Alaska Department of Environmental Conservation

Watershed Management Unit

Waterbody Assessment and Monitoring Report

Waterbody / Watershed: Hammer Slough (Mitkof Is.-Petersburg Area) Date & Time: **April 21-22, 1997.**

Conditions: April 21 was overcast, following a previous day of moderate rainfall. Sunny on April 22.

Inspector: D. Redburn and M. Anderson (DEC), Leo Luczak and Ken Thynes (City of Petersburg); Ken Hagerman and Jerry Kernvick (DOT).

303(d) Tier Waterbody/Open File Waterbody (Circle appropriate water category)
Hammer Slough is a 1996 Tier III waterbody which has implemented a waterbody recovery plan

Segment Inspected / GPS Location (if available): Headwaters of Hammer Slough from the Quarry down to the City shop location; control tributaries of Hammer Slough at fork by City Shop.

Parameters of Concern: Turbidity and sediment as primary parameters; petroleum hydrocarbons as secondary parameters. Fecal coliform bacteria counts for use in assessing natural background conditions in Petersburg were collected in October 1996.

Purpose of Inspection: Followup on the March 1996 and October 1996 field assessments and subsequent recovery plan actions to verify whether sediment and turbidity BMP controls implemented by the City of Petersburg and DOT to restore and maintain water quality of Hammer Slough have been put in place and are working effectively. Walk portions of the Slough as a group to inspect controls, collect turbidity data and keep a photographic record of recovery actions. Locations included the quarry site, the fines disposal site halfway down the quarry access road, and the city shop area. Reach consensus on effectiveness of BMPs put in place by DOT and the City and whether any further controls are needed.

Hammer Slough was listed as a "Tier III" water in the state's 1996 Water Quality Assessment Report, meaning that waterbody recovery plans are being implemented through control mechanisms. These controls began in spring 1996 and included revegetation of steep or erodible slopes, the quarry access road and mud piles adjacent to Hammer Slough in the vicinity of the rock quarry, using a new snow disposal site on the City road system, more frequent maintenance of the airport and quarry road, maintenance of settling ponds at the quarry, and strategic placement of hay bales and silt fences to minimize sediment input to the Slough. Controls on

sloughing of stockpiled materials at the City Shop into Hammer Slough were also identified in the October 1996 inspection report for City followup.

Monitoring Data Collected: 1) Duplicate turbidity measurements were taken at the following stations: the quarry settling pond; runoff from the quarry rockface; beaver pond at the culvert on the uphill side of the airport runway (West fork); culvert outlet to Hammer Slough adjacent to City Shop; and control fork immediately above the confluence with the culvert outlet (West fork) flow by the City Shop. Fecal coliform bacteria levels were not assessed in this survey. In the October 1996 survey of FC bacteria levels in Hammer Slough, all values were within water quality standards when adjusted for natural condition or background. The City has succeeded in getting all homes on Hammer Slough hooked up to the city sewer system. This is confirmed by the low FC bacteria readings.

See previously-filed map for station locations. Photographs were taken of remedial actions at all sites.

The range of turbidity values by station were as follows: 1) Quarry settling pond (1.1 and 1.2 NTUs); 2) runoff from face of quarry (0.7, 1.4 NTUs); 3) beaver pond station on uphill side of airport runway (2.8 and 2.5 NTUs); 4) immediately downstream from major culvert at City Shop location (8.5, 8.9 NTUs); 5) control site (fork) of tributary entering Hammer Slough above the City Ship (6.1 and 5.4 NTUs). Seasonal trends in turbidity concentrations over 1996 and 1997 are shown below.

SEASONAL TRENDS IN
HAMMER SLOUGH TURBIDITY CONCENTRATIONS: MARCH 1996-APRIL 1997
(NTUs)

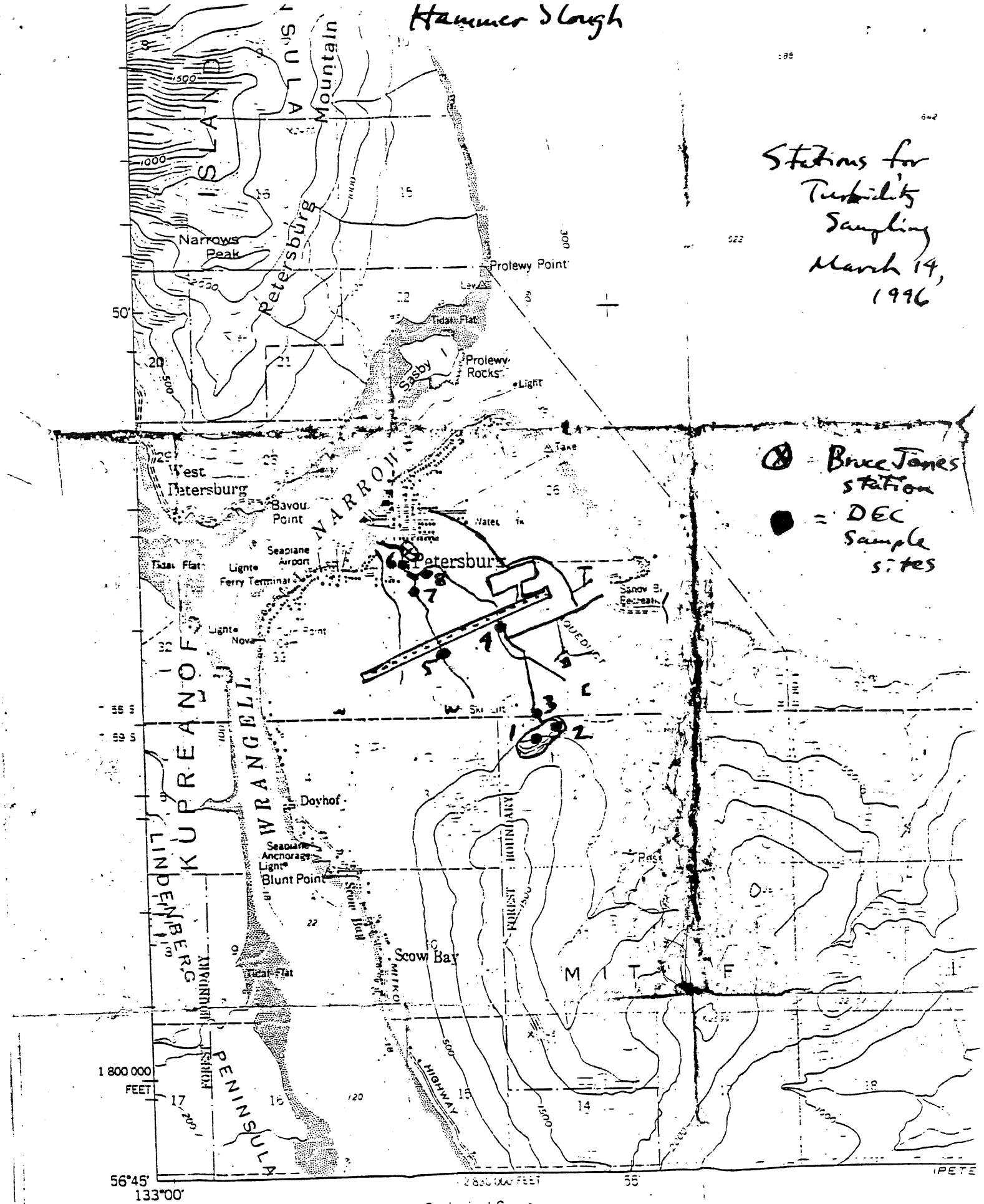
	March 1996	October 1996	April 1997
Control Fork by City Shop	27.4, 28.2	2.4, 2.5	6.1, 5.4
Culvert by City Shop	86.4, 92.4	10.8	8.5, 8.9
Airport Beaver Pond	55.9, 66.2	7.3, 8.0	2.8, 2.5
Quarry Road Ditch	121, 106	6.1	_
Quarry Settling Pond	_	5.1, 5.3	1.1, 1.2

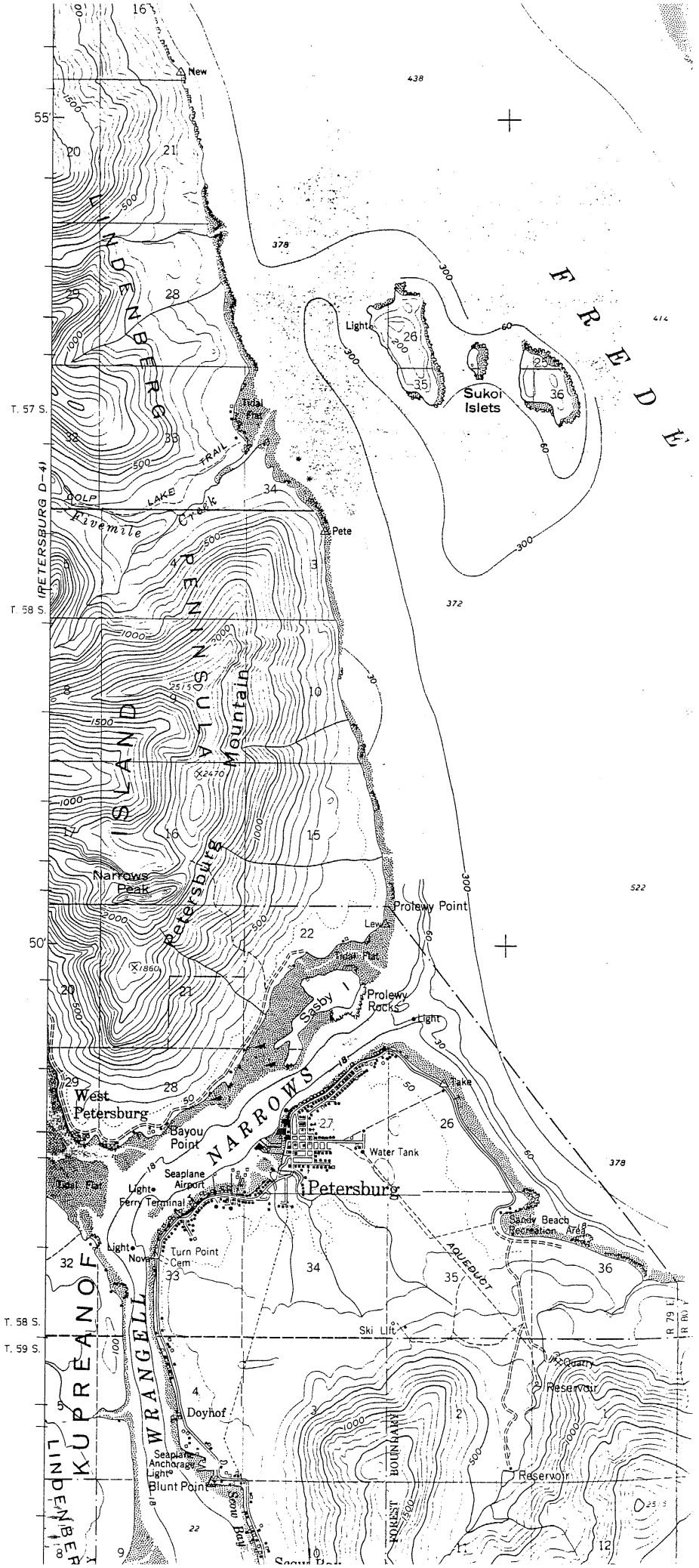
Hammer Slough

Stations for Turbidity Sampling March 14, 1996

⊗ = Bruce Jones station

● = DEC Sample sites





New
Light
Sukoi Islets
FREDE
LINDENBERG
Tidal Flat
TRAIL
LAKE
COLP
Fivemile Creek
Pete
(PETERSBURG D-4)
T. 57 S.
T. 58 S.
T. 59 S.
PENINSULA
ISLAND
Mountain
Petersburg
Narrows Peak
Prolewy Point
Lew
Tidal Flat
Prolewy Rocks
Sasby I
Light
Take
West Petersburg
Bayou Point
NARROWS
Water Tank
Seaplane Airport
Light
Ferry Terminal
Petersburg
Tidal Flat
Sandy Beach Recreation Area
AQUEDUCT
Light
Nova
Turn Point Cem
KUPREANOF
WRANGELL
Ski Lift
Quarry
Reservoir
Doyhof
Seaplane Anchorage
Light
Blunt Point
Reservoir
FOREST BOUNDARY
Scow Bay
LINDENBER
R 79 E
R 80 E

Visual Observations: Hammer Slough headwaters were flowing at reduced flow compared to the March 1996 "worst case" rain event and at comparable flows to the October 1996 survey. Water clarity was high at all control and established stations; slight natural tannin color existed due to muskeg runoff. The quarry was not operating during this inspection. BMPs controls outlined above were all implemented and are effective in controlling sediment and turbidity inputs to Hammer Slough. The City of Petersburg and DOT/PF have done a fine job in following up on agreed-upon controls. The City's hand-seeding of the overburden on the rock quarry with 50 lbs of seed in May and June 1996 was successful and vegetation (grass) is well established. Very clear water is coming off the hillside face (0.7, 1.4 NTUs). Grass is also well established along the ditch parallel to the quarry road. DOT/PF seeding (by Aggregate Construction) of the large fines pile halfway down the quarry road took well in most areas but will need a reapplication in selected spots in the spring 1997. In 1996, some fines were disposed of off the edge of the pile and mud flows extended down through the woods to Hammer Slough. Dumping of fines offsite needs to occur so that they can drain and be seeded and stabilized. Areas most in need of seeding are those farthest from the road and nearest to Hammer Slough. The banks leading down to the Slough also need some seed application. The quarry road was graded and maintained in excellent shape. The settling pond has been mucked out and hay bales maintained along the ditch paralleling the road.

The City of Petersburg has capped all barrels and installed a portable oil catchment container on their side of the quarry where all fuel product transfers and barrel storage occurs. No heavy machinery was present on the state side of the quarry. The site was clean.

The settling pond at the quarry was well maintained and had clear water (1.1, 1.2 NTUs). Hay bales remained in place along the roadside ditch.

Lands conveyed by DNR to the Mental Health Trust include the state side of the quarry. Gravel removal operations are expected this summer on site in support of a Tlingit/Haida housing development. It is important that MHT be made aware of the erosion control/bank stabilization work completed by the City and DOT/PF and take appropriate care working the area. Operational BMPs for MHT should be identical to those placed on DNR, DOT and the City.

A 404 permit was issued to the City for consolidated disposal of peat soils/muskeg overburden and stumps from land clearing into muskegs adjacent to Hammer Slough above the airport runway. No work had begun yet at this site; the containment dyke is scheduled to be constructed in spring 1997. DEC has provided BMPs in our 401 certificate that should, in combination with the Corps requirements, control turbidity inputs to the Slough. These stipulations include drainage controls and silt fences.

The stockpiled sand and gravels piles adjacent to the culvert storage site by the City Shop are placed right up to the edge of the banks of Hammer Slough and continue to slough material down the bank and into Hammer Slough (see photos). The City needs to followup on earlier agreed-upon remedies towards the objective of better containing the material. Railroad ties, 4"x12" timbers, or guard rails could serve this purpose.

The pit below the calcium chloride storage tanks on City property would benefit from improved containment through berming on the end nearest Hammer Slough to raise the elevation and better ensure any spilled material would not overflow the pit into Hammer Slough.

Recommended Actions:

1) Provide this assessment report to DOT, the City of Petersburg, and ADF&G outlining the assessment findings by May 30.

2) Some reseeding of a portion of the DOT fines pile adjacent to the quarry road where revegetation did not "take" is necessary in the spring 1997. Ken Hagerman and Jerry Kernvick of DOT have committed to seeding the remaining bare areas during May or June. Wasted fines should not be allowed to continue to drain to Hammer Slough.

3) By the City Shop, the stockpiled sand for road maintenance is too close to the banks of Hammer Slough and needs a physical barrier placed between the bank and sand piles to minimize sloughing down the bank and into the creek. Handseeding of selected areas of the bank that did not "take" from last year is also recommended to minimize erosion. Ken Thyes and Doug Redburn agreed to both talk to Bruce Jones, new Public Works Director, about the need for Public Works followup on this item. A photograph verifying completion of the corrective action is requested from the City.

4) ADEC should contact the Mental Health Trust and DNR (Steve Planchon, Dave Thomas) to explain the work done by DOT and the City, the need for care in gravel removal at the quarry and the history of control actions. A "double standard" for operations needs to be avoided. A copy of this report will be provided to DNR and MHT.

5) Receive final written commitments from City of Petersburg and DOT/PF on conducting and verifying the followup work identified in 2) and 3).

6) Hammer Slough is in compliance with water quality standards. Periodic turbidity monitoring in Hammer Slough by the City to develop a monthly record over one year is recommended as a continuing "low-key" verification step that turbidity controls remain effective. This has been discussed with Bruce Jones, with a recommended station at the City's office's (downstream from culvert) or in front of Bruce Jones' home. Selection will be left to the City's discretion. The established reference station is also recommended as a monitoring site for comparison during rain periods.

7) Place Hammer Slough on Tier IV list (no further action required) based on documented completion of steps 1) through 6) above. Once these minor actions are completed, Hammer Slough will qualify for the Tier IV category of no further action.

DEPARTMENT OF TRANSPORTATION
& PUBLIC FACILITIES
MAINTENANCE & OPERATIONS
AVIATION & HIGHWAYS
PETERSBURG STATION

TO: Doug Redburn
D.E.C.

DATE: 06-08-97
FILE: Hammer.Slo

FROM: Kenneth Hagerman
Airport Manager
James A. Johnson Airport

TELEPHONE:907-772-4624
FAX:907-772-3641

SUBJECT: Seeding

Doug, on Saturday June 07,1997 I used 20# of grass seed that was left over from the runway project to seed the areas we had looked at during the inspection of October 1996 and April of 97. I seeded all the little silt streams that ran down the hill towards the creek.

I will be leaving DOT the end of June, so if you have anymore correspondence with us please direct it to Jerry Kvernvik as he will be my replacement.

cc: Jim Merrill
Chief M.& O.

MEMORANDUM

Date: 06/16/97

To: Steve Smith, Wastewater

From: Bruce Jones, Public Works

RE: Monthly Turbidity Sample

Steve, Would you set up a monthly plan to take one turbidity sample from Hammers' Slough. The sample should come from directly below my office, downstream from the culvert. Analyze the sample and send me a memo with the results.

FAX

Date 06/20/97

Number of pages including cover sheet **2**

TO: **Doug Redburn**
ADEC - Juneau
410 Willoughby Avenue
Juneau, Alaska 99801

Phone 907-465-5303
Fax Phone 907-465-5274

FROM: Bruce R. Jones, Director
City of Petersburg, Public Works
P.O. Box 329
303 S. 2nd Street
Petersburg, AK 99833

Phone 907-772-4430, ext.35
Fax Phone 907-772-4102

CC:

REMARKS: ☐ *Urgent* ☒ *For your review* ☐ *Reply ASAP* ☐ *Please Comment*

Doug, Here is a copy of the internal memo setting up the turbidity sampling in Hammers' Slough. Let me know if you need anything further.

Congratulations and Good Luck in your retirement!