CBJ DOCKS & HARBORS BOARD
CIP / PLANNING COMMITTEE MEETING AGENDA
For Thursday, March 18, 2010

I. Call to Order (5:00 pm in **ASSEMBLY CHAMBERS**).

II. Roll Call (Kueffner, Preston, Wostmann, Williams, Donek, and Chair Mehrkens).

III. Approval of Agenda.

MOTION: TO APPROVE THE AGENDA AS PRESENTED OR AMENDED.

IV. Public Participation on Non-Agenda Items.
(not to exceed five minutes per person or twenty minutes total time).

V. Approval of Previous Meetings Minutes.

MOTION: TO APPROVE THE FEBRUARY 18, 2010 CIP/PLANNING COMMITTEE MEETING MINUTES AS PRESENTED OR AMENDED.

VI. Items for Action.

1. PND Contract Amendment for Upland Improvements
   Presentation by Port Engineer

   Public Discussion

   MOTION: TO RECOMMEND APPROVAL OF AN AMENDMENT TO THE EXISTING PND CONTRACT TO PERFORM CONSTRUCTION SERVICES FOR DOUGLAS, HARRIS, AURORA, AND STATTER HARBORS UPLAND IMPROVEMENTS IN THE AMOUNT OF $33,543.00.

2. Direction to Staff Regarding Douglas Harbor Re-Build
   Presentation by Port Director

   Public Discussion

   MOTION: TO BE DEVELOPED AT THE MEETING

3. Close Out H354-73 Ferry Dock Wharf Widening CIP and Transfer Funds to H354-85 Deferred Maintenance CIP in the Amount of $50,124.

   Public Discussion

   MOTION: TO BE DEVELOPED AT THE MEETING

VII. Items for Information/Discussion.

1. Request to transfer park property at Statter Harbor to Docks and Harbors for Statter Harbor Boat Launch Project.
   Presentation by Port Engineer

2. Status of Statter Harbor Environmental Assessment
   Presentation by Port Engineer

3. Status of Port-Customs-Visitor Center Project
   Presentation by Port Engineer

VIII. Member & Staff Reports.

IX. Committee Administrative Matters.

Next Meeting: April 22, 2010

X. Adjournment.

MOTION: ASK UNANIMOUS CONSENT TO ADJOURN THE CIP/PLANNING COMMITTEE MEETING.

CBJ DOCKS & HARBORS BOARD
CIP/PLANNING COMMITTEE MEETING MINUTES
For Thursday, February 18, 2010

I. Call to Order.

Committee member Mr. Williams called the meeting to order at 5:00 p.m.

II. Roll.

The following members were present: Mr. Williams, Mr. Wostmann, Mr. Kueffner, and Mr. Preston.

The following member was absent: Mr. Mehrkens.

Also in attendance were: Mr. Stone – Port Director and Mr. Gillette – Port Engineer.

III. Approval of Agenda.

MOTION by Mr. Keuffner: ASK UNANIMOUS CONSENT TO APROVE THE AGENDA AS PRESENTED. The motion passed without objection.

IV. Public Participation.

There was none at this time.

V. Approval of Previous Meeting Minutes.

MOTION by Mr. Preston: ASK UNANIMOUS CONSENT TO APPROVE THE PREVIOUS MINUTES OF January 21, 2010. The motion passed without objection.

VI. Items for Action.

There were no items for action.

VII. Items for Information/Discussion.

1. Douglas Harbor Permitting.

Mr. Stone reported to the committee that they have gotten all the comments from all the resource agencies and we are drafting responses to all of them. He stated that there will be comments for the five different groups. He stated that they are planning to get together Thursday the 25th of February per the agreements with the resource agencies they will be meeting March 5th to discuss our comments and to go over any remaining issues they have. The consultant will be flying up from Washington to attend also.

Mr. Stone stated that at this time there is so much data that it is starting to get confusing to people and hard to keep track of what is going on.

Mr. Stone said that the EPA is leading a charge to prevent us from disposing of a portion of the sediment in the channel. They agree that some of the sediment is okay, but there is a portion of it that they don't like, so they are leading this through the Federal permit process to prevent the disposal into the channel. He stated that he thinks the State Agencies are okay with the disposal after speaking with them this is the feeling he got.

Mr. Stone and the committee members discussed the issue about the disposal of the material having any effect on any mud dwellers in that area.

Further discussion took place among the committee members and Mr. Stone took place at this time.

2. Purchase of the Lehnhart property at Auke Bay.

Mr. Stone stated that we had made an offer to the Lehnhart after the subcommittee reviewed the appraised value and the assessed value of the property of $599,000.00. The Lehnhart's came back and said no they wanted the original appraisal of $650,000.00. We then went back with a second counter offer of $625,000.00 and they come back with $637,500.00 and that is where it stands today.

Mr. Stone stated that he just wanted a feel from the committee on what they want him to do at this time.

Further discussion took place at this time.

The committee's decision at this time is to have Mr. Stone go back to the Lehnhart's with an offer of $630,000.00.

VIII. Member & Staff Reports.

No reports at this time.

IX. Committee Administrative Matters.

The next meeting is scheduled for March 18, 2010 at 5:00 pm in the City Chambers.

X. Adjournment.

MOTION by Mr. Kueffner: ASK UNANIMOUS CONSENT TO ADJOURN THE MEETING. The motion passed without objection.

The meeting was adjourned at 5:30 p.m.

CITY/BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY

Port of Juneau

To: Docks and Harbors Board
CC:
From: John M. Stone, P.E. Port Director
Date: March 12, 2010
Re: Douglas Harbor Rebuild Permitting

Since early 2006, CBJ has diligently pursued a permit from the Army Corps to rebuild Douglas Harbor. The permit would allow CBJ to dredge the harbor basin to re-establish its original design depth, replace a dilapidated moorage float system, and dispose of dredge sediments in an area of Gastineau Channel used in 1998 and 2002 for disposal of similar Douglas Harbor dredge sediments.

This January, the Army Corps accepted public comments on our proposed action. The U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service objected to the proposed action and requested that the Army Corps deny the permit (See Comments in Exhibit 1).

Among other things, the federal agencies recommended that the Army Corps prohibit the disposal of the bottom layer dredge sediments in Gastineau Channel (about half of the proposed action). They also recommended CBJ dredge deeper so we could place a layer of clean fill over the newly exposed harbor bottom. The thickness of the clean fill layer was not specified. Our review of previous regulatory actions show thicknesses of clean fill ranging from 6" in Ward Cove, Alaska up to 1 meter in the Lower 48.

I will not comment about the justification for the recommended actions, other than to say that we, our consultants, and the Alaska Department of Fish and Game disagree that they are necessary from an environmental and human health protection standpoint.

Presuming that the federal agencies hold firm to their objections, I have analyzed what it would take to comply with their recommendations. A listing of the proposed action, alternatives recommended by the federal agencies, and their associated costs follow:

1. Proposed Action - $960,000

The proposed action consists of dredging 33,000 cubic yards from the harbor bottom and disposing all of the sediments in the middle of Gastineau Channel as proposed. This alternative does not include work to over excavate three feet and place a clean fill cap over the harbor bottom.

2. Local Upland Disposal by Barge – $3.6 million

This alternative consists of dredging 51,000 yards, disposing the upper layer sediments in Gastineau Channel as proposed, and transporting the lower layer sediments to an unidentified nearby upland landfill. This includes an estimate to permit a new landfill and make it acceptable to ADEC. It also includes an estimate to over excavate three feet (18,000 cubic yards) and place a clean fill cap on the harbor bottom.

3. Local Upland Disposal by Truck – $4.8 million

This alternative consists of dredging 51,000 yards, disposing the upper layer sediments in Gastineau Channel as proposed, and trucking the lower layer sediments to an unidentified upland landfill on the Juneau road system. This includes an estimate to permit a new landfill and make it acceptable to ADEC. The local landfill is not available for this purpose. It includes special trucks to transport the dredge sediments and a truck wash at job site. It also includes an estimate to over excavate three feet and place a clean fill cap on the harbor bottom.

4. Lower 48 Landfill – $9.0 million

This alternative consists of dredging 51,000 yards, disposing the upper layer sediments in Gastineau Channel as proposed, and barging the lower layer sediments to a permitted landfill in the Lower 48. It also includes over excavation of three feet and placement of clean fill cap on the harbor bottom.

It appears the local upland disposal by barge would be the least expensive alternative that meets the recommendations of the federal agencies. It is important to point out that we have not identified a local upland site that is approved for this purpose. Our discussions with ADEC confirmed the need of a solid waste permit. There may be sites near the harbor that would work for this purpose but it looks like a considerable job to make it work.

With about $6 million available for the project and the float replacement work estimated at $5 million, we do not have adequate financial resources to meet the federal agency recommendations. Even if we did obtain the financial resources to undertake the federal recommendations, I am not convinced we would ultimately obtain a permit. The 404 permit process has considerable uncertainty. The regulatory sands have shifted several times since we started the process in 2006.

Therefore, I recommending we suspend continued expenditure of funds for permit activities for the Douglas Harbor rebuild. Douglas Harbor is a federally authorized navigation project. CBJ should instead focus its efforts on federalizing the dredging effort. Letters to the Congressional and Legislative delegations and the Army Corps should help start this process.

We should also recommend the federal agencies examine the issue of mercury contamination in and around the project area. The mercury did not come from operation of the harbor and the agencies appear to be concerned about serious health and environmental issues associated with it.

In 2007, we were awarded a $2 million municipal harbor grant for the Douglas Harbor rebuild. I recommend we ask the Legislature to re-appropriate the grant to rebuild Aurora Harbor, another harbor facility formally owned by the State. I understand we need to make this request by the end of March in order to get action during this session.

As stated, the Old Douglas Harbor moorage system is dilapidated (See condition reports in Exhibit 2). We hoped to have it replaced by now. It is unlikely to be replaced in the near future. It gives me great sadness to say that we need to figure out how and when to shut down Old Douglas Harbor.

Closure of the facility at the end of this summer is best from an operations standpoint. About 50 boaters and fishermen have year-round assigned moorage in Old Douglas Harbor. About 100 boaters use the facility during the summer. Since many of the year-round stall holders have been harbor patrons for decades, we need to consider reassigning these stall holders into the downtown harbor system (Aurora, Douglas, Harris) based on longevity. At the end of the day this means that the last 50 boaters that were assigned stalls in the downtown harbor system will get bumped. Obviously, this approach will take a lot of effort and communication by harbor staff. The Board should also consider a public hearing

so we can explain why we are closing the harbor, when it will happen, and how it will affect the downtown harbors.

At the meeting, I would like to get direction from the Board on three items:

1. Continued Effort on Army Corps Permit Application
2. Closure of Old Douglas Harbor
3. Transfer of Alaska Municipal Harbor Grant

Call me at 586-0294 if you have questions.

Exhibit 1 – Federal Agency Letters

Exhibit 2 – Douglas Harbor Condition Surveys

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

February 4, 2010

Colonel Reinhard W. Koenig
District Engineer, Alaska District
U.S. Army Corps of Engineers
P. O. Box 898
Anchorage, Alaska 99506-6898

Re: POA-2000-495-M3
Gastineau Channel

Attn: Heidi Firstencel

Dear Col. Koenig:

The National Marine Fisheries Service (NMFS) has reviewed the above referenced public notice. The proposed project would modify and expand the existing harbor. Work includes removal of existing structures, installation of new structures and dredging approximately 30,000 cubic yards of material from the harbor. The applicant is proposing to dispose of the dredged material within the open waters of Gastineau Channel. The public notice states that the applicant has "contracted with Newfields of Port Gamble, Washington, to prepare reports on assessments to verify the concentrations of mercury in the sediment to determine if the mercury concentrations in the sediment are either toxic or bio-available to selected aquatic species." The public notice goes on to reiterate summary statements from these reports which indicate that the discharge of the dredged material as proposed would not have adverse impacts to aquatic resources. NMFS disagrees with these findings.

In a September 9, 2009 letter (enclosed), NMFS provided comments to the Corps of Engineers (Corps) regarding the inadequacy of Newfields' reports. These reports evaluated the potential for chemical and biological effects to living marine resources, including Essential Fish Habitat (EFH), from discharge of material dredged from Douglas Harbor into nearby Gastineau Channel. In particular, NMFS is concerned about the elevated levels of mercury (Hg) in the dredge material, mercury methylation, and transit and bibaccumulation of Hg within the food web.

The Corps has determined that this project may adversely affect EFH. NMFS concurs with this determination and requests that the information requested in our September 9, 2009 letter be provided so we can develop adequate EFH conservation recommendations. Also, NMFS maintains that less environmentally damaging practicable alternatives are available for disposal of the dredged material. The public notice does not address whether these alternatives were considered. Without this information we recommend the Corps deny the project as proposed, as it will have substantial and unacceptable impacts on aquatic resources of national importance, as defined in Part IV, Paragraph 3(b) of the Clean Water Act section 404(q) Memorandum of Agreement between our agencies. Should you decide to issue the permit over our objections, we may seek higher level review of your decision pursuant to the 404(q) Memorandum of Agreement. We hope that this matter can be resolved at the field level instead.

We look forward to continued discussions with the Corps on the proposed project. If you have questions, please contact Ms. Chiska Derr by e-mail at Chiska.Derr@noaa.gov, or by phone at (907) 586-7345.

Sincerely,

Robert D. Mecum
Acting Administrator, Alaska Region

Enclosure

cc: Heidi.x.firstencel@usace.army.mil, USACE, Juneau*
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G:COE: Gastineau Channel POA 2000-495-M3 2-4-2010 cd jh

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

September 9, 2009

Colonel Reinhard W. Koenig
District Engineer, Alaska District
U.S. Army Corps of Engineers
P. O. Box 898
Anchorage, Alaska 99506-6898

Re: POA-2000-495-M3
Gastineau Channel

Attn: Randall Vigil

Dear Col. Koenig:

This letter is to convey the National Marine Fisheries Service's (NMFS) concerns to the Corps of Engineers (Corps) on the inadequacy of several reports intended to evaluate the potential for chemical and biological effects to living marine resources, including Essential Fish Habitat (EFH), from the discharge of dredge material from Douglas Harbor into nearby Gastineau Channel. The harbor, located at Latitude 58° 16'30" N., Longitude -134° 23'8" W., Douglas Island, Juneau, Alaska, is undergoing expansion due to increased moorage demands. The expansion involves removal of existing moorings, creosote pilings, and dredge material to return the harbor to its original design depth of -14 ft MLLW. The dredging aspect of the project involves the removal and disposal of approximately 30,000 cy of sediment and disposal at a previously utilized uncontained aquatic site in Gastineau Channel. Gastineau Channel is used as rearing, feeding, and migrating habitat by all five species of Pacific salmon and other marine organisms, including crab, halibut, herring and other forage fish, and marine mammals.

NewFields was contracted by PND Engineers, an agent for the City and Borough of Juneau (CBJ), to conduct chemical and biological analyses of sediment material dredged from within the Douglas Harbor. NewFields produced the "Dredged Material Evaluation for the Douglas Harbor Marina, Juneau, Alaska Final Report" (NewFields March, 2009). This report indicated that all individual samples and sediment composites contained mercury (Hg) at concentrations above project screening levels. These concentrations exceed NOAA's National Status and Trends program low range levels for sediments (Rudis 1996). There are elevated levels of Hg in two distinct sediment layers within the Douglas Harbor basin, both of these layers would be dredged. The NewField report suggests that the Hg in Douglas Harbor is native material; however, given Juneau's hard rock mining history where Hg was commonly used to extract gold from ore, historic mining activities are likely sources of elevated levels of Hg in the Douglas Harbor (Rudis 1996). Historic records indicate that at least 102,000 tons of tailings from the Treadwell

Complex, the A-J Mine and the Alaska Gastineau Mine were deposited into Gastineau Channel and the Douglas and Juneau town sites between 1893 and 1944 (Rudis 1996).

In April of 2009, NewFields produced the "Supplemental Evaluation for Bioaccumulation Data from the Dredged Material Evaluation for the Douglas Harbor Marina" (NewFields April, 2009), followed by a second final report, "Dredged Material Evaluation for the Douglas Harbor Marina, Juneau, Alaska (NewFields June, 2009a), which included a revised "Supplemental Evaluation for Bioaccumulation Data from Dredged Material Evaluation for the Douglas Harbor Marina" (NewFields June, 2009b). During a state and federal interagency teleconference on July 23, 2009, there was discussion regarding which level of Hg to use as a bioaccumulation threshold, and the modeling methods and data interpretations used to evaluate bioaccumulation of Hg in the food web. NewFields used the Acid Volatile Sulfides/Simultaneously Extracted Metals (AVS/SEM) method to evaluate the effects of metals on benthic organisms (NewFields March, 2009). However, according to the Environmental Protection Agency (EPA), AVS/SEM is not a valid method for testing Hg uptake:

> "To evaluate the potential effects of metals on benthic species, the molar concentration of AVS was compared to the sum of SEM molar concentrations for six metals: cadmium, copper, nickel, lead, zinc, and silver. Molar concentrations of cadmium, copper, nickel, lead, and zinc are comparable with AVS on a one-to-one basis…Mercury was excluded from AVS comparison because other important factors play a major role in determining the bioaccumulation potential of mercury in sediment. Specifically, under certain conditions mercury binds to an organic methyl group and is readily taken up by living organisms (EPA 2004 p. 2-13)."

NewFields analyzed the short term (acute) effects of Hg, neglecting to analyze the long term (chronic) effects. Also, they did not adequately address the adverse effects on larval and embryonic life stages, which are the most sensitive to Hg. The reports also do not take into account the role of anaerobic bacteria (e.g. sulfate reducing bacteria) in the Hg methylation process, and the selected bioaccumulation threshold does not consider the chronic effects of Hg toxicity, which can be as low as 0.02ppm for salmonids (Beckvar et al. 1996).

The fate of Hg in the environment depends on the chemical form released and the environmental conditions present at the disposal site (Beckvar et al. 1996). Most Hg is released into the environment as inorganic Hg, which is primarily bound to particulates and organic substances and may not be available for direct uptake by aquatic organisms (Becvar et al. 1996). The process of methylation, by which inorganic Hg is made bioavailable in the form of methylmercury, is an important key to the fate of Hg in the environment (Becvar et al. 1996). One of the most important impacts to EFH of dredging and unconfined aquatic disposal of Hg contaminated material is the potential for Hg mobilization into the food web. Mobilization allows for increased conversion of Hg to methylmercury, which bioaccumulates in fish and other aquatic life, presenting a potential threat to EFH. Toxic effects of Hg on aquatic animals include reproductive impairment, growth inhibition, developmental abnormalities, and altered behavioral

responses (Beckvar et al. 1996). Exposure to low concentrations of Hg may not result in direct mortality, but may retard growth thereby increasing the risk of predation (Beckvar et al. 1996).

NMFS recommends that the Corps disregard the AVS/SEM test results supplied in the NewFields reports, because the test is not a valid estimator of the fate of Hg in aquatic systems. Also, as the proposed project moves into the permitting phase, answers to the following questions will be important in developing appropriate EFH conservation recommendations:

1. What are the chronic effects of Hg exposure and bioaccumulation in the aquatic food web? Marine organisms will be exposed to Hg from the fill material for decades, if not longer. While the NewFields report focuses on acute effects, juvenile salmon experience sublethal chronic effects at Hg levels much lower than 0.2 mg/kg.

2. What are the effects of Hg bioaccumulation at higher trophic levels in the food web? The NewFields tests evaluated clams and worms, not organisms such as forage fish, or commercial or sport caught fish intended for human consumption.

3. What are the effects of Hg methylation by microbial action on marine organisms? Mercury moved from anaerobic to aerobic conditions is more easily methylated by microbial action, and the sediment dredged from the Douglas Harbor basin will be exposed to aerobic conditions.

4. What is an appropriate Hg threshold for bioaccumulation effects? This level should be determined through collaboration with EPA, Alaska Department of Environmental Conservation (ADEC), and other appropriate specialists.

In addition, PND Engineers produced the "Douglas Harbor Dredge Material Disposal Practicable Alternative Analysis Report" (PND June, 2009a) and after evaluating 12 alternatives identified the preferred disposal method and location as at the previously utilized Gastineau Channel site (PND June, 2009a). Other practicable alternatives could minimize adverse effects to EFH. For example, as stated in the alternatives analysis report, approximately 1/3 of the material could be placed at a Treadwell Mine depression that is of low historic significance due to the lack of mining relics. Another 1/3 could be placed at the Treadwell Mine cave-in site. Fifteen percent could be contained on-site, beneath a proposed expanded harbor parking lot. Ten percent could be confined behind a newly-constructed timber retaining wall. Any remaining material could be used at the proposed confined intertidal Alaska Marine Lines storage yard expansion identified as an alternative disposal site. NMFS recommends that disposal methods which would eliminate or substantially reduce the discharge of uncontained mercury contaminated material directly into the marine environment be implemented to reduce the risk of adverse effects to living marine resources.

Finally, PND Engineers also produced the report "Douglas Harbor Renovation – Applicant Proposed Mitigation" (PND June, 2009b) that: a) proposes to avoid impacts by placing dredged

material into a previously used site in Gastineau Channel; b) does not propose minimization due to the nature of the harbor improvements (dredging to accommodate larger vessels); and c) states that compensation is not required because best management practices will be used for this deferred maintenance effort (creosote-treated piles will be replaced with galvanized steel, a vibratory hammer will be used where practical, new moorage and boarding floats will be treated with Ammoniacal Copper Zinc Arsenate (PND June 2006b). If upland disposal options prove not to be practicable after further evaluation, NMFS recommends that given the potential for adverse effects to EFH, mitigation be required for any permit issued for this project.

Thank you for your consideration. We look forward to continued discussions with the Corps on the proposed projects. If you have questions, please contact Ms. Chiska Derr at Chiska.Derr@noaa.gov or by phone at (907) 586-7345.

Sincerely,

Robert D. Mecum

Robert D. Mecum
Acting Administrator, Alaska Region

cc: Randall.P.Vigil@usace.army.mil, USACE, Juneau*
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References

Beckvar, N., J. Field, S. Salazar, and R. Hoff. 1996. Contaminants in Aquatic Habitats at Hazardous Waste Sites: Mercury. NOAA Technical Memorandum NOS ORCA 100. Seattle: Hazardous Materials Response and Assessment Division, National Oceanic and Atmospheric Administration. 74pp.

EPA. 2004. Incidence and Severity of Sediment Contamination in Surface Waters of the United States, National Sediment Quality Survey, Second Ed. United States Environmental Protection Agency, Office of Science and Technology, Washington, D.C. 280pp.

NewFields. March 2009. Dredged Material Evaluation for the Douglas Harbor Marina, Juneau, Alaska, Final Report". 80pp.

NewFields. April 2009. Supplemental Evaluation for Bioaccumulation Data from the Dredged Material Evaluation for the Douglas Harbor Marina. 12pp.

NewFields. June 2009a. Dredged Material Evaluation for the Douglas Harbor Marina, Juneau, Alaska, Final Report". 81pp.

NewFields. June 2009b. Supplemental Evaluation for Bioaccumulation Data from Dredged Material Evaluation for the Douglas Harbor Marina. 12pp.

PND Engineers. June 2009a. Douglas Harbor Dredge Material Disposal Practicable Alternative Analysis Report. 9pp.

PND Engineers. June 2009b. Douglas Harbor Renovation – Applicant Proposed Mitigation. 2pp.

Rudis, D. 1996. Metal Concentrations in sediments and Selected Biota in Gastineau Channel, Juneau, Alaska. U.S. Fish and Wildlife Services, Technical Report SEES-TR-92-01, Juneau, Alaska. 36pp.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

REGIONAL ADMINISTRATOR

March 2, 2010

Colonel Reinhard W. Koenig
District Engineer, Alaska District
US Army Corps of Engineers
PO Box 6898
Elmendorf AFB, Alaska 99506-0898

Subject: EPA Comments on Public Notice of Application for Permit
Reference Number: POA-2000-495-M3
Applicant: City and Borough of Juneau
Location: Douglas Harbor and Gastineau Channel, Juneau, Alaska

Attention: Heidi Firstencel, Project Manager

Dear Colonel Koenig:

This letter pertains to the US Army Corps of Engineers (ACE) Alaska District "Public Notice of Application for Permit," Reference Number: POA-2000-495-M3. The applicant is the City and Borough of Juneau (CBJ), and the project location is the Douglas Small Boat Harbor in Juneau, Alaska. The applicant's stated purpose is to renovate the existing Douglas Harbor in order to meet changing moorage demand in Juneau. CBJ's proposal includes dredging approximately 30,000 cubic yards of material from the harbor. The proposed dredged material disposal site is in Gastineau Channel, and the proposed dredged material disposal method is unconfined aquatic disposal via barge.

The Environmental Protection Agency (EPA) has reviewed the public notice for the proposed discharge of dredged material into Gastineau Channel. The recommendations herein have been prepared under the authority of and in accordance with Section 404 of the Clean Water Act (CWA) and its implementing regulations under 40 CFR Part 230, Guidelines for Specification of Disposal Sites for Dredged or Fill Material. Pursuant to Part IV, Paragraph 3(b) of the August 11, 1992, Memorandum of Agreement (MOA) between our agencies relative to Section 404(q) of the CWA, we believe the proposed project will result in substantial and unacceptable impacts on aquatic resources of national importance.

As stated in our letter of February 5, 2010, Gastineau Channel supports numerous fish, shellfish and wildlife resources including crab, halibut, salmon, shrimp, seals, sea lions, whales, waterfowl, seabirds, shorebirds and bald eagles. It also supports several important commercial, sport and personal use fisheries and hatcheries. EPA is concerned about the potential for

mercury bioaccumulation in fish and shellfish, and that the lower layer of the proposed dredged material may be harmful to aquatic life, wildlife and human health.

Enclosures 1 and 2 provide EPA's detailed comments on the public notice and the basis of our findings. Enclosure 1 includes EPA's evaluation of the bioaccumulation test results relative to the 404(b)(1) Guidelines and Sediment Evaluation Framework for the Pacific Northwest (SEF). Enclosure 2 is EPA's evaluation of the bioaccumulation test results under the Inland Testing Manual (ITM). The following is a summary of our concerns.

The bioaccumulation test results indicate that the total mercury tissue concentrations in *Macoma nasuta* ranged from 0.016 µg/g in the Reference Composite to 0.213 µg/g in the Lower Composite (wet weight). The difference between the Lower Composite and the Reference Composite is not only statistically significant, but the Lower Composite tissue concentration is more than 13 times higher than the Reference Composite tissue concentration. This suggests that mercury in the lower sediment layer is bioavailable to benthic organisms. The Lower Composite tissue concentration also exceeds the SEF Target Tissue Levels (TTL) for protection of aquatic life, aquatic dependent wildlife and human health.

Therefore, in the opinion of EPA, the lower sediment layer is unsuitable for unconfined aquatic disposal. If the project moves forward, we recommend that the proposed dredged material from the lower sediment layer be placed in an upland disposal facility or in a confined aquatic disposal facility. EPA is also concerned that the new dredged surface in Douglas Harbor (i.e., the bottom of the harbor after dredging) will expose aquatic organisms to mercury contaminated sediment that is presently isolated. Therefore, we recommend that such exposed surfaces be capped with sufficient clean fill material.

Conclusions

EPA recommends that ACE deny a permit for the project as proposed in the public notice because the project will result in substantial and unacceptable impacts on aquatic resources of national importance.

If ACE decides to issue a permit, EPA recommends that ACE condition the permit to either: 1) prohibit the discharge of dredged material from the lower layer of Dredged Material Management Units (DMMU) 1, 2, 4A and 4B into waters of the United States; or 2) authorize the discharge of fill material to construct a confined aquatic disposal facility to contain the dredged material from the lower layer of DMMUs 1, 2, 4A and 4B. In addition, EPA recommends that ACE require the applicant to cap the bottom of the harbor with a sufficient volume of clean fill material immediately after the dredging operation is complete if the lower layer is exposed. The above permit conditions may require the applicant to submit a modified permit application. The above options may also require a public notice and comment period, and in any case, it would be subject to interagency review and approval.

If you disagree with EPA's conclusions, then we recommend that ACE perform a rigorous risk assessment pursuant to Tier IV of the ITM, including an ecological risk assessment

using ACE's Trophic Trace model, and a human health risk assessment consistent with EPA guidance.

This determination was made based on: 1) EPA's authority under 33 USC § 1344 and 40 CFR Part 230; 2) EPA's expertise in dredged material testing and evaluation consistent with 40 CFR Part 230, Subpart G, the ITM and the SEF; and 3) EPA's review of site specific information including, but not limited to the permit application and supplemental submissions, the 1995 Chemical Data Report, the 2007 Sediment Characterization Report, and the 2009 Dredged Material Evaluation for the Douglas Harbor Marina.

We look forward to your response, and to your Notice of Intent to Proceed, pursuant to Part IV, Paragraph 3(c) of the MOA. In the meantime, EPA will continue to work with your staff and the applicant to resolve the above issues. Please call me at (206) 553-1234, if you wish to discuss this letter.

Sincerely,

Dennis J. McLerran
Regional Administrator

Enclosures (2)

cc: Mayor Bruce Botelho (CBJ)
John Stone, Port Director (CBJ)
Chiska Derr, NMFS
Deb Rudis, FWS
William Ashton, ADEC

Enclosure 1

EPA Comments of the Douglas Harbor Dredging Project

404(b)(1) Guidelines

40 CFR § 230.10 Restrictions on discharge.

EPA believes there may be one or more practicable alternatives to the proposed discharge which would have less adverse impact on the aquatic ecosystem. We recommend that ACE perform a more robust alternatives analysis, including upland disposal or confined aquatic disposal. [40 CFR § 230.10(a)]

Based on the available information, EPA finds that the proposed discharge of dredged material from the lower layer of DMMUs 1, 2, 4A and 4B will likely cause or contribute to significant degradation of the waters of the United States. [40 CFR § 230.10(c)]

40 CFR § 230.11 Factual determinations.

For the reasons stated below, EPA also finds that: 1) the proposed dredged material from the upper layer of DMMUs 1, 2, 4A and 4B is environmentally acceptable for unconfined aquatic disposal; and 2) the proposed dredged material from the lower layer of DMMUs 1, 2, 4A and 4B is a carrier of contaminants and is environmentally unacceptable for unconfined aquatic disposal. [40 CFR § 230.11(d)]

Sediment and Bioaccumulation Test Results

Douglas Harbor sediment was tested in accordance with the Inland Testing Manual (ITM), which includes four tiers: Tier I uses existing information, including previous testing; Tier II includes sediment and water chemistry tests; Tier III includes toxicity and bioaccumulation testing; and Tier IV allows case-specific lab and field testing in unusual circumstances.

In this case, ACE conducted Tier II testing in 1995 and detected total mercury above the screening level of 0.21 mg/kg. Total mercury concentrations in sediment samples ranged from 1.54 mg/kg to 2 mg/kg (dry weight).

The applicant performed more Tier II tests in 2007 and identified mercury as the only contaminant of concern. Total mercury sediment concentrations ranged from 0.47 mg/kg to 5.4 mg/kg for individual samples, and from 1.3 mg/kg to 3.5 mg/kg for composite samples (dry weight).

In 2008 and 2009, the applicant conducted Tier II and Tier III testing, including bioaccumulation tests. Methyl mercury concentrations in sediment ranged from 0.277 ng/g in the Reference Composite to 3.46 ng/g in the Lower Composite, and total mercury sediment concentrations ranged from 0.226 mg/kg in the Reference Composite to 3.22 mg/kg in the Area

4A Upper Composite (dry weight). The total mercury tissue concentrations ranged from 0.008 mg/kg in the Reference Composite to 0.027 mg/kg in the Lower Composite for *Nephtys caecoides*, and from 0.016 mg/kg in the Reference Composite to 0.213 mg/kg in the Lower Composite for *Macoma nasuta* (wet weight).

Applicant's Proposed Action Limit Is Inappropriate

The Alaska Department of Environmental Conservation (ADEC) recommended a project specific action limit of 0.32 mg/kg based on its interpretation of the Alaska Division of Public Health's (ADPH) fish advisory. ADEC's recommended number is based in part upon ADPH's chronic oral Acceptable Daily Intake of 0.0004 mg/kg of body weight/day. However, the fish advisory states that the document is not intended to influence regulatory standards and that it is inappropriate to use the Acceptable Daily Intake for regulatory purposes. ADPH recently corrected ADEC's misunderstanding, and ADEC subsequently withdrew its recommended action limit.

EPA agrees with ADPH, ADEC and ACE that is inappropriate to use ADPH's Acceptable Daily Intake in a regulatory context. EPA recommends that ACE use EPA's Reference Dose of 0.0001 mg/kg of body weight/day for any risk assessment or risk management decision related to this project. For example, see Table 1 below.

Table 1. Comparison of Acceptable Tissue Concentrations (ATC), Using Basic Risk Assessment Equation: (Reference Dose)(Body Weight)/Ingestion Rate = ATC

	Reference Dose (mg/kg of body weight/day)	Body Weight (kg)	Ingestion Rate (kg/day)	ATC (mg/kg)
ADEC Recommendation (withdrawn)*	0.0004	80	0.1	0.32
ADEC Recommendation (adjusted)*	0.0001	70	0.1	0.07
SEF TTL1 Human Health	0.0001	70	0.054	0.13
SEF TTL2 Human Health	0.0001	70	0.175	0.040
SEF TTL3* Human Health	0.0001	70	0.584	0.012

* Shown for comparison purposes only. EPA is using the SEF TTL2 in this case.

EPA Evaluation of Bioaccumulation Test Results

EPA has evaluated the bioaccumulation test results consistent with the Tier III guidance in the ITM (see Enclosure 2). Based on that review, we conclude that the 15,400 cubic yards of dredged material in the lower sediment layer of DMMUs 1, 2, 4A and 4B are unsuitable for unconfined aquatic disposal.

EPA also assessed mercury bioaccumulation potential by comparing the Tier III test tissue concentrations to ACE and EPA's risk-based Target Tissue Levels (TTLs) in the 2009 Sediment Evaluation Framework for the Pacific Northwest (SEF). Specifically, we compared the Lower Composite Macoma nasuta tissue concentration (i.e., 0.213 mg/kg) to the SEF Human Health TTL2 (i.e., 0.04 mg/kg).

The applicant's interpretation of the bioaccumulation test results is based on a series of non-conservative (i.e., non-protective) assumptions, as follows. First, the applicant assumes that the test organisms reached steady state in the 28 day exposure test. Although the ITM recommends a 28 day test as a cost effective compromise, it also recognizes that steady state may not be attained in 28 days:

> "Bioaccumulation of most compounds, if it occurs, will be detectable after the 28-day exposure period, even though steady state may not have been reached. Thus, Tier III bioaccumulation tests provide useful information about the potential for bioaccumulation (i.e., bioavailability), even when steady-state tissue residues are not determined, e.g. when comparing to a reference sediment." [ITM, page 6-4.]

ACE's Engineer Research and Development Center (ERDC) raised this issue in its comments to the Alaska District and recommended applying a conservative steady state conversion factor of 2.5. EPA concurs with ERDC's recommended 2.5 conversion factor.

Second, the applicant assumes that 44% of the total mercury measured in *Macoma nasuta* was present as methyl mercury. Although this assumption may be reasonable, no scientific citation is given, and it does not appear to be a conservative estimate.

Third, by comparing clam tissue data (trophic level 2) to a proposed action limit based on a fish tissue concentration (trophic levels 2, 3 and 4), the applicant assumes that methyl mercury will not biomagnify as it moves up the food web. EPA recommends that ACE apply a conservative biomagnification factor to account for the propensity of methyl mercury to biomagnify as it is transferred from trophic level 2 to trophic levels 3 and 4.

EPA has evaluated the above factors (i.e., steady state, % methyl mercury and biomagnification) across a broad range of scenarios using different sets of assumptions (see Table 2 below). It is noteworthy that even the Low End Scenario estimated fish tissue concentration (0.094 mg/kg), which is based on nonconservative assumptions, exceeds the SEF TTL2 (0.040 mg/kg) by more than a factor of two.

New Dredged Surface

EPA is also concerned that the new dredged surface in Douglas Harbor (i.e., the bottom of the harbor after dredging) will expose aquatic organisms to mercury contaminated sediment that is presently isolated. EPA recommends that ACE require the applicant to cap the bottom of the harbor with a sufficient volume of clean fill material immediately after the dredging operation is complete.

Table 2. Range of Scenarios for Interpreting Bioaccumulation Data Based on a Range of Assumptions Regarding Steady State, % Methyl Mercury and Biomagnigication

Douglas Harbor, Lower Compartment, *Macoma nasuta*, wet weight	Low End Scenario (based on nonconservative assumptions)	State Scenario [illegible]	Mid-Range Scenario (based on moderately conservative assumptions)	High End Scenario (based on conservative assumptions)
Mean Total Mercury Tissue Concentration (mg THg/kg)	0.213	0.213	0.213	0.213
Steady State Conversion Factor	1	1	1.75 Note A	2.5 Note B
Estimated Steady State Tissue Concentration (mg THg/kg)	0.213	0.213	0.373	0.533
% Methyl Mercury Conversion Factor	44% Note C	100%	64% Note D	100% Note E
Estimated Methyl Mercury Tissue Concentration (mg MHg/kg)	0.094	0.213	0.239	0.533
Biomagnification Factor (from trophic level 2 to trophic levels 3 & 4)	1	1	>1 Note F	>1 Note F
Estimated Fish Tissue Concentration (mg MHg/kg)	0.094	0.213	>0.239	>0.533

Notes:

A: Best et al. (September 2005), http://el.erdc.usace.army.mil/elpubs/pdf/trel05-15.pdf

B: Recommended by ACE, Engineer Research & Development Center, Dr. Lotufo.

C: Estimated in NewFields Supplemental Report, Revised June 2009. Basis or citation omitted.

D: Best et al. (September 2007), http://el.erdc.usace.army.mil/elpubs/pdf/trel07-21.pdf

E: Worst case assumption.

F: Based on propensity of methyl mercury to biomagnify as it transfers up the food web.

Enclosure 2

EPA Comments on the Douglas Harbor Dredging Project under the Inland Testing Manual

Inland Testing Manual Tier III Evaluation: Benthic Bioaccumulation	EPA Evaluation of Douglas Harbor Bioaccumulation Test Results
"Based on tissue comparisons with Food and Drug Administration (FDA) levels, one of the following conclusions is reached: • Tissue concentrations of one or more contaminants are not statistically less than the FDA levels. Therefore, the dredged material is predicted to result in benthic bioaccumulation of contaminants. • Tissue concentrations of all contaminants either are statistically less than FDA levels or there are no FDA levels for the contaminants. In this case, the information is insufficient to reach a conclusion with respect to benthic bioaccumulation of contaminants. The dredged material needs to be further evaluated in Tier III as described below for bioaccumulation potential to furnish information to make determinations under the Guidelines." [Pages 6-4 & 6-7]	The FDA action level for methyl mercury is 1.0 parts per million (ppm). Tissue concentrations were measured as total mercury, not methyl mercury. However, even if we assume that 100% of the total mercury was present in the form of methyl mercury, the highest tissue concentration was 0.213 ppm for Macoma nasuta in the Lower Composite sample. Therefore, EPA concludes that tissue concentrations of methyl mercury are statistically less than the FDA action level.
"Tissue contaminant concentrations following exposure to dredged material which are statistically less than FDA levels, or for which there are no such levels, are compared to tissue contaminant concentrations for organisms similarly exposed to reference sediment. One of the following conclusions is reached based on this comparison: • Tissue concentrations of contaminants of concern in organisms exposed to dredged material do not statistically exceed those of organisms exposed to the reference sediment; therefore, the dredged material is predicted not to result in benthic bioaccumulation of contaminants. However, benthic toxicity effects also have to be considered.	EPA concludes, based on data collected for this project, that tissue concentrations of methyl mercury in organisms exposed to dredged material statistically exceed those of organisms exposed to the reference material.

Inland Testing Manual Tier III Evaluation: Benthic Bioaccumulation	EPA Evaluation of Douglas Harbor Bioaccumulation Test Results
• Tissue concentrations of contaminants of concern in organisms exposed to dredged material statistically exceed those of organisms exposed to the reference material. In this case, the final conclusion regarding benthic bioaccumulation of contaminants would be based upon technical evaluations that emphasize the various factors deemed appropriate in a particular region (see last paragraph in this section). Additional testing (Tier IV) may be required." [Page 6-7]	
"When the bioaccumulation of contaminants in dredged-material tests statistically exceeds that in reference-material tests, five factors should be assessed. Where available, regional guidance should be consulted regarding the relative importance of these factors: • What is the toxicological importance of the contaminants (e.g., Do they biomagnify? Do they have effects at low concentrations?) whose bioaccumulation from the dredged material statistically exceeds that from the reference material? • By what magnitude does bioaccumulation from the dredged material exceed bioaccumulation from the reference material? • What is the propensity for the contaminants with statistically significant bioaccumulation to biomagnify within aquatic food webs (Kay, 1984)? Contaminants which biomagnify appear to be few in number but widespread, and include DDT, PCB, methylmercury and, possibly, dioxins and furans. • What is the magnitude by which contaminants whose bioaccumulation from the dredged material exceeds that from the reference material also exceeds the concentrations found in comparable species living in the vicinity of the proposed disposal site? • For how many contaminants is bioaccumulation from the dredged material statistically greater than bioaccumulation	• The toxicological importance of mercury is well documented. See: "Mercury Study Report to Congress," EPA, December 1997, http://www.epa.gov/mercury/report.htm; "Toxicological Profile for Mercury," ATSDR, March 1999, http://www.atsdr.cdc.gov/toxprofiles/tp46.html; and "Global Mercury Assessment," UNEP, December 2002, http://www.chem.unep.ch/mercury/Report/GMA-report-TOC.htm. Methyl mercury does biomagnify and it has effects at low concentrations (e.g., below the FDA action level). • Bioaccumulation from the Lower Composite dredged material exceeds that from the reference material by more than an order of magnitude: 0.213ppm/0.016ppm = 13.3 • Methyl mercury tends to biomagnify within aquatic food webs. It is widespread and is the subject of numerous fish advisories nationwide. • There is insufficient information to assess comparable species living in the vicinity of the proposed disposal site. • Mercury is the only contaminant of concern in this case.

Inland Testing Manual Tier III Evaluation: Benthic Bioaccumulation	EPA Evaluation of Douglas Harbor Bioaccumulation Test Results
from the reference material?" [Page 6-8]	
"After considering these factors, one of the following Tier III conclusions is reached: • Discharge of the dredged material is predicted not to result in above-reference toxicity or benthic bioaccumulation of contaminants. • Discharge of the dredged material is predicted to result in above-reference toxicity or bioaccumulation of contaminants. • Further information is needed to make factual determinations, specifically in Tier IV." [Pages 6-8 & 6-9]	EPA concludes that discharge of the dredged material from the Lower Composite is predicted to result in above reference bioaccumulation of methyl mercury. Therefore, the lower layer of sediment in DMMUs 1, 2, 4A and 4B is unsuitable for unconfined aquatic disposal. EPA recommends that the dredged material from the lower sediment layer be placed in an upland disposal facility or in a confined aquatic disposal facility.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
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February 2, 2010

Heidi Firstencel
US Army Corps of Engineers
Juneau Field Office
Regulatory Division (1145)
CE-POA- RD
8800 Glacier Highway, Suite 106
Juneau, Alaska 99801

Re: POA-2000-495-M3, Gastineau Channel, Douglas Harbor Improvements

Dear Ms. Firstencel,

In a letter dated January 26, 2010, the U.S. Fish and Wildlife Service (USFWS) provided review comments on the above referenced public notice. The applicant, the City and Borough of Juneau, proposes to dredge 30,000 cubic yards of sediments from the 5.2 acre Douglas Harbor and dispose of them in an uncontained site in Gastineau Channel. We offer these additional comments under provision of the Fish and Wildlife Coordination Act (48 Stat 401, as amended: 16USC, 661 et seq.).

Douglas Harbor sediments are contaminated with mercury (Hg) (Newfields, March 2009; Rudis 1996). USFWS is concerned about the potential for Hg bioaccumulation in crab, shrimp, groundfish, and salmon, and the associated risks to other species (including humans) that use these resources for food. Mercury will continue to bioaccumulate in the marine food web as organisms are consumed or when they die and are consumed by decomposers. Fish carcasses can be an important source of Hg in aquatic food webs (Sarica et al. 2004). Mercury may also be transferred into the terrestrial environment when carcasses of fish or other marine organisms are consumed by terrestrial scavengers such as gulls, bald eagles, and other avian or mammalian scavengers. Mercury has a plethora of toxic effects on both aquatic and terrestrial organisms, including developmental and reproductive abnormalities, adverse effects to metabolism, blood chemistry, osmoregulation and behavior (Eisler 1987). Because crustacean embryos and larvae are more susceptible to contaminants than adults (Connor 1972), toxicity to juveniles can result in higher rates of mortality due to reduced growth and behavioral changes leading to increased predation (Eisler1987).

Additional Hg should not be added to the marine environment via contaminated sediment disposal in Gastineau Channel as it can result in an increase of Hg mobilization into the food web. Conversion to methylmercury, the more toxic Hg form, is increased with Hg mobilization. Methylmercury concentrations reported in Douglas Harbor sediments are equivalent to those reported from an Hg-contaminated salt marsh in Georgia, where food web trophic transfers resulted in Hg biomagnifications (Gardner et al. 1978).

As we stated in our earlier correspondence, the 28-day bioaccumulation study Newfields conducted to evaluate sediment toxicity (Newfields, June 2009a, June 2009b) was not adequate to determine that Hg bioaccumulation steady state was attained. Bioaccumulation studies on crab have demonstrated Hg uptake over a longer time period (Reichmuth et al. 2010). A longer exposure period would result in higher Hg concentrations in test organisms (Reichmuth et al. 2010, Gardner et al. 1978). If crabs, shrimp, and other higher trophic level organisms have different bioaccumulation rates than the lower trophic level test organisms, Hg uptake could be greater than that of the test organisms.

The Corps, EPA, NMFS and FWS have cooperatively signed *Sediment Evaluation Framework for the Pacific Northwest* (May 2009). This document, http://www.nwp.usace.army.mil/pm/e/rset/sef/2009-Final_SEF.pdf includes Hg bioaccumulation criteria for population-level protection of aquatic-dependent wildlife species. Mercury bioaccumulation criteria for great blue heron, belted kingfisher, spotted sandpiper, and bald eagle, are listed in this document. All of these species use nearshore habitat near the proposed disposal area. These avian species as well as mergansers, scoters, harlequin ducks and river otters all feed on fish and /or crustaceans which are Hg-bioaccumulating organisms.

The *Sediment Evaluation Framework for the Pacific Northwest* (May 2009) used species-specific life history parameters to calculate the total tissue levels (TTLs) for aquatic-dependent wildlife. Mercury TTLs for aquatic life are 0.11 mg/kg and are 0.12 mg/kg for deep water wildlife. The Hg TTLs for recreational anglers (human health) are 0.04 mg/kg. These values are more stringent than the 0.32 ppm concentration that was provided by the Alaska Department of Environmental Conservation and used by the City and Borough of Juneau in evaluating Douglas Harbor sediments.

USFWS does not agree that unconfined sediment disposal in Gastineau Channel is the best disposal option. In the June 25, 2009 report, *Douglas Harbor Dredge Material Disposal Practicable Alternative Analysis Report* (POA 2000-495-M3), (PND Engineers, June 2009) a number of alternatives to Gastineau Channel sediment disposal were evaluated. Other disposal alternatives would have far fewer detrimental effects to the marine ecosystem of Gastineau Channel than in-channel sediment disposal that would add Hg to this environment. None of the alternatives are discussed in combination, which could be another choice for sediment disposal. The National Marine Fisheries Service (Mecum letter to Koenig, Sept. 9, 2009) suggested a combination strategy of disposal options. A combination of selected confined intertidal fill areas (e.g., Treadwell Mine cave-in) and upland disposal sites would be good alternative disposal sites to minimize introduction of additional Hg in to Gastineau Channel and the associated food web.

According to test composites from the CBJ Newfields reports, only certain harbor sediment areas have Hg concentrations of concern. Mercury-contaminated sediments can be isolated and removed separately. These contaminated sediments can be used as upland fill or in a confined disposal site such as the Treadwell Mine cave-in. If there are uncontaminated sediments, they could be dumped into Gastineau Channel as an open-water disposal option.

Because Douglas Boat Harbor will require maintenance dredging ten to twenty years from now, future dredging will also require a viable disposal option. Other Juneau harbors also require periodic maintenance dredging, as glacial uplift and sedimentation from the Mendenhall River's input continues to alter harbor depths and sediment loads. This is an opportune time to discuss future disposal plans for dredged harbor sediment from all Juneau boat harbor facilities.

The U.S. Fish and Wildlife Service requests that this permit be modified so that Hg-contaminated sediment disposal in Gastineau Channel is not allowed. Due to the significance of the resources at risk and the impacts likely to result from the project, we believe that approval of the current proposal may result in substantial and unacceptable impacts to aquatic resources of national importance. The Service recommends that the permit, as currently proposed, be denied. These comments satisfy the procedural requirements of Part IV, paragraph 3(a) the 1992 404(q) Memorandum of Agreement between the Department of Interior and the Department of the Army. If you choose not to follow these recommendations, please notify this office in accordance with the local procedures agreed to by our respective agencies. If you have any questions about our comments or requests, please contact Deborah Rudis of my staff at Deborah_rudis@fws.gov or at 907-780-1183. Thank you for considering these comments.

Sincerely,

Steve Brockmann
Acting Field Office Supervisor

cc:
Chris Meade, EPA
Chiska Derr, NMFS
Teri Camery, CBJ
John Stone, CBJ
Carrie Bohan, ADNR, DCOM
Joe Hitselberger, ADF&G
William Ashton, ADEC
Alex Dugaqua, ADNR, DMLW

References:

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Juneau Harbors Deferred Maintenance Planning Services

Condition Assessment of Juneau's Municipal Harbors

CBJ Contract No.: RFP E03-227

City and Borough of Juneau
Docks & Harbors Department
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CITY/BOROUGH OF JUNEAU
ALASKA'S CAPITAL CITY
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March, 2004

EXECUTIVE SUMMARY

This Condition Assessment Report has identified an extensive list of harbor facilities in the City and Borough of Juneau's (CBJ) four municipal harbors that are in need of replacement or major rehabilitation due to decades of deferred maintenance by the State under its prior ownership. It is imperative that actions addressing electrical systems replacement, gangway replacements and repairs, and moorage floats refurbishment or replacement due to inadequate floatation or deteriorated structural members be taken to address health, safety, and operating concerns.

Some harbors are in significantly worse condition than others, primarily due to age. In some cases rehabilitation is not practical due to costs. It is often less expensive to replace a float rather than to attempt piecemeal replacement of its components.

In response to this report at its January 6, 2004 meeting, the Harbor Board adopted a generalized plan to address the most pressing concerns identified in this report using available funds. The plan includes some new float construction to replace existing floats in extremely poor condition. It also includes rehabilitating some existing floats to extend their useful lives, replacing critical electrical components like transformers, distribution panels and main feeder lines at Aurora and Harris Harbors, while leaving a reserve for other miscellaneous repairs.

Work program budgets were prepared in coordination with the CBJ Docks and Harbor Department for the following harbors to identify the most significant maintenance and renovation work at each facility.

Harbor	Budget ($ Millions)
Old Douglas	$ 2.7
Harris	$ 7.5
Aurora	$ 8.6
Statter	$ 6.1
Total	$ 24.9

Major work improvements will be procured through competitive bid contracts, and miscellaneous smaller scale repairs will be accomplished primarily using in-house work forces. Upon completion of the work plan components, Juneau's municipal harbors will be in good condition but ongoing repairs and maintenance will always be necessary to keep them safe and operational.

DOUGLAS HARBOR

A. Background Information

Douglas Harbor is located about 2.5 miles south of the Juneau-Douglas Bridge. The harbor was originally dredged by the US Army Corps of Engineers (COE) in 1962 to create a 5-acre moorage basin. The adjacent uplands, now Savikko Road and Park, were created from the hydraulic placement of the dredge spoils at that time. The COE conducted maintenance dredging at the harbor entrance and near C Float in 1998. In 2002 the CBJ expanded the harbor with additional dredging nearly doubling the basin in size and the adjacent uplands were expanded to the north with the spoils to create a modern two land boat launch ramp.

The state of Alaska constructed the initial moorage float system, including main floats A, B and C in 1964. Seven stall floats were added to the north side of C Float by the CBJ in 1998. Two new main floats, D and E, are planned for completion in 2004.

The harbor is protected from the south and southeast by a rubble mound breakwater leading to Mayflower Island; however it is exposed to high wind and wave action out of the north and northeast during the winter. Frequent damage to moorage floats and moored vessels has resulted from these northerly winds that often exceed 100 MPH. In the spring of 2003, the CBJ installed a temporary log boom breakwater near the harbor entrance in an effort to minimize damage to the new boat launch float until permanent entrance protection is constructed.

B. Harbor Condition

The scope of the condition assessment at Douglas included the approach dock, pedestrian gangway, headwalk float, mainwalk floats A, B, and C, the electrical system, the water system, and the single lane boat launch ramp.

The original portion of Douglas Harbor contains slips for about 110 vessels ranging in length from 16' to 42'. The moorage system consists of a timber headwalk float leading to three timber mainwalk floats; A, B and C, anchored with timber piles. Pedestrian access is provided by a steep gangway at the end of a timber approach dock centered on B float. A small 50' long timber tidal grid is located alongside the approach dock. All floats are equipped with power, lighting and potable water. A single lane boat launch ramp and boarding float is located along the inside of the rubble mound breakwater leading to Mayflower Island along the southern limits of the basin.

The overall condition of Douglas Harbor's moorage system is fair to poor. Most of the original timber structures are still in use, but they are deteriorated, primarily due to the systems age of nearly 40 years. There is widespread rot throughout the harbor's timber elements.

1. Moorage System & Support Structures

Approach Trestle, Gangway and Landing Float:

The approach trestle is a timber structure that was constructed in 1963. The gangway is a steel structure with hinges at the top and skid plates on the bottom. Deficiencies noted were:

The gangway is only 50 feet long and it becomes excessively steep and dangerous at low tide.

Longitudinal bracing is in poor condition.

The gangway skids are worn and are not lubricated; causing friction that pushes and pulls the floats during tidal changes. This movement has resulted in mooring pile to pile hoop contact and abrasion.

Headwalk Float:

The headwalk float is a timber structure. Deficiencies noted on the headwalk float were:

a) Heavy pile and pile hoop abrasion, to the extent that float structural members are being worn.

b) Finger floats are listing and unstable with many rotten timbers and loose decking boards.

c) Several areas along the headwalk float are listing/sagging, indicating deteriorated flotation billets.

Mainwalk Floats A, B, and C:

The mainwalk floats are timber floats anchored with timber piles. Deficiencies noted were:

a) Inadequate freeboard throughout, causing submergence of structural members and electrical cables.

b) Several finger floats exhibit excessive sagging and many floats listing.

c) Loose decking boards.

d) Piles are missing top protection.

e) Rotten and missing rubboards.

f) B float timber piles and pile hoops are severely abraded. This may be caused by the unlubricated bottom of the gangway bearings binding on the skid plates and pushing the floats until they bear against the edge of the pile hoop.

g) C float finger floats are sloping down from the mainwalk C float connection to the end of the finger float.

Single Lane Boat Launch Ramp

The boat launch ramp is severely deteriorated. Specific deficiencies noted were:

a) Ramp planks do not extend far enough to launch a boat at a tide of +0' MLLW or below.

b) Ramp planks are undermined for approximately 2' along much of the north ends.

c) Many concrete ramp planks show severe spalling and exposed rebar.

d) The boarding floats have inadequate flotation and freeboard.

e) Virtually all of the main structural members are waterlogged and show advanced stages of rot.

f) Flotation billets are uncoated.

g) Many deck planks are rotten.

2. Electrical System

The electrical system is fed with a 120/240V, single phase service rated at 300 amps. The measured load in 2000 was 150 amps or 50% of the system capacity. The electrical service feeds a main distribution panel at the base of the gangway which then feeds the pedestals on each main float. Each main float has two circuits; one for pedestals on each side of the float, which is common in all the downtown harbors. The pedestal circuit load varied from 7% to 70% of the circuit capacity with

A float being the lightest loaded and C float the heaviest. Most of the pedestals are equipped with 20 amp receptacles.

The original electrical system was installed sometime in the late 60s and early 70s. The system was extensively renovated in 1981, along with the other two downtown harbors. At that time, the main panel for Douglas was replaced with one from Aurora Basin, new pedestals were installed and most of the cables were replaced.

The main distribution panel has exceeded its service life. As evidenced by severe corrosion in the panel. The pedestals have also exceeded their service life. They are constructed of painted mild steel which has corroded extensively. The main terminal blocks in the pedestals are corroded, the receptacles are cracking, wiring is burned or corroding at terminals, and the circuit breakers are rusting. This is typical for all of the pedestals installed in 1981. The cables have perhaps five to ten years of service life remaining and need to be replaced.

Please also refer to Appendix A – CBJ Harbors Electrical Improvements, Phase I – Condition Survey.

3. Water/Fire Systems

Douglas Harbor's water system connects to the CBJ's municipal water main in Savikko Road with a 6" polyethylene (HDPE) service pipe. This service is routed beneath the trestle and gangway and daylights into the harbor at approximately -10' MLLW. A 6" flexible pipe connects the HDPE service pipe to the floats approximately midway between A and B floats. From the connection point, 6" HDPE header piping is routed along the north side of the headwalk float, with 4" HDPE lateral feeders to each mainwalk float. All main water lines on the floats are mounted below the water surface with pipe hangers. Pipe hangers are constructed with galvanized steel components and anchored with galvanized hardware.

The water supply system services the floats through hose bibbs enclosed within insulated and heat traced PVC standpipes. The standpipe encases a ¾" diameter water pipe which is tapped into the float water line via a ¾" diameter flexible hose. An electrical heat cable is routed through the side of the standpipe from a junction box and is wrapped around the water pipe hose bibb assembly, then is routed through ½" PVC tubing alongside the water pipe to the tidewater level.

The water-fed fire protection system was removed in 1989 after numerous problems with freezing and pressure plagued the system. No water-fed fire protection system currently exists. The existing fire protection system consists of a several 50-lb fire extinguishers stored in cabinets on the floats. Extensive maintenance and repair work was performed on the domestic water system in 1989. Numerous valves and water line hangers were replaced at that time.

The water system above the water surface was inspected under this study. Above water elements were in fair condition with adequate flow rate at all hose bibbs. Subsurface elements had excessive amounts of marine growth. Loss of freeboard in the float systems has caused both the standpipe casings and the electrical thaw wires to extend further into the water than designed. Because of this, the thaw wires are submerged in tide water and they frequently short out.

The following observations were taken during the inspection of the water and fire protection systems:

a) Floats A and B have water system isolation valves. Float C does not have an isolation valve. More isolation valves are suggested.

b) The electrical thaw wire enters below the hose bibb assembly on Float A and the headwalk float, and it enters above the hose bibb assembly on Floats B & C. Where the thaw wire enters below the hose bibb assembly, it is more difficult to service due to limited clearance between the hose bibb pipe and the standpipe wall.

c) Large amounts of marine growth have accumulated on the submerged water line components.

d) The CBJ Harbormaster reported that the sealed thaw wire tubes are no longer watertight, and the ends of the thaw wires have been shorting out when they contact the water.

e) PVC pipe encasing the hose bibb assembly extends below the waterline in excess of one foot (1'). This saturates the insulation and is prone to marine growth.

f) Fire protection canisters are weatherproof and all fire extinguishers were fully charged.

C. Proposed Work Program Budget

The following budget has been prepared in coordination with the CBJ Docks and Harbors Department to upgrade the old section of Douglas Harbor to a good condition. The budget includes an estimate of the funds necessary for moorage reconfiguration on A Float and deferred maintenance on existing Floats B and C however does not include capital improvement costs for the uplands and moorage expansion program currently underway at Douglas Harbor. Budgets have been prepared on a generalized unit price basis with the understanding that the CBJ may elect to perform much of the deferred maintenance work in house and will solicit construction contracts for most of the reconfiguration work. This budget is useful for general planning purposes however more detailed cost breakdowns should be prepared as subsequent projects become further defined by the CBJ.

ITEM	DESCRIPTION	QTY	UNIT COST	EXTENDED COST
1	Mobilization & General Contract Requirements	All Reqd	10%	$ 181,000
2	Demolition & Disposal A Float	All Reqd	LS	$ 40,000
3	Replace & Reconfigure A Float w/ new Main Floats, Stall Floats, Utilities and Piles	All Reqd	LS	$ 380,000
4	Replace B Gangway & Landing Float	All Reqd	LS	$ 150,000
5	Replace Single Lane Boat Launch Ramp & Boarding Float	All Reqd	LS	$ 400,000
6	DM Floats B, C & HW: Structural Timber & Steel Elements	13,600 SF	$15	$ 204,000
7	DM Floats B, C & HW: Floatation	13,600 SF	$10	$ 136,000
8	DM Floats B, C & HW: Water System Repairs	All Reqd	LS	$ 50,000
9	DM Floats B, C & HW: Electrical Power & Lighting (IHH Electrical Estimate-Appendix 5)	All Reqd	LS	$ 450,000
	Subtotal			**$ 1,991,000**
	Contingency	All Reqd	15%	$ 298,650
	Environmental Permits	All Reqd	0.5%	$ 9,955
	Design Engineering & Contract Documents	All Reqd	8%	$ 159,280
	Contract Admin & Construction Inspection	All Reqd	7%	$ 139,370
	CBJ Project Administration	All Reqd	5%	$ 99,550
	Total Recommended Project Budget			**$ 2,697,805**

DM = Deferred Maintenance
HW = Headwalk

CBJ Harbors Electrical Improvements

Project E00-141

Phase I - Condition Survey

Final Report

February, 2000

IHH Electrical
5636 Glacier Highway
Juneau, Alaska 99801
780-6520, 780-6552(fax)

IHH Electrical

CBJ Harbors Electrical Improvements - Condition Survey

Project No. E00-141

Executive Summary
February, 2000

A condition survey has been performed on the electrical systems at the Douglas, Harris, and Aurora Basin Boat Harbors. The following is an executive summary of the survey results:

Habor Users Survey

Approximately 900 surveys were mailed out to those currently leasing a slip in one of the three harbors. 248 surveys were returned. A brief summary of the survey results is shown below:

- 126 responses were received from Aurora, 87 from Harris, and 33 from Douglas Harbor.
- 33 responses were from liveaboards or 13% of those who responded.
- Only 13% of users want more than a 30 amp shore power service. 60% want a 30 amp service.
- 13% of the users power computers on their shore power.
- 72% of the users feel the lighting is adequate. 18% feel it is inadequate, and 4% feel it is too bright.
- 70% feel the type of lighting is adequate, 14% would prefer street lighting type (high cutoff, cobra head).
- Many comments were received about: stray electrical current causing electrolysis, security of pedestals from unauthorized use of power, needing more power, system components failing (circuit breakers, receptacles, etc.), Pedestal circuit breakers tripping.

Douglas Boat Harbor

System Description – The electrical system is fed with a 120/240V, single phase service rated at 300 amps. The measured load was 150 amps or 50% of the system capacity. The electrical service feeds a main panel at the base of the gangway which then feeds the pedestals on each float. Each float has two circuits; one for each side. This is common in all harbors. The pedestal circuit load varied from 7% to 70% of the circuit capacity with A float being the lightly loaded and C float the heaviest. Most of the pedestals have 20 amp receptacles.

System Condition – The original electrical system was installed sometime in the late 60s and early 70s. The system was extensively renovated in 1981. The main panel was replaced with one from Aurora Basin. New pedestals were installed and most of the cables were replaced.

The main panel has exceeded it's service life. There is severe corrosion in the panel. The pedestals have also exceeded their service life. They are painted mild steel which has rusted extensively, the main terminal blocks are corroded, the receptacles are cracking, wiring is burned or corroding at terminals, and the circuit breakers are rusting. This is typical for all of the pedestals installed in all three harbors in 1981. The cables have 5 to maybe 10 years service life remaining. The original cables need to be replaced.

The main panel is not grounded at the dock. Significant ground currents were found on the pedestal circuits on C float.

Recommended Renovations – Three options are recommended:

1. Deferred Maintenance – This option corrects the gross deficiencies in the system including code problems such as installing new ground rods and failed equipment such as broken receptacles, burned wire, rusted circuit breakers. *The estimated cost for this work is $46,000.*
2. Short term renovation – This option adds five to ten years service life by replacing the main panel, pedestals, and grounding. *The estimated cost for this work is $250,000.*
3. Long term renovation – This option replaces the entire electrical system. The new system will have capacity for future growth. Also the existing lighting would be replaced either with new fixtures, dock mounted post lighting, or light fixtures on the new pedestals. *The estimated cost for this work is $650,000.*

Harris Boat Harbor

System Description – The electrical system is fed with a 277/480 V, three phase service rated at 250 amps. The measured load was 230 amps or 92% of the system capacity. The electrical service feeds a main panel at the top of the gangway which then feeds step down transformers on each float. There are two transformers for each float; one at the beginning and one half way down. Each transformer feeds the pedestals on half of the float. The feeder circuits to the transformers were loaded at 60% - 98%. The transformers were loaded at 40% - 70%. The pedestal circuit load varied from 50% to 60% of the circuit capacity. 1 and 2 floats have 30 amp receptacles, 3,4,5,& 6 floats have 20 amp receptacles.

System Condition – The original electrical system was installed sometime in the late 60s and early 70s. The system was partially renovated in 1981to provide more capacity and pedestals. A new main panel, new feeder cables to the transformers, and new transformers were installed. New pedestals were added to 1 float, 4 float, and 5 float. The existing pedestals and pedestal circuit cables were not replaced.

The main panel has 5 to 10 years service life remaining. The transformers have less than 5 years service life remaining due to rusting enclosures. Both the original and "1981" pedestals have also exceeded their service life. The transformer feeder cables have 5 to maybe 10 years service life remaining. The original cables need to be replaced, their insulation is cracking and the bare conductors are showing. This is a safety issue and should be remedied as soon as possible.

Significant ground currents were found throughout the harbor.

Recommended Renovations – Due to the failure of the pedestal feeder cables and the system operating at or near capacity only one option is recommended:

1. Long term renovation – This option replaces the entire electrical system. The new system will have capacity for future growth. The new system may not need transformers on the docks. Distribution panels would be used instead which have a much smaller footprint, thus saving dock space. Also the existing lighting would be replaced either with new fixtures, dock mounted post lighting, or light fixtures on the new pedestals. *The estimated cost for this work is $1,850,000.*

Transformers on the docks are giving way to larger feeder cables which feed distribution panels at each float and sometimes two per float. This is a new code requirement for many docks and preferred on most. This allows smaller pedestal feeder cables and a much smaller foot print on the dock.

New pedestal designs incorporate both telephone and television connections in the pedestal. This is very convenient for the user, however it requires the cooperation of the telephone and television utilities and their willingness to pay for their utilities to be installed in the pedestals. It is questionable whether this would work in Juneau, but it should be explored during design.

Conclusion

The electrical systems in the Douglas, Harris, and Aurora Boat Harbors received a partial electrical upgrade in 1981. Unfortunately the pedestals used have exhausted their service life, the original pedestals and cables have exceeded their service life and much of the system is operating at or near capacity.

The electrical systems do not meet the current codes for capacity or for safety. The systems are slowly falling apart, their safety has been seriously compromised, and they are unable to meet current user needs.

The time has come to completely replace the electrical systems at all three harbors including the lighting. The harbors should be split up as three separate projects to encourage local contractors to do the work. If they were all lumped together, it would be difficult for most local contractors to do the work.

The condition of the floats in Harris Harbor should be reviewed prior to replacing the electrical system. It may prove more cost effective in the long term to replace or renovate some of the floats when the new electrical system is installed.

The total estimated cost to completely renovate all three harbors electrical systems is $5,352,000.

Please give me a call if you have any questions.

Sincerely,

Mark Morris, P.E.

Section 3 – Douglas Boat Harbor

System Description

The electrical system is fed with a 120/240V, single phase service rated at 300 amps. The service is fed from the utility under the approach dock with type G cable in conduit then transitioning to conduit on the gangway. At the dock, the cable goes into the timber float to the main panel adjacent to the base of the gangway. The measured load on the service cable was 150 amps or 50% of the cable capacity. The main panel has 70 amp, 240 volt circuit breakers that feed the pedestals. Each float has two pedestal circuits; one for each side. This is common in all three harbors. The pedestal circuit load varied from 5 amps to 54 amps or 7% to 70% of the circuit breaker capacity with A float being the lightest loaded and C float the heaviest. The pedestals on A and B floats have 20 amp circuit breakers and receptacles and the pedestals on C float have 30 amp circuit breakers and receptacles. Some 20 amp receptacles and circuit breakers have been changed to 30 amp. This is common throughout all three harbors. The main panel also feeds a smaller panel that provides power to 120 volt receptacles on each float and provides power for heat trace cables.

System Condition

The original electrical system was installed sometime in the late 60s and early 70s. The system was extensively renovated in 1981. The main panel was replaced with a used one from Aurora Basin. New pedestals were installed and most of the cables were replaced.

The service conduit under the approach dock is supported by unistrut brackets which are rusting badly and have failed in some places, leaving the conduit unsupported. See photo D -1. The cable grip is missing on one of the service cables at the top of the gangway. The cable grip provides support to the cable. The springs on the cable grips at the bottom of the gangway have also failed. They support the cable throughout the tidal movement.

The main panel has exceeded it's service life. There is severe corrosion in the panel. The main circuit breaker lugs are heavily corroded as are the neutral lugs. The neutral to ground bonding lugs have almost failed due to corrosion. The panel enclosure is also rusting badly. See photos D-2 & D-3.

The pedestals have also exceeded their service life. They are painted mild steel which has rusted extensively, the main terminal blocks are corroded, the receptacles are cracking, wiring is burned or corroding at terminals, and the circuit breakers are rusting. See photos D-4,5,6,7,&8. This is typical for all of the pedestals installed in all three harbors in 1981.

The cables installed in 1981 have 5 to maybe 10 years service life remaining. Most of the cables in the floats were installed in 1981. The remaining original cables need to be replaced.

The main panel is not grounded at the dock. See photo D-9.

Significant ground currents were found on the pedestal circuits on C float. See section 6 for additional information on grounding problems in Douglas Harbor.

System Work Needed

This section is broken down into three parts; Code Deficiencies, Deferred Maintenance Items, and Recommended Renovations.

- **Code Deficiencies** – These are portions of the electrical system that do not meet the current codes and standards for electrical systems in harbors. **This is not meant to be an exhaustive list of all code and safety risks in the harbor but only those noticed during inspection.**
  1. There is no bench mark indicating the electrical datum plane. This is a bench mark located on shore showing the level of the electrical datum plane. The electrical datum plane is a horizontal plane two feet above the highest tide level for the area occurring under normal circumstances. The harbor master staff needs to adopt a procedure that disconnects the electrical service to the harbor when the water level reaches the bench mark (National Fire Protection Association, NFPA 303, 3-4.1,2). The cost to correct this deficiency is included in recommended renovation options 2&3.
  2. The main disconnect is located in the panel. The code requires the main disconnect to be located adjacent to, but not on a floating structure. A new main disconnect needs to be installed on the approach dock. (National Electrical Code, NEC 555-11). The cost to correct this deficiency is included in recommended renovation options 2&3.
  3. All 15 and 20 amp, 120 volt receptacles located on the dock that do not provide shore power to boats have to be ground fault interrupting (GFI) type. The existing receptacles of this type need to be replaced with GFI type. (NEC 555-3). The cost to correct this deficiency is included in all three recommended renovation options.
  4. Many boats over 20 feet in length do not have at least 30 amp shore power connection. This is required by code. The pedestals need to be upgraded or replaced to provide at least a 30 amp shore power connection. (NEC 555-3). The cost to correct this deficiency is included in recommended renovation options 2&3.
  5. A junction box is required where the service cables feed the dock. One should be installed. (NFPA 303,3-11.4b). The cost to correct this deficiency is included in recommended renovation options 2&3.
  6. All shore power receptacles in the pedestals shall be enclosed in a weather proof enclosure that remains weatherproof even when the cord and plug are installed. None of the pedestals provide a weather proof enclosure for the receptacle, thus they all should be replaced. (NFPA 303,3-14.1). The cost to correct this deficiency is included in recommended renovation options 2&3.
  7. All lights have to be installed so as to prevent damage with stored or moving material. Boat rigging can come in contact with the overhead un-insulated wiring for the lights. This is not very likely, but possible. We received several comments about this problem in the returned surveys. I would not recommend leaving the lights on the top of the pilings. (NFPA 303, 3-16.1). The cost to replace the lighting is included in recommended renovation option 3.
  8. The cables that feed the original pedestals are exposed from the deck to the base of the pedestal enclosure. This is prohibited by code. The cables have to be in conduit where above the deck. The service cable should be in conduit before it is routed into the dock. (NFPA 303, 3-18.3). This cost is included in recommended renovation options 2&3.
  9. Each year the entire electrical system has to be inspected. All corroded, worn, broken, or improper materials shall be replaced or repaired before further use. The use of tape to repair broken or cracked insulation of jackets on flexible cables is not

allowed, nor is splicing the cables. (NFPA 303, 3-22.1). The cost to correct this deficiency is included in recommended renovation options 2&3.

10. The neutral bus is bolted to the enclosure of the panel powering the heat tape. The neutral bus should be isolated from the ground. (NEC 250). The cost to correct this deficiency is included in all of the recommended renovation options.

- **Deferred Maintenance Items** – These are problems with the system due to wear and tear that can be corrected by routine maintenance work that has not been done due to lack of budget, manpower, or for other reasons. Problems with pedestals are identified by pedestal number. The pedestals were numbered by odd numbers on the right side of the float when standing on the head dock and looking at the end of the float. The pedestals on the left side are identified by even numbers. This numbering scheme is used on all three harbors. The cost to correct these items is included in option no. 1 of the recommended renovations.
  1. The unistrut needs to be replaced on the service conduit.
  2. The cable grips need to be replaced on the service cable and added where they are missing.
  3. The ground rod at the main panel is missing, so is the one at the uplands. New ground rods need to be installed and bonded to the neutral in the main panel.
  4. A float, pedestal no. 1, receptacle is broken and one pedestal cover is missing. It needs to be replaced and a new cover provided.
  5. A float, pedestal nos 2,3 covers are gone. They should be replaced.
  6. A float, pedestal no. 9, the neutral conductor on one receptacle is worn through. The wiring, receptacle and circuit breaker should be replaced.
  7. A float, pedestal no. 17, the receptacle was bypassed and a boat cord is hardwired to the pedestal. The receptacle should be replaced and a new cord used.
  8. A float, pedestal no. 19, a neutral conductor insulation is burned through. The wiring, circuit breaker, and receptacle should be replaced.
  9. A float, pedestal no. 20, the receptacle is cracked and should be replaced.
  10. B float, pedestal no. 10, the receptacle is cracked and should be replaced.
  11. B float, pedestal no. 15, the hinges are gone on one cover, the cover should be replaced.
  12. C float, pedestal no. 1, the neutral is burned off the receptacle. The wiring, circuit breaker, and receptacle should be replaced.

- **Recommended Renovations** – Because most of the cables were replaced in 1981 and the original cables still appear to be in serviceable condition, three options are recommended:

1. Deferred Maintenance – This option corrects the deferred maintenance items mentioned above. This option also corrects the code deficiencies for the 120 volt, 20 amp GFI receptacles not used for shore power and the neutral bus in the heat trace panel. *The estimated cost for this work is $46,000.*
2. Short term renovation – This option adds five to maybe ten years service life by replacing the main panel, pedestals, and grounding. This option also corrects many of the code deficiencies including a new bench mark, main disconnect, GFI receptacles, 30 amp min. rec., junction box, weather proof rec. enclosure, protection for above dock cables, and replacing corroding and worn parts. This option increases the system capacity just enough to provide 30 rec. in all the pedestals. No 50 amp rec. would be allowed. *The estimated cost for this work is $250,000.*

3. Long term renovation – This option replaces the entire electrical system. All code requirements are met. The new system will have capacity to allow 50 amp, 208 volt shore power services as well as have capacity for future growth. This option provides an electrical system with a service life of at least 30 years. Also the existing lighting would be replaced either with new fixtures, dock mounted post lighting, or light fixtures on the new pedestals. *The estimated cost for this work is $650,000.*

A detailed cost estimate is included as appendix A to this section.

Conclusion

The current codes are very stringent now and the electrical system falls far short of the current standards. Even though a "partial renovation looks appealing economically, in five to maybe ten years, the electrical system will need another renovation to replace the cables. This will be very expensive as all of the pedestals and main panel will have to be completely disconnected, removed, reinstalled, and reconnected to allow the cables in the dock to be replaced. The complete replacement of the electrical system recommended to bring the system up to current codes, accommodate harbor users needs, increase capacity for current and future needs, and provide an electrical system with at least 30 years service life. ***The estimated cost for this work is $650,000.***

PND Engineers, Inc.
Revised Professional Engineering Services Fee Proposal - March 10, 2010
Douglas Harris, Aurora & Statter Harbor Uplands - Engineering Services During Construction
PN&D Proposal No. 062065.03

Scope of Services	PND Senior Engineer VII	PND Senior Engineer IV	PND Senior Engineer II	PND Staff Engineer V	PND Staff Engineer IV	PND Staff Engineer III	PND Tech IV	PND CAD Designer V	Line Item Costs	Task Subtotal Costs
	$160.00	$140.00	$120.00	$100.00	$95.00	$90.00	$90.00	$90.00		
ANTICIPATED TASKS										
1. Admin. - CBJ & subconsultant contracts, coord. & prepare file system	4			2			4		$1,200	
2. Coord & attend preconstruction conference (CBJ transcribe minutes)				3					$300	
3. Structural submittals only - handrails, safety rails, concrete cap	2	2		10			2		$1,780	
4. Limited structural steel fabrication inspections, photos & reports - NIC										
5. Contract document interpretations, DCVR's, RFI's, correspondence assist.	4			16			2		$2,420	
6. Field design assistance, review proposed substitutions & change orders	4	2	4	12				8	$3,320	
7. Attend progress meetings (approx. 3 ea) & prepare mtg minutes	2			8			2		$1,300	
8. Reduced periodic construction inspections & reports - 6 hours/wk x 12 weeks	6				72		6		$8,340	
9. Materials field testing tech assist - soil & concrete				20			2		$2,180	
10. Transfer contractor provided as-built data to electronic files	2			8				12	$2,200	**$23,040**
Total Estimated Manhours	24	4	4	79	72		18	20		

Estimated Third Party Expenses

Independent Lab	Materials testing	$1,600	
Haight & Assocs.	Electrical engineering support services - submittals and observations	$8,403	
Misc. Expenses	Job consumables, travel for fab. inspections, etc.	$500	**$10,503**
	Total Estimated Fee		**$33,543**

FEE ESTIMATE

PROJECT NAME: Harbors Upland Improvements

HAIGHT & ASSOCIATES, INC.
JUNEAU, ALASKA

CLIENT: PND Engineers
PROJECT NO.: 137-61a

DATE: March 8, 2010

FEE SCHEDULE [$/HR]	165	155	115	95	65	65	85		0.9
X TASK DESCRIPTION	Ben [HRS]	Barry [HRS]	Ryan [HRS]	CAD/Dsr [HRS]	CAD [HRS]	Clerical [HRS]	Admin [HRS]	TIME [$]	EXPENSE [$]
CONSTRUCTION ADMINISTRATION:									
500 Project administration		2					1	395	
505 Preconstruction conference			2					230	
510 Submittal review			6					690	
520 Design interpretations			10					1,150	
590 O&M manual review			2					230	
595 Record drawings			2		3			425	
SUBTOTAL (time)	0	2	22	0	3	0	1	$3,120	
SUBTOTAL (CBJ Sales Tax - 5%)								$0	
SUBTOTAL (Reimbursable Expenses)								$0	
TOTAL - CONSTRUCTION ADMINISTRATION								**$3,120**	
CONSTRUCTION OBSERVATIONS:									
500 Project administration		2					1	395	
530 Utility coordination			0.5					58	
540 Progress inspections (2 per site)			20					2,300	
559 Security system testing			8					920	
580 Substantial inspection			8					920	
585 Final inspection			6					690	
SUBTOTAL (time)	0	2	42.5	0	0	0	1	$5,283	
SUBTOTAL (CBJ Sales Tax - 5%)								$0	
SUBTOTAL (Reimbursable Expenses)								$0	
TOTAL - CONSTRUCTION OBSERVATIONS								**$5,283**	
PROJECT TOTAL (time):	0	4	64.5	0	3	0	2	$8,403	
PROJECT TOTAL (CBJ Sales Tax - 5%):								$0	
PROJECT TOTAL (Reimbursable Expenses)								$0	
GRAND TOTAL==========>								**$8,403**	

PORT ENGINEER'S PROJECT STATUS REPORT

Gary Gillette, Port Engineer/Architect

Project	Status	Schedule	Contractor	Notes
Auke Bay Loading Facility	Construction	Complete 8/20/09	Trucano	Completing final close out
TIGER Grant Application	Awarded	Sept 15, 2009		Awaiting award letter
Conveyance - ADNR Land - Facility	Submitted	Spring 2010		Final determination out for public review
Conveyance - ADNR Land - Mitigation	Submitted	Spring 2010		Preparing supplemental info requested by DNR
Douglas Harbor Floating Breakwater				
Breakwater Construction	Construction	Fall 2009	COE	Due in Juneau April 2010
Breakwater Installation	Hold	Fall 2010	TBD	Corps will install
Old Douglas Harbor Reconstruction	Hold			
Permitting	Hold	Spring 2010	PND	Awaiting Board direction
Final Engineering and Design	Design	Spring 2010	PND	Hold
Statter Harbor Improvements				
EA Process	In Progress	Spring 2010	PND	EA Document being finalized
Conveyance - DNR Property at Glacier	In Progress	Spring 2010		Survey in progress
Conveyance - DNR Tideland	In Progress	Spring 2010		Application Submitted
Acquisition - Lehnhart Property	In Progress	Spring 2010		Begin CBJ approval process
Acquisition - Park Property	In Progress	Spring 2010		Begin CBJ approval process
Permitting	Hold	Spring 2010	PND	Awaiting completion of EA
Final Engineering and Design	Hold	Summer 2010	PND	Awaiting completion of EA
Begin Construction		Spring 2011	TBD	Awaiting fulll funding
Municipal Harbor Matching Grant	Submitted	July 1, 2009	PND	Awaiting Legislative approval
Cruise Ship Dock Reconfiguration				
Uplands Operations Analysis	Planning	Winter 09/10	PND	Awaiting final report & recommendations
Port-Customs-Visitors Buildings				
Buildings and Decking Design	Design	Bid April 2010	JYL Architects	95% drawing review in progress
Port Repair and Major Maintenance				
Transfer Bridge Maintenance	Hold		PND	Awaiting Inspection Report
Transfer Bridge Inspection	In Progress	Apr 27, 2009	PND	Awaiting report
Cathodic Protection	Design		Norton Corrosion	Joint with Engineering (parking garage)
Harbor Upland Improvements	Construction		Admiralty Const.	
North Douglas Boarding Float	Construction	June 1, 2010	Moeser	Alpine Lumber & Building Products
Aurora Harbor Reconfiguration	Planning	Spring 2010	PND	Awaiting Board direction
Miscellaneous - Small Projects				
Marine Park Site Furniture	Installation	Spring 2010	Site Lines	Install in spring 2010
Norway Point Net Float	Design	Plans Complete		No funds to construct - Est. $50K+/-
Archie Van Winkle Memorial	In Progress			Transfer to City

3/12/2010