runoff.

Wetland 3

This small, isolated wetland is located east of the highway and north of Tudor Road, entirely within the right-of-way (Figure 3). Dominant vegetation includes beaked sedge and bluejoint reedgrass. The area is inundated with water for most of the growing season.

An unnamed fork of Fish Creek is located approximately 125 feet to the south but this wetland is no longer connected to the creek. Highway construction and subsequent alterations to the creek have isolated this wetland. Although this wetland is small and isolated it detains storm water and retains sediment and other pollutants in runoff.

Wetland 4

This wetland is located south of wetland 3 in the vicinity of a fork of Fish Creek, east of the highway and north of Tudor Road (Figure 3). The creek enters a culvert at this location and travels within a storm drain system until eventually discharging into Fish Creek. The surrounding wetlands are dominated by bluejoint reedgrass and beaked sedge.

The wetlands surrounding the fork of Fish Creek remove sediment from creek waters and slow the flow of runoff to Fish Creek. These wetlands export organic matter and nutrients to the creek. The creek and wetlands provide fish and wildlife habitat, including surface water for water-dependant birds. The wetlands also detain pollutants including sediment from runoff.

Wetland 5

This wetland is located east of the New Seward Highway and north of Tudor Road, south of wetland 4 (Figure 3). Upon field investigation, the boundaries of the wetland have been modified from the boundaries designated in the AWMP. The portion of AWMP wetland that lies within the New Seward Highway right-of-way is not hydrologically connected to the rest of AWMP #42. An upland barrier exists north of this wetland and isolates it from the small fork of Fish Creek and the larger wetland complex. The wetland is approximately 0.36 acre and is entirely contained within the highway right-of-way. Dominant vegetation in this isolated wetland includes sweet gale, common horsetail (*Equisetum arvense*), marsh five-finger, bluejoint reedgrass, and willows (*Salix* species). Several areas of standing water exist within the wetland with saturated soil at the surface.

Prior to the highway construction, this area was likely contiguous with the fork of Fish Creek and surrounding wetlands. It appears that a barrier of fill was placed within the right-of-way that isolated this area from the rest of the wetland complex. A significant amount of litter was present in the wetland and the soils contained several inches of fill.

Although the AWMP has mapped this wetland as a “B” wetland and has given the area relatively high marks for hydrologic, habitat, and social functions, the portion the AWMP #42 in the highway right-of-way is not connected to the main portion of wetland #42 and does not have an outlet. The isolation of this area probably reduces the functions of this wetland. The area does, however, retain sediment and other pollutants carried in runoff. The habitat quality is limited by the remnant nature of the habitat and by disturbance from nearby human activity.

Wetland 6

Campbell Creek flows under the New Seward Highway at this location. A small fringe of wetlands borders the creek (Figure 4). The AWMP maps the surrounding area as “A” and “C” wetlands but upon field investigation the boundaries of the wetland have been modified. Portions of the wetlands within the right-of-way mapped by the AWMP were actually found to be uplands.

Prior to development, extensive wetlands were contiguous with Campbell Creek. Development has led to the modification of the creek’s watershed, which has altered the flow regime. Highway and bike path construction have disturbed the creek and surrounding wetlands in addition to altering the floodplain. Human recreational uses of the area have resulted in areas of

trampled banks and significant amounts of trash in the area. A sewer trunk passes through this area. The Anchorage Waterways Council has recently undertaken a bank restoration project downstream by revegetating a portion of severely impacted banks with willow bundles and other native vegetation.

The wetlands along the creek bank shade the creek and support plant life along the banks. The plants provide habitat for invertebrates, which along with plant material, drop into the creek and become food for aquatic organisms. Plants' roots and stems also protect the bank against erosion. A narrow portion of the wetland surrounding Campbell Creek in the right-of-way is within the 100-year floodplain. When the creek floods its banks, the vegetation and irregularities of the ground surface nearest the creek slow the flow of water and the low areas serve to temporarily store it; these functions protect against flooding and erosion downstream. Riparian wetlands slow the rate of surface and near-surface water flow to the creek, helping moderate creek flows. Fallen and standing trees and shrubs provide bank structure and instream wood that is colonized by invertebrates. The wetlands receive and detain runoff and associated pollutants from adjacent roads. The Campbell Creek greenbelt is an important wildlife corridor and the area provides opportunities for human recreation such as fishing and the use of nearby bike paths.

Wetland 7

This wetland is located west of the New Seward Highway and north of Dowling Road. This area is adjacent to a mapped "C" wetland from the AWMP (#46). Upon field investigation, the boundaries of the mapped wetland have been altered to incorporate additional areas into this wetland (Figure 4). The entire wetland is approximately 16 acres but only approximately 0.2 acre of this wetland lies within the highway right-of-way. Dominant vegetation adjacent to the highway includes sweet gale and bluejoint reedgrass. Other prominent species include common horsetail, dwarf birch (*Betula nana*), and an unknown species of willow. Saturated soil at the surface and areas of standing water indicate wetland hydrology. The mapped soil type was confirmed as Salamatof peat.

An open drainage ditch located on the north side of Dowling Road flows intermittently from this wetland. This ditch runs west, approximately 1,500 feet, adjacent to Dowling Road before entering a culvert. The culvert directs flows south, under Dowling Road, and discharges into a large open drainage way. The exact path of this drainage way is not known but flows are potentially discharged into Campbell Creek. Prior to development this wetland was contiguous with Campbell Creek; fragmentation and isolation of this wetland from Campbell Creek have since occurred. The surrounding land has been either developed for commercial and industrial uses or cleared. Runoff from the highway, Dowling Road, and adjacent land has degraded the quality of water entering this wetland. In addition, a sanitary sewer line is buried in the southernmost portion of this wetland.

Although the AWMP rates this wetland with marginal habitat and species occurrence scores, the area likely provides wildlife habitat. The wetland has aesthetic value as it is one of a few remaining vegetated areas in the vicinity. In addition this wetland serves to retain storm water as well as to detain sediment and other pollutants carried in that water.

Wetland 8

This wetland complex consists of wetlands located between the on ramp and highway and adjacent to the frontage road north of Dowling Road (Figure 4), connected via a culvert. The area of the wetland is approximately 0.35 acre; most of wetland 8 is located in the right-of-way. The vegetation is dominated by water horsetail, marsh five-finger, cattail, bluejoint reedgrass, and an unknown species of willow. The wetland was inundated with water and the soils contained several inches of fill.

Prior to extensive development, this area was a large wetland complex that was contiguous with Campbell Creek. Development has led to the fragmentation and isolation of the wetlands located at the New Seward Highway and Dowling Road intersection. Runoff from a used car lot, snow disposal facility, and adjacent roads has impacted the quality of water entering this wetland. An open drainage ditch along the frontage road leads north from these wetlands to a large "C" wetland (AWMP #46). Flows in the open drainage way have been partially blocked by a mound of loose fill for a road sign. AWMP wetland #46 contains a storm drain but this system is not believed to discharge into Campbell Creek. The presence of several inches of fill in the soil indicates this area was probably excavated and re-graded during highway construction.

Due to its small size and disturbed nature, the functions of this wetland are limited. This area does, however, detain storm water and retain pollution carried by that water.

Wetlands 9, 10, and 11

Wetlands 9, 10, and 11 are located along the North and South Forks of Little Campbell Creeks in the right-of-way (Figures 5 and 6). These wetlands, dominated by water horsetail and sedges (*Carex* species), are connected to the creeks and typically contain standing water.

As with other creeks in the Anchorage Bowl, both forks of Little Campbell Creek have experienced significant disturbances to their watersheds. A developed, urban setting has altered the flow regime, and construction of the highway and frontage roads has occurred within the creek's floodplains. Portions of the wetlands surrounding the creeks have been excavated and re-graded and sewer trunks are buried under both creeks in the highway right-of-way. Pollutant-laden runoff originating from the highway, frontage roads, and surrounding development have reduced the quality of water entering the wetlands and creeks.

Wetlands adjacent to the creeks serve important functions. These wetlands help to regulate the water temperature, and provide cover and food for fish and other aquatic life. Fallen and standing trees and shrubs provide bank structure and instream wood that is colonized by invertebrates. The roots and stems of stream-bank vegetation protect the bank against erosion. A portion of the wetlands surrounding Little Campbell Creek (in the right-of-way) is within the 100-year floodplain. When the creek floods its banks, the vegetation and irregularities of the ground surface nearest the creek slow the flow of water and the low areas serve to temporarily store it; these functions protect against flooding and erosion downstream. Creekside wetlands slow the rate of surface and near-surface water flow to the creek, helping moderate creek flows. The wetlands also detain runoff and associated pollutants from adjacent roads. The creek and adjacent wetlands serve as valuable fish and wildlife habitat.

Wetland 13

This wetland lies at the northwest corner of the intersection of O'Malley Road and the New Seward Highway. The AWMP has mapped a "C" wetland in this area (#60C), but upon field investigation the boundary of this wetland has been modified. The updated boundary of this wetland is shown on Figure 8. This wetland/pond complex is approximately 1.8 acres; a portion of the wetland lies outside the highway right-of-way. Soft-stemmed bulrush (*Schoenoplectus tabernaemontani*) and water horsetail dominate the vegetation in the wetland. Other prominent species include bluejoint reedgrass, beaked sedge, and water sedge (*Carex aquatilis*). A large pond was present in the middle of the wetland and several areas that were dry during field investigation appeared to have contained standing water in the recent past. The soil possessed a strong sulfidic odor and displayed redoximorphic features that indicate a wetland soil.

Prior to extensive development, this area and adjacent land was once a large wetland complex that was hydrologically connected to Klatt Bog. Water now flows from this wetland via a ditch to a storm drain system that eventually discharges into Campbell Lake. The bike path, snow disposal facility, the highway, and other development have significantly disturbed this wetland. The bike path bisects this wetland/pond complex but culverts, located under the bike path, keep the wetland and ponds connected. The quality of water entering this complex is degraded as it contains pollutant-laden runoff originating from the adjacent snow disposal facility. The presence of litter surrounding the bike path indicates that human recreational uses of the area have impacted the wetlands.

This area receives and detains pollutant-laden runoff from the snow disposal site and adjacent roadways. The wetland retains sediment and pollutants carried in that water. The pond is important for its retention of particulates and dissolved pollutants that may be adsorbed to particulates. This function helps to protect the water quality of Campbell Lake. In addition, this area provides wildlife habitat, including surface water for water-dependent species.

Wetland 14

This small, isolated wetland is located east of the New Seward Highway, just south of O'Malley Road (Figure 9). The wetland is approximately 0.3 acre and is contained in a small depression within the highway right-of-way. Bluejoint reedgrass, barclay willow (*Salix barclayi*) and beaked sedge dominate the vegetation. Several areas appeared to have held standing water but were dry upon field investigation. Very bright, distinct mottles were found in several soil horizons, which are indicative of wetland soil.

This area is connected via a culvert to an upland area across the highway; the wetland is not connected to a creek. Although bordering the highway on one side, this wetland is also adjacent to an area of undisturbed vegetation. Functions of this wetland are likely somewhat limited due to its small size and isolation; however, the area provides wildlife habitat. Snowshoe hare and moose pellets, evidence of moose browse, and a bird's nest were observed within the wetland. Since this area is located within a depression it serves to detain runoff and retain sediment and other pollutants carried in water that flows into it.

Wetland 15

Moose Meadows, a large wetland complex totaling approximately 70 acres, is located east of the New Seward Highway between O'Malley and Huffman Roads (Figure 9). This wetland is classified as a "B" wetland in the AWMP. There are several vegetation communities present within this large wetland but only a small portion of the wetland lies within the highway right-of-way. Dominant vegetation adjacent to or within the New Seward Highway right-of-way includes cattail, water horsetail, and several species of sedge, sweet gale, several species of willow, bluejoint reedgrass, and buckbean (*Menyanthes trifoliata*). Several large areas of inundation were present and the soil was saturated at the surface. The mapped soil type is Starichkof peat, a hydric soil.

Upon examination of aerial photography from 1950, it is apparent that Moose Meadows was once a much larger wetland complex. Moose Meadows has been recently altered by the construction of the New Seward Highway, frontage road, and golf course. An extensive area near the highway has been filled for the construction of a driving range and a sanitary sewer line is buried within the wetland. Runoff from the highway and sediment from cleared areas within this wetland reduce the quality of water entering and passing through the wetland.

This wetland is reported by the AWMP as being the headwaters of the North Fork of Furrow Creek. Drainage from this wetland is, however, now confined to the Furrow Creek storm drain system. Due to its proximity to Furrow Creek, this wetland serves important flood control functions including the slowing of local runoff to the creek. As this area receives overland flow, the vegetation and soil within this complex have the opportunity to receive and retain sediment and other pollutants. Moose Meadows is a large wetland complex with many plant communities present, and as such it is important habitat for a variety of wildlife species. Alaska's black spruce forests, bogs, and fens support a diversity of birds, as well as many mammals and the wood frog (Post 1996).

Wetland 16

A wetland and pond complex, totaling approximately 0.78 acre, is located west of the New Seward Highway and north of Huffman Road (Figure 10). Cattail, water horsetail, several species of sedge, and bluejoint reedgrass dominate the vegetation surrounding the pond. This pond is connected via a culvert to a small wetland located between the frontage road and the highway. Vegetation in the infield wetland is dominated by bluejoint reedgrass, water and common horsetail, and water sedge. The majority of this area was inundated with water.

The pond and wetland receive water from Moose Meadows (wetland 15, see above), the New Seward Highway and surrounding residential areas. The quality of water within this complex has been degraded by pollutant-laden runoff. Prior to development, drainage from this area flowed into Furrow Creek. Flows from this complex are now confined to the Furrow Creek storm drain system located under Huffman Road. The pond is important for its retention of particulates and dissolved pollutants, and pollutants that may be adsorbed to particulates. The pond may also be important for bird habitat. The open water, in combination with the aquatic vegetation, may draw water-dependent birds. The pond also has aesthetic value. The small infield wetland, which appears to have been re-graded, serves to detain local runoff before its discharge to the piped Furrow Creek storm drain as well as to sequester pollutants in runoff.

Wetland 17

Wetland 17 was created with the construction of a new northbound on ramp to the Seward Highway from Dimond Boulevard (Figure 7). The wetland is approximately 0.22 acre. The dominant vegetation includes planted cattail, water sedge, marsh five-finger, and bluejoint reedgrass.

Wetland 17 has been filled, excavated and regraded with the construction of the highway and on-ramp. Drainage from wetland 17 dumps into the South Fork of Little Campbell Creek via a storm drain system, approximately 1,000 feet north of Dimond Boulevard. The quality of water entering this wetland is degraded as it contains sediment and pollutants from highway runoff.

Although this wetland is small in size it retains sediment and other pollutants in runoff from the highway and on-ramp. This function is important to the water quality. The wetland also retains storm water and provides wildlife habitat.

3.0 REFERENCES

CH2M Hill. 2001. New Seward Highway, Rabbit Creek to 36th Avenue, Background and Overview Document. Prepared for Alaska Department of Transportation and Public Facilities.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service: Office of Biological Services. Washington, D.C.

Municipality of Anchorage, Department of Community Planning and Development. 1996. Anchorage Wetlands Management Plan.

Municipality of Anchorage. Geographical Information Systems coverages: drains, pipes, parcels, wetlands, floodplains, and streams.

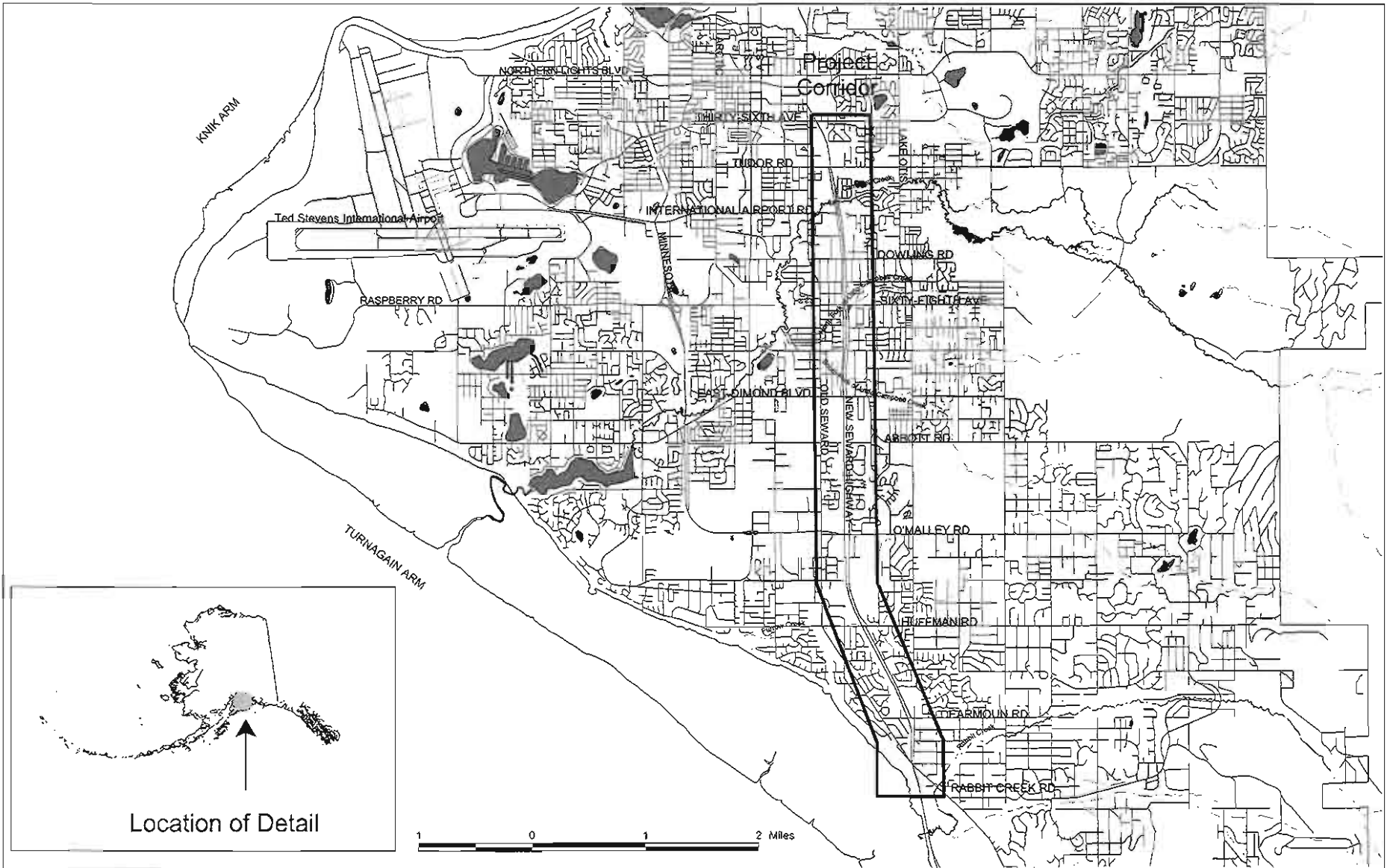
Municipality of Anchorage (MOA), Management Information Systems Department. 2005. Anchorage: Geographic Information System Data 2005. CD-ROM.

Post, Roger A. 1996. Functional Profile of Black Spruce Wetlands in Alaska. Prepared for U.S. Environmental Protection Agency, Region 10. Alaska Department of Fish and Game, Fairbanks, Alaska.

U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1.

U.S. Department of Agriculture, Soil Conservation Service. 1979. Metropolitan Anchorage Urban Study, Volume 7: Anchorage Area Soil Survey. Prepared for Alaska District, Corps of Engineers and Municipality of Anchorage.

U.S. Department of the Interior, Fish and Wildlife Service. 1992. National Wetlands Inventory. Maps: Anchorage (A-8) SW, Alaska, and Anchorage (A-8) NW, Alaska. Scale: 1:25,000.



**New Seward Highway
Rabbit Creek Road to 36th Avenue
Project Vicinity**

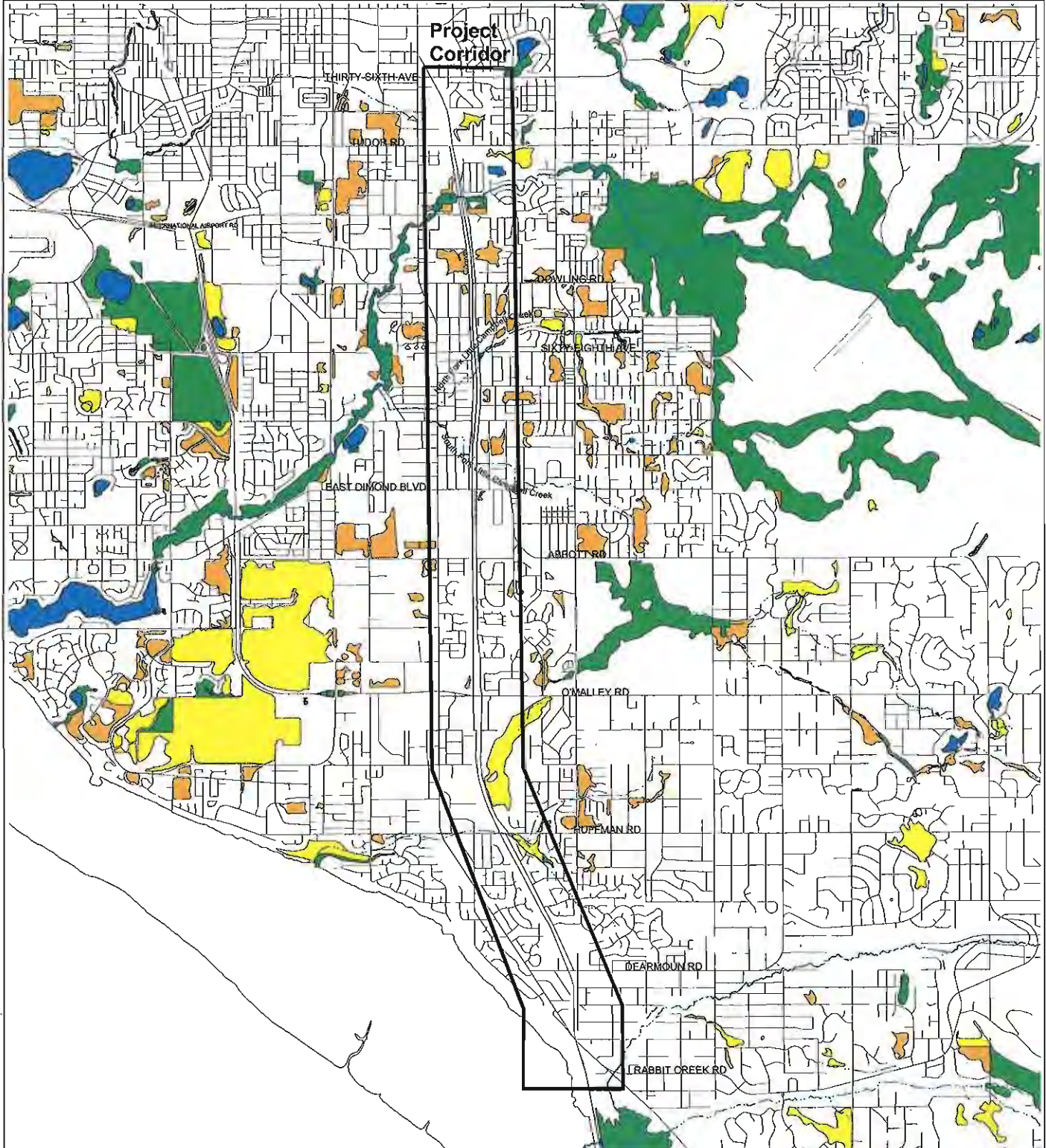


CH2MHILL



Figure

1



New Seward Highway
Rabbit Creek Road to 36th Avenue

Anchorage Wetlands Management Plan
Wetland Boundaries and Designations



Legend
Anchorage Wetlands
Management Plan Designations

- A Wetlands
- B Wetlands
- C Wetlands



Figure
2

File: X:\ghd\sl\sewardhighway\newproject By: JJD Date: 2/26/02 Sources: MOA



LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z:\07067 CH2M Hill\1684 Seward Hwy DEIS & FEIS\GIS
 Date: November 2008
 Data Source: Wetland delineations by HDR Alaska, Inc.

NEW SEWARD HIGHWAY RABBIT CREEK ROAD TO 36TH AVENUE

WETLAND BOUNDARIES



CH2MHILL



FIGURE 3

N



Feet

200 100 0 200 400



LEGEND

- 6 HDR Wetland Reference Number
- Jurisdictional Wetland Boundary
- Non-Jurisdictional Wetland Boundary
- Unknown wetland boundary outside of right-of-way
- Road Right-of-Way

File: Z:\97967 CH2M Hill\1984 Seward Hwy DEIS & FEIS\GIS
 Date: November 2006
 Data Source: Wetland delineations by HDR Alaska, Inc.

NEW SEWARD HIGHWAY RABBIT CREEK ROAD TO 36TH AVENUE

WETLAND BOUNDARIES



FIGURE 4

N



Feet

200 100 0 200 400



LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z:\07067 CH2M Hill\1684 Seward Hwy DEIS & FEIS\GIS
 Date: November 2008
 Data Source: Wetland delineations by HDR Alaska, Inc.

NEW SEWARD HIGHWAY RABBIT CREEK ROAD TO 36TH AVENUE

WETLAND BOUNDARIES

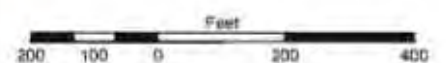


CH2MHILL



FIGURE 5

N





LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z:\07067 CH2M HILL\1884 Seward Hwy DEIS & FEIS\GIS
 Date: November 2006
 Data Source: Wetland delineations by HDR Alaska, Inc.

**NEW SEWARD HIGHWAY RABBIT CREEK ROAD
 TO 36TH AVENUE**

WETLAND BOUNDARIES



CH2MHILL



FIGURE 6

N



Feet

200 100 0 200 400



LEGEND

- HDR Wetland Reference Number
- Jurisdictional Wetland Boundary
- Non-Jurisdictional Wetland Boundary
- Unknown wetland boundary outside of right-of-way
- Road Right-of-Way

File: 2307067 CH2M Hill\1684 Seward Hwy DEIS & FEIS\GIS
 Date: November 2005
 Data Source: Wetland delineations by HDR Alaska, Inc.

NEW SEWARD HIGHWAY RABBIT CREEK ROAD TO 36TH AVENUE

WETLAND BOUNDARIES

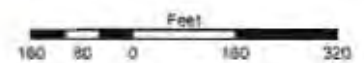


CH2MHILL








FIGURE 7

N





LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z:\07067 CH2M HDR\1684 Seward Hwy DEIS & FEIS\GIS
 Date: November 2006
 Data Source: Wetland delineations by HDR Alaska, Inc.

NEW SEWARD HIGHWAY RABBIT CREEK ROAD TO 36TH AVENUE

WETLAND BOUNDARIES



CH2MHILL



FIGURE 8

N



Feet

160 80 0 160 320



LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z307067 CH2M Hill 1884 Seward Hwy DEIS & FEIS/DIRS
 Date: November 2006
 Data Source: Wetland delineations by HDR Alaska, Inc.

NEW SEWARD HIGHWAY RABBIT CREEK ROAD TO 36TH AVENUE

WETLAND BOUNDARIES



CH2MHILL



FIGURE 9






N



160 80 0 160 320
 Feet



LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z:\07067 CH2M Hill\1684 Seward Hwy DEIS & FEIS\GIS
 Date: November 2008
 Data Source: Wetland delineations by HDR Alaska, Inc.

**NEW SEWARD HIGHWAY RABBIT CREEK ROAD
 TO 36TH AVENUE**

WETLAND BOUNDARIES

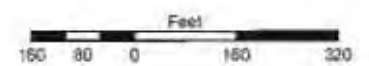


CH2MHILL



FIGURE 10

N





LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z:\07067 CH2M Hill\1684 Seward Hwy DEIS & FEIS\GIS
 Date: November 2004
 Data Source: Wetland delineations by HDR Alaska, Inc.

**NEW SEWARD HIGHWAY RABBIT CREEK ROAD
 TO 36TH AVENUE**

WETLAND BOUNDARIES



CH2MHILL



FIGURE 11

N








Feet

300 100 0 200 400



LEGEND

-  HDR Wetland Reference Number
-  Jurisdictional Wetland Boundary
-  Non-Jurisdictional Wetland Boundary
-  Unknown wetland boundary outside of right-of-way
-  Road Right-of-Way

File: Z507067 CH2M Hill1684 Seward Hwy DEIS & FEISGIS
 Date: November 2005
 Data Source: Wetland delineations by HDR Alaska, Inc.

**NEW SEWARD HIGHWAY RABBIT CREEK ROAD
 TO 36TH AVENUE**

WETLAND BOUNDARIES



CH2MHILL



FIGURE 12

N



Feet

200 100 0 200 400