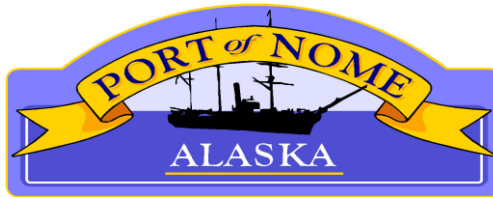


City Manager
Tom Moran

Port Director
Joy Baker

Harbormaster
Lucas Stotts



Nome Port Commission
Jim West, Jr., Chairman
Charlie Lean, Vice Chairman
Doug Johnson
Mike Sloan
Megan Alvanna-Stimpfle - Secretary
Tony Cox
Mark Johnson

102 Division St. • P.O. Box 281
Nome, Alaska 99762
(907) 443-6619
Fax (907) 443-5473

AGENDA
NOME PORT COMMISSION
September 15, 2016
REGULAR MEETING ~ 6:00 PM
COUNCIL CHAMBERS

- I. ROLL CALL**
- II. APPROVAL OF AGENDA**
- III. APPROVAL OF MINUTES**
 - 08.18.18 Regular Meeting
- IV. CITIZEN'S COMMENTS**
- V. COMMUNICATIONS**
 - 09.06.16 Letter to Chairman West from Phoenix Marine (Jack-Up Storage)
 - City Clean Up Flier (October 10-15, 2016)
 - Arctic Science Ministerial Side-Event Press Release/Agenda (9.27.16)
 - Alaska Harbormaster's Conference – Dutch Harbor (9.26.16-9.30.16)
 - Commerce/Navigation in Arctic & Western Alaska – CDR Cintron (USCG Proceedings Magazine Article)
- VI. CITY MANAGER REPORT**
 - 09.09.16 City Manager Report
- VII. HARBORMASTER REPORT**
 - Operations/Maintenance Update - Verbal
- VIII. PORT DIRECTOR REPORT/PROJECTS UPDATE**
 - 09.08.16 Port Director/Projects Status Report
- IX. OLD BUSINESS**
 - Snake River Dredging – Sedimentation/Infill for Reconsideration/Discussion
 - 09.08.16 PND Technical Memo & Drawings
- X. NEW BUSINESS**
- XI. CITIZEN'S COMMENTS**
- XII. COMMISSIONER COMMENTS**
- XIII. NEXT REGULAR MEETING**
 - October 20, 2016 - 5:30 pm
- XIV. ADJOURNMENT**

**MINUTES
NOME PORT COMMISSION
REGULAR MEETING
August 18th, 2016**

The Regular Meeting of the Nome Port Commission was called to order a 5:33pm by Acting Chairman Alvanna-Stimpfle in City Hall, located at 102 Division Street, with Chairman West assuming the role upon arrival.

ROLL CALL

Members Present: Megan Alvanna-Stimpfle; Jim West, Jr.; Mark Johnson; Tony Cox; Mike Sloan;

Members Absent: C. Lean (excused); Doug Johnson

Also Present: Joy Baker, Port Director; Lucas Stotts, Harbormaster; Shauntel Bruner, Recording Secretary

In the audience: Lauren Frost, KNOM; Sandra Medearis, Arctic News

APPROVAL OF AGENDA

Commissioner Alvanna-Stimpfle asked if there were any changes to the agenda.

A motion was made by C. M Johnson and seconded by C. Sloan to approve the agenda as presented.

At the Roll Call:

Ayes: M Johnson, Cox, Alvanna-Stimpfle, Sloan, West Jr.

Nays:

Abstain:

The motion **CARRIED.**

APPROVAL OF MINUTES:

A motion was made by C. Cox and seconded by C. M Johnson to approve the revised June 2016 and the July 2016 minutes.

At the Roll Call:

Ayes: M Johnson, Cox, West Jr., Alvanna-Stimpfle, Sloan

Nays:

Abstain:

The motion **CARRIED.**

CITIZENS' COMMENTS

There were no citizens' comments

COMMUNICATIONS

- A. A letter from Mayor Richard Beneville to Rear Admiral Michael F. McAllister dated August 1st, 2016.
- B. An article published by YourAKLink Newsroom on August 10th, 2016 titled "New Fish Inventory Can Assist in Arctic Policy-making."
- C. An article written by Yereth Rosen in August 2016 titled "Arctic fish populations changing as ice dwindles, report says."
- D. A letter from Congressman Don Young, Senator Lisa Murkowski and Senator Dan Sullivan to The Honorable Jo-Ellen Darcy, Assistant Secretary of the Army, Civil Works.

There were no questions or comments on the communications.

CITY MANAGER'S REPORT *(Written)*

PD Baker mentions that the City Manager wanted to make sure that everyone had information regarding the Arctic Chinook training and exercise - included in the packet.

HARBORMASTER'S REPORT

- Coast Guard was recently in town and helped with beach and museum/library cleanup as well as helping with the painting of the fire hall.
- Addressed some small issues around the port such as toilet misuse and other facility challenges in the small boat harbor.
- August is starting to slow down after a very busy June and July and that time is going toward various repairs and maintenance needed around the port.
- Discusses the prepping for Crystal Serenity cruise ship such as implementing parking restrictions and clearing the floating docks for tenders. Includes that temporary parking will be available for port users.
- Reviewed the current forecast and how it may potentially affect the vessel coming into port.

Discussion:

C. Alvanna-Stimpfle asks if there is a fine in place for anyone caught misusing the bathroom facilities.

HM Stotts responds that there are no fines in place, but they are looking into installing cameras or shutting down the bath facility if abuse continues.

C. M Johnson asks if there are any alternative options

HM Stotts responds that he is looking into various options such as different types of toilets or tools that could help alleviate misuse.

Port Director Report / Projects Update *(Written)*

- Thanks HM Stotts and his staff for all of his hard work prepping for the Crystal Serenity visit.

- Talks about updates to her report including traffic and dock occupancy which was at 75% for June and 92% for July. Both of which are very good.
- Reviewed the letter received regarding the Arctic Deep Draft Port.
- Participated in a meeting with Sitnasuak who indicated they would potentially be interested in a partnership with the City on long term development of the Deep Draft Port.
- Port pad development bid is anticipated sometime in mid to late September. Council approved the use of the GO Bonds which currently must be expended by December 2017.
- Mentions that after another lengthy discussion with FEMA, we are able to issue the Notice of Intent to Award the Base Bid and Alt #1 to KNIK Construction for the Cape Jetty Repair.

Discussion:

Chairman West asks if that was a rebid as the first round came back significantly high.

PD Baker responds that yes, this was the second round and we received two bids and KNIK was the lowest.

C. M Johnson asks if FEMA pays that entire amount, with **Chairman West** asks if any matching funds are required.

PD Baker explains that all funds are coming from the Federal disaster program with a zero match.

OLD BUSINESS

- At the last Port Commission meeting, discussion on how to prioritize port projects was discussed. PD Baker goes through the provided chart of various projects and costs for the group. She continues by explaining that the list is already organized by priority and status of fund. She suggests starting off by prioritizing pending projects, then discussing maintenance.

Discussion:

Chairman West starts the discussion by asking about the scrap vessel that Raven was interested in.

PD Baker replies that they have talked to the City a few times, but their proposals keep changing. The new mission is to get the project completed with the bulk of the work being done in house to keep everything affordable. She suggests that HM Stotts update the commission as him and his assistant have been working on the vessel this week.

HM Stotts explains that there is a large amount of liquid in the scrap vessel that they are working on pumping out. His plan is to have the majority of the oil out to pump by the end of next week. He will also be draining other equipment in the vessel. Once completed, the inside will be pressured washed and walls will be steam cleaned. The ultimate goal is to get the vessel rolled over and hauled away once cleaning is complete.

C. Cox suggests turning the vessel into a tourist spot.

C. M Johnson adds that the vessel does have history prior to arriving in Nome.

C. Sloan adds that we could even donate it to the museum.

Chairman West brings up that Raven is working near that area and perhaps they would even take it out of there if it is clean.

PD Baker states that they have provided a quote for hauling off but again, the number keeps going up so it could end up costing us more money as opposed to disposing of it ourselves.

PD Baker transitions back to the projects explaining that she added the Dead Man project but it wasn't included on the handout. She briefly goes through each project listed on the hand out and explains where we are in terms of progress and possible funding – whether there would be outside funds available, what we would have to match or what would be done in-house.

Chairman West inquires when the Causeway fuel lines were put in.

PD Baker responds that the 8 inch pipe line was installed when the NJUS tank farm went up in 1988. The two 6 inch lines were added with the BFI tank farm that went up in 1994.

Chairman West asks if there would be a benefit of replacing the pipeline when extensions are put in.

PD Baker responds by saying that there have been no signs indicating that they should.

HM Stotts adds that there is slight scarring under the bridge by the rollers and they are already working on replacing the rollers but otherwise everything looks good.

C. Alvanna-Stimpfle asks about the state regulated dumping limitations, explaining that she heard about debris showing up on shore in other places.

PD Baker and HM Stotts both clarify that there should be zero dumping in near-shore waters and explain there is a minimum limit where ships can dump.

C. Alvanna-Stimpfle continues by asking if in the port expansion project there will be a place for waste removal for the ships

PD Baker explains it would be part of a utility expansion port in the future.

C. Alvanna-Stimpfle adds that she thinks it would be an important utility to have especially considering the growth of tourism in the area.

PD Baker agrees and mentions other utilities such as power, better restroom facilities and telecommunication access, as well as the extension of existing fuel and fresh water infrastructure.

C. M Johnson asks if these types of services would be a fee generator.

Both PD Baker and HM Stotts reply affirmatively.

HM Stotts continues by explaining that depending on time and frequency of use, some of these utility services could ultimately pay for themselves.

PD Baker adds that she knows there is a lot of interest based on our remote location to have something available to those passing through the port. She adds that at some point it would be ideal

to accept regulated waste as well. Currently it is cost prohibitive because there is no local disposal or incinerator facilities to allow it to be processed per regulation. We will get there in the future.

HM Stotts includes that he has received a number of requests from some of the larger vessels this season inquiring about bilge water discharge.

C. Alvanna-Stimpfle suggests that we prepare all of these points given the level of traffic, so that we can include in our argument to the Secretary of the Army Corps why we need an expansion now and what issues and challenges we frequently face.

PD Baker asks the group if they have any thoughts on any of the pending projects as the goal is to determine what may be reasonably obtainable and cost effective for the small boat harbor based on the short season. Most of the issues that warrant discussion require input from utilities. There may be challenges justifying such costs due to being a seasonal facility and likely final decisions will be based on costs. She furthermore suggests breaking down each proposed project and looking at how we can seek assistance from private enterprise or outside investment to develop.

C. M Johnson asks what services are the most frequently requested by the port users as a whole.

HM Stotts replies that flush toilets, showers and an overall improved restroom facilities seem to be the most requested by dredgers and fishermen who often live on their boats. Additionally, there are a few requests for shore side power.

C. Alvanna-Stimpfle asks if there private sector companies that could help answer questions about operating or would help with costs.

PD Baker responds that the port has talked to NSEDC in the past about working together to put showers in the harbor. She continues by mentioning that perhaps we should have a work session and invite port users to come and discuss their interest in additional port facilities. Having a work session with both users and individuals more familiar with utilities would allow a better understanding and would provide insight that would help with moving forward to a decision.

HM Stotts agrees that with such a short season, the cost of water and sewage in the area might not be beneficial overall. He also mentions how working with Moonlight Springs has been successful with the larger vessels for sewage pump-outs.

C. M Johnson points out that this would be a great example of a private industry working together with the port to meet those needs.

PD Baker agrees but says that this is only the case for the larger vessels and adds that it might not be as profitable for the smaller port users. She thinks that the port could fill that gap, at least for the pump out. She has been discussing potential project scope and costs with the City Engineer to set up a fueling and pump-out station on the south wall. As for showers and laundry, it is hard to justify a unit that sits unused in the winter. Additionally, there has been discussion at developing a method for tapping into the existing lights for shore power. She believes there is potential to build off of that if we can find an affordable mechanism for metering usage.

HM Stotts adds that when the lights were installed, they went with the larger sized conduit so that there would be an option to pull from there in the future.

PD Baker adds that there was talk of putting pedestals at the foot of the lights, but that was postponed as an option for the future based on limited grant funding for the lighting project.

HM Stotts also adds that in some places there are unique plugs in place to monitor and meter usage.

Chairman West asks if that would require a buy in from the utilities.

Both **PD Baker** and **HM Stotts** reply affirmatively.

C. M Johnson changes gears a bit and asks if the cost for the Dead Man project was still unknown.

PD Baker responds that we would need to ask one of the engineering companies for a proposal of costs. She adds that they could ask for proposals on a couple projects, and then evaluate what to ask for in terms of budgeting costs.

Chairman Wests brings up a recent discussion he had with the harbor dredger about extending the beach area.

PD Baker says that she isn't sure the Corps would approve that. She said he could ask but not sure if it would work out for a few reasons.

C. Cox asks to have HM Stotts talk more about the bigger vessels that want to sit on beach space.

HM Stotts said that nothing is concrete, just that Pomrenke had ask about hauling and storing a dredge over on Lulu beach. He mentions that there have been other dredgers who have expressed interest in storing larger vessels somewhere on port property as well. He adds that next year they are expecting to have another jack up rig on port property as well.

C. Cox follows up with asking about Phoenix Marines plans.

HM Stotts explains that there is one jack up that has been converted due to some damages.

C. Cox continues that he spoke to John Keeley, owner of Phoenix, when the discussion of the Dead Man project first came up.

HM Stotts responds saying that he believes that they are talking about leasing one of the larger rigs but hasn't heard anything since but is equally as curious about how what the space issue will look out in the future.

PD Baker adds that she has talked to the engineers in regards to ensuring that whatever the design ends up looking like is structurally sound but we'd ultimately have to spend operating funds to achieve concept design and ROM costs.

C. M Johnson asks if it would be of any use for the NSSP boats they are keeping here instead of moving to Seward. He adds that it could be an additional source of revenue.

PD Baker agrees and says we will look into it. Furthermore, she suggests the commission ponder on what was discussed and perhaps action can be taken at the next meeting.

C. Alvanna-Stimpfle suggests that a work session is scheduled due to the amount of information and proposed projects on the table.

PD Baker offers to provide some suggestions. She states that we could get a proposal on what it would take to complete the task, concept designs and the costs associated with the Dead Man project. At the same time, we could continue to pursue waste removal pump out costs. Both could be brought to a work session and further discussed. She adds that some money will have to be spent to move forward.

C. Alvanna-Stimpfle states that these needs are not going to go away and action needs to be taken to move forward.

Chairman West asks if it would be possible to ask for the public's input on what they want and need at the port.

PD Baker states we can advertise the work session for users and non-user's alike and agrees that although it is hard to get people to participate sometimes, that the public is always welcome.

NEW BUSINESS

None

CITIZENS' COMMENTS

There were no citizens' comments

COMMISSIONERS' COMMENTS

C. Lean no comments.

C. D Johnson no comments

C. Cox no comments

C. Alvanna-Stimpfle says that she thought the joint Congressional letter was great, especially in regards to moving forward with the Arctic Deep Draft Port study. It sends a strong signal to the federal government that our state is behind our city in terms of bringing all of the hard work to fruition. She thanked everyone for their hard work.

C. Sloan no comments

C. M. Johnson mentions that Dave Cunningham, who has equipment here at the port, expressed his appreciation for the port office staff and Harbormaster Stotts.

Chairman West no comments

SCHEDULE OF NEXT MEETING

The next meeting: September 15th, 2016 at 6:00 PM. A work session will precede the regular meeting at 5:00 PM.

ADJOURNMENT

A motion was made by C. M Johnson and seconded by C Cox that the meeting be adjourned.

Hearing no objections, the Nome Port Commission adjourned at 7:01 PM.

APPROVED and **SIGNED** this 15th day of September, 2016.

Jim West Jr., Chairman

ATTEST:

Megan Alvanna-Stimpfle, Secretary

Phoenix/Pioneer Mining, Inc.-John Keeley

2808 East Front St ♦ Nome, AK ♦ 99762 ♦ Ph: (907) 434-0622 ♦ Fx: (907) 443-4118

Mr. Jim West,
Chairman
→ Ms. Joy Baker
Port Director
Mr. Lucas Stotts
Harbormaster

Good day to the Port Commission,
I formally request of your good office to approve my anchoring/stationing two of the three Jack-Up Rigs in the inner harbor this winter season.

The rigs will be Jacked above the storm potential levels on the basis that the ice may rise , or the actual storm waters on top of the ice in the harbor, as you informed me may be a potential occurrence.
Further, the rigs being above any easy access by any potential trespasser or children as their need to seek adventures might occur.

We have several local employees and other business vendors, ready, willing and able to make any adjustments that might be required during the winter months.

The rigs are proven in all ways and we have demonstrated professional and safe operations thru all that this challenging environment has put on us these past seasons.

I do seek a safe deployment that provides far less stress to the rigs as occurs with continual hauling up the ramp with the bags, etc.. Frankly, the physical efforts of the crews and the repeated unusual stresses to the rigs with that form of movement does concern me.

The previous review of the ice potentials that might affect the rigs was far afield from reality when the Entire Ice Field mass was raised as a possible problem.

The placement of the rigs where the ice movement is obstructed by the Dolphins and/or the rock lined shoreline is a true safe winter harbor for the two Rigs.

The third Rig I will be disassembling temporarily in its entirety for modification and a slightly different utility for next season, which I will, of course, coordinate with the Harbormaster.

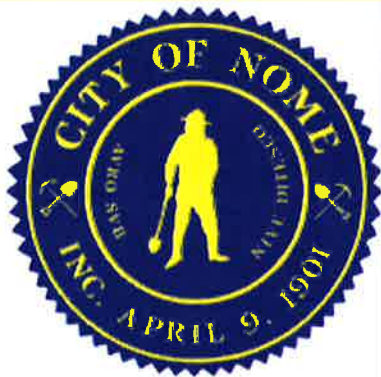
As you know I am doing my best for Phoenix/Pioneer and myself to be a full responsible part of this amazing community. As you know, we are an employer of local citizens, a large purchaser of a wide variety of the services and commodities of the local establishments , and I hope, a valuable user of the Port Facilities is a proven fact for the past (4) four seasons.

I will be happy to provide my immediate future plans, that will provide for our being a larger local employer and the Purchaser of approx 300-400% larger volumes of retail and commercial services for coming 2017 season and God willing for many decades beyond, whether I personally am on the planet or in it.

Thank you all for your kind and professional considerations.

John A. Keeley
Pres.
Phoenix/Pioneer Marine Mining





City of Nome *Fall Clean-Up Week!* Oct. 10—15, 2015



One Dump Truck will
be located at a
convenient location:

- East End Park

FREE DUMP
Saturdays:
9:00 a.m. to
4:00 p.m.

Public Works will be
available Monday,
October 10th thru
Friday, October 14th
to pick up vehicles!! Must fill
out a release form at City Hall.

Please call 443-6663 to schedule a pickup.

Includes ATV's and snowmachines.



Arctic Science Ministerial Side-Event

Event Type: Lectures/Panels/Discussions



When: 27 September 2016

Where: ARCUS DC Office - 1201 New York Avenue, NW. Fourth Floor. Washington, DC 20005 or online for live webinar

Summary

Time: 9:00am - 11:30am EDT

In collaboration with Arctic Portal, Arctic21, the Woods Hole Research Center (WHRC), PoLAR Partnership, EDU-Arctic, and the Consortium for Ocean Leadership, ARCUS is pleased to announce that we will be hosting a special side-event to the 2016 Arctic Science Ministerial meeting at the ARCUS office in Washington, D.C. on 27 September, 2016.

Scheduled to take place immediately before the opening events of the first White House Arctic Science Ministerial (September 27th - 28th), this special event is intended to engage the international community of Arctic stakeholders in a constructive dialogue around one of the four key themes of the Arctic Science Ministerial: "Arctic Science as a Vehicle for STEM Education and Citizen Empowerment." It also provides a key opportunity for leaders participating in the Arctic Science Ministerial to engage with the wider Arctic stakeholder community and media on these topics before the closed meetings of the Arctic Science Ministerial begin.

Beginning at 9am EDT on 27 September, two 1-hour panel discussions by an international group of Arctic leaders will explore opportunities for advancing the use of Arctic research and education activities to inform worldwide audiences about the changes happening in the Arctic and to help empower Arctic residents most impacted by the complex dynamics shaping the region. An introductory plenary by Mark Brzezinski, Executive Director of the U.S. Government's Arctic Executive Steering Committee will kick-off the conversation.

The public is invited to attend the event presentations either in-person or via online streaming. In-person space for the panel presentations is limited, however, and ARCUS reserves the right to switch in-person registrations to webinar-only participation if event capacity is reached. Individuals attending the live event will also have the opportunity to engage with other educational displays and community information stations.

Event Press Release & Agenda

 [Event Press Release](#)

 [Event Agenda](#)

Agenda for White House Arctic Science Ministerial side event: Using Arctic science to promote STEM education and empowerment of Arctic communities

- 8:30 am** *Registration and coffee*
- 9:00 am** **Opening session**
- Robert H. Rich** (Executive Director, Arctic Research Consortium of the United States)
Welcome and introduction from the organizers and a few words about ARCUS
- Mark Brzezinski** (Executive Director of the US Arctic Executive Steering Committee)
Welcome address from the US Arctic Executive Steering Committee
- 09:15 am** **Rafe Pomerance** (Chair of Arctic 21)
A few words about Arctic 21
- 09:20 am** **Panel discussion focusing on using Arctic science as a vehicle for education in science, technology, engineering and mathematics**
- Moderator:** **Max Holmes** (Senior Scientist, Woods Hole Research Center)
- Panelists:** **Nivi Olsen** (Greenlandic Minister of Education, Culture, Research and Church)
Educational priorities for Northern residents
- John Wood** (Polar TREC teacher from Talbert Middle School, Huntington Beach, California)
Bringing the Arctic to classrooms elsewhere in the world
- Fran Ulmer** (Chair, US Arctic Research Commission)
Summary and next steps
- Panel discussion with audience participation**
- 10:10 am** *Coffee break*
- 10:25 am** **Joseph Cheek** (Senior Communications Manager, Arctic Portal)
A few words about Arctic Portal
- 10:30 am** **Panel discussion focusing on empowering Arctic communities through research and education**
- Moderator:** **Suzanne Goldenberg** (US Environment Correspondent for the Guardian)
- Panelists:** **Igor Krupnik** (Curator, Arctic Studies Center, Smithsonian National Museum of Natural History)
What can we learn from Northerners about the impacts of Arctic environmental changes?
- Okalik Egeesiak** (Chair, Inuit Circumpolar Council)
How do Northerners define empowerment?
- Gunn-Britt Retter** (Head of Arctic and Environment Unit, Sámi Council)
How scientific research can empower Arctic indigenous communities
- Tara Sweeney** (Chair, Arctic Economic Council)
What kind of future do Northerners envision for the Arctic?
- Panel discussion with audience participation**
- 11:30 am** **End of panel discussions and an opportunity for journalists to speak to some of the panelists and organizers.**

For the rest of the day until 4:00 pm, journalists and invited guests will also be able to visit the interactive information stands of a number of different Arctic education initiatives and community organizations.



ARCUS DC Office, 1201 New York Ave., NW, Suite 400, Washington, DC

37th Annual AAHPA Conference

DRAFT Agenda

Monday September 26, 2016

4:00-7:00 pm Conference Registration and Check in

6:30-8:00 Welcome Reception

Tuesday September 27, 2016

7:15-8:00 am Breakfast

8:00-8:30 Welcome and opening comments: AAHPA President Carl Uchytel, Mayor Shirley Marquardt

8:30-9:15 Call of the Sponsors

9:15-10:15 Call of the Ports Part 1

10:15-10:30 Break

10:30-11:15 Alaska Sea Grant Melissa Good: Marine Mammal Entanglement

11:15- 12:00 Call of the Ports Part 2 / Executive Board Meeting

12:00- 1:00 pm Lunch

1:00-1:30 Arctic Development and Coastal Alaska: Mayor Shirley Marquardt

1:30-2:00 Call of the Ports Part 3

2:00-2:45 PND: Port of Dutch Harbor Project Update

2:45-3:30 Alaska DOT Harbor Grant Program Mike Lukshin

4:00-?? Port Tour

Wednesday September 28, 2016

7:15-8:00 am Breakfast
8:00-9:00 Captain of the Port
9:00-9:30 Marine Exchange Brett Farrell: New Technology
9:30-10:00 Marine Exchange Brett Farrell: Clean Harbor Update
10:00-10:30 Morning Break
10:30-11:15 Derelict Vessel Task Force Update: Bryan Hawkins
11:15-12:00 Louise Fode: National Weather Service
12:00-1:00 pm Lunch and Lunch Presentation: USACE Ronnie Barcak
1:00-2:00 Cindi Preller: NOAA Tsunami workshop
2:00-2:15 Call of the Ports Part 4 (if necessary)
2:15-3:00 Dan Belanger: NOAA Tsunami workshop
3:15-3:30 Break
3:30-5:30 Annual Business Meeting

*****Banquet Night*****

Thursday September 29, 2016

7:15-8:00 am Breakfast
8:00-9:00 Northern Economics: Mike Fisher update on AAHPA Economic Study
9:00-9:45 Mark Morris, Morris Engineering
9:45-10:30 Ronald McPherson, HDR: Procurement and Permitting
10:30-11:00 Closing Comments

Commerce and Navigation Safety on the High Seas

U.S. Arctic and western Alaska.

by CDR HECTOR L. CINTRON, JR.
Chief, Prevention Department
U.S. Coast Guard Sector Anchorage

Alaskan offshore waters are known for abundant living marine resources. However, a large number of vessels use these same waters to transport hazardous materials, petroleum products, liquefied natural gas, minerals, and other dry cargoes.

The highest concentration of vessel traffic in western Alaska is comprised of transits along the Great Circle Route on the North Pacific Ocean and Bering Sea. More than 4,500 vessel transits were recorded along this route in 2012 (see Great Circle Route Transits table), according to the 2015 Aleutian Islands Risk Assessment Summary Report.¹

Sea Lines of Communication

As seen in The North Pacific Great Circle Route graphic, approximately 80 percent of those Great Circle Route transits followed the preferred route, traveling north of the

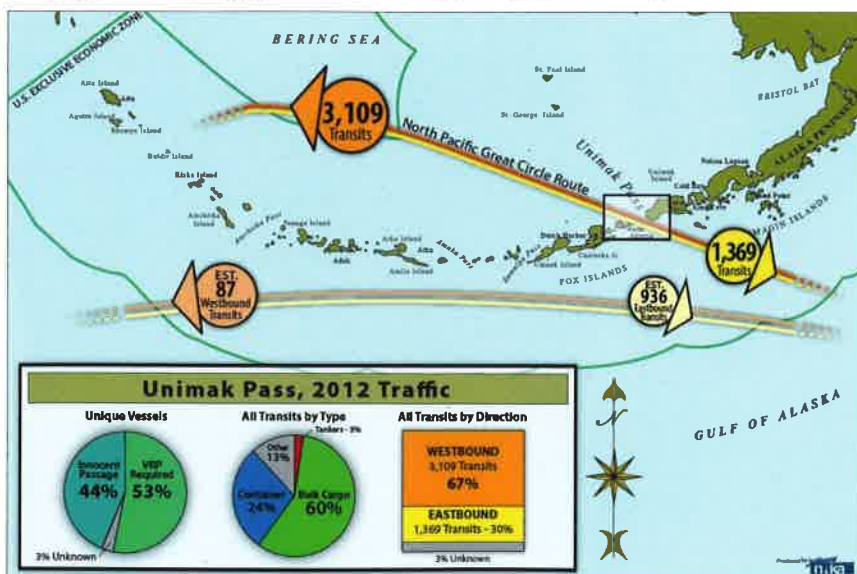
Great Circle Route Transits

FISCAL YEAR <i>unless noted</i>	TRANSITS		
	Westbound	Eastbound	Total
2006	2923	568	3491
2007	3851	890	4471
2008	3274	957	4231
2009	2886	1088	3974
2012 (calendar year)	3109	1369	4615

Table courtesy of the Nuka Research for the Aleutian Islands Risk Assessment.

Aleutian Islands and through Unimak Pass. Less than 20 percent remain south of the islands, where sea states are more favorable during the Bering Sea winter storm season. Notably, the total Great Circle Route transits in 2012 represent an approximate 30 percent increase from 2006² (see Great Circle Route Transits table).

The North Pacific Great Circle Route



Graphic courtesy of the Nuka Research for the Aleutian Islands Risk Assessment.

Although the total number of transits has increased, vessel types and regulatory status remain largely the same. Of the unique vessels transiting the Aleutian Islands, nearly half are not coming from or going to a U.S. port, thus engaged in innocent passage³ and not under U.S. regulatory requirements. More than 80 percent of ships consist of container or bulk cargoes, which are not time-critical goods. Other western Alaskan shipping routes include the Gulf of Alaska, Bering Sea, Chukchi Sea, Beaufort Sea, and Arctic Ocean.

Arctic Access Routes

The Arctic, as defined by the Arctic Research and Policy Act, includes all U.S. and foreign territory north of the Arctic Circle and all U.S. territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers,

Alaska; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas; and the Aleutian chain.

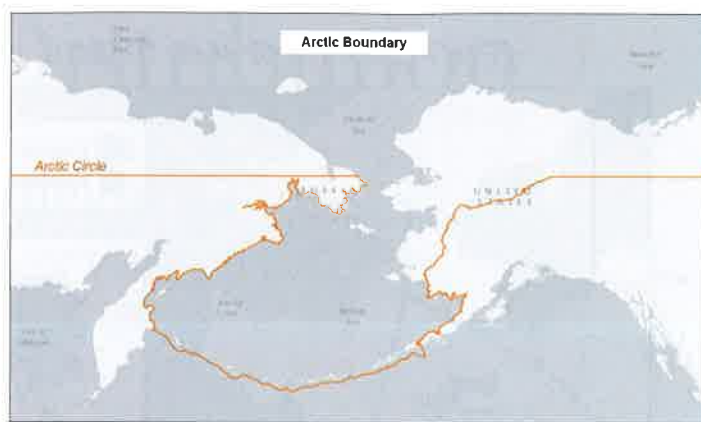
Vessel transits in the Russian Arctic have varied from 41 vessels in 2011 to as many as 71 in 2013. The numbers went down to 53 in 2014, but the outlook is for an annual increase in vessels transiting the Northern Sea Route as Russian oil and gas production in the Arctic comes online and more products are shipped to Asia.⁴

Similar to the Russian Arctic, Canadian traffic “over the top” is possible from June to November, depending on the movement of unpredictable ice in the Canadian archipelago. According to U.S. Coast Guard records, the first bulk carrier transited the Northwest Passage in 2013 under icebreaker escort. In 2014, the first bulk carrier made it across the Northwest Passage unescorted. In recent years, Northwest Passage transits have been on a downward trend.

As Arctic ice continues to recede, this trend is expected to reverse.⁵ If melting trends continue, the idea of a transpolar route from Iceland to Anchorage, Alaska, seems feasible.

Bering Strait

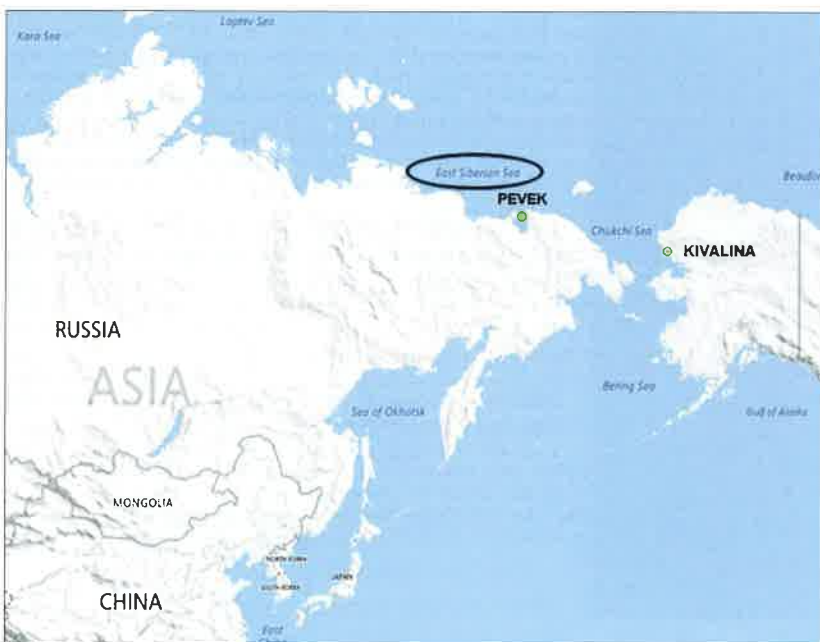
Bering Strait traffic is mostly predictable. In general, vessels transit near the shoreline—Russian traffic on the Russian side, U.S. and Canadian traffic on the U.S. side. Vessels traveling to the Red Dog lead and zinc mine near Kivalina, Alaska, typically transit to Asia and cross the Russian/U.S. boundary. In addition, mining resupply ships occasionally transit from Seattle, Washington, to the Pevek mine in the Russian East Siberian Sea.



The Arctic boundary line. U.S. Coast Guard graphic.



Northwest Passage transits. In recent years, Northwest Passage transits have been on a downward trend, but as Arctic ice continues to recede, this trend is expected to reverse. U.S. Coast Guard graphic.

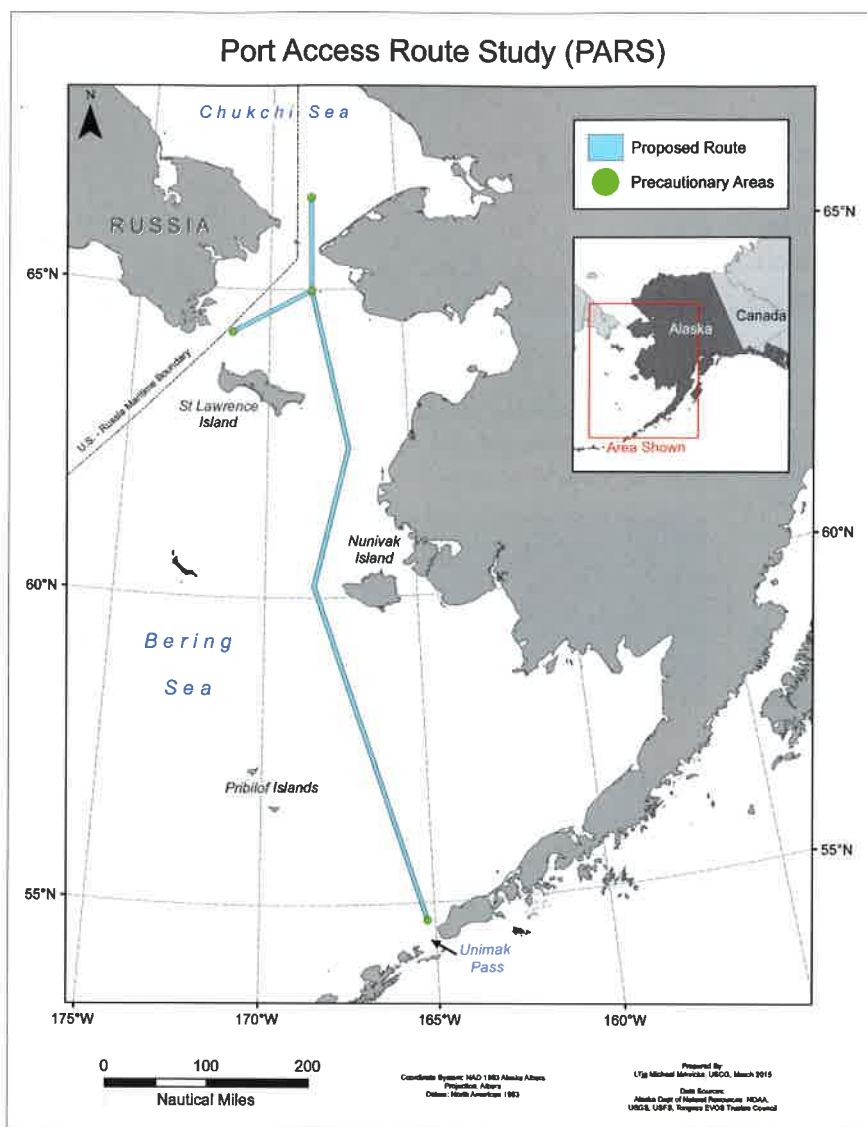


Kivalina, Alaska; and Pevek, Russia. U.S. Coast Guard graphic.

Recent U.S. oil exploration in the Arctic boosted annual activity beyond the steady rise in traffic through the Bering Strait, peaking at 344 transits in U.S. waters alone in 2013. Although the number of transits through the Bering Strait dropped in 2014, total transits jumped to 540 in 2015. Vessel activity has the potential to increase due to Russian investment in the Arctic and ecological pleasure cruise ship transits through U.S. waters.⁶

Other Navigational Concerns

Alaska has more than 200 federally recognized Alaska native tribal governments. The same waters used for commercial navigation provide critical food resources for Alaska natives who rely on subsistence fishing and hunting for survival. Some subsistence journeys take Alaska natives as far as 50 nautical miles offshore in small open boats. For this reason, the U.S. Coast Guard works with



Port access route study routing measures. U.S. Coast Guard graphic.

federally recognized tribes and federal subsistence co-management groups to coordinate planned operations that promote safe maritime practices.

For example, in November 2010, the U.S. Coast Guard began a port access route study⁷ of the Bering Sea and Bering Strait and solicited public comment on the need for a vessel routing system in the region. Public comments overwhelmingly supported some form of vessel routing system, but cautioned that specific effects could not be determined until a vessel route was proposed.

Based on the public comments, the U.S. Coast Guard determined the scope of the port access route study needed to expand, so they developed a proposed vessel route. In 2014, the U.S. Coast Guard reannounced the port access route

study with an expanded geographic scope and a proposed vessel routing system—an 816-nautical-mile-long by 4-nautical-mile wide, two-way vessel route in U.S. waters from Unimak Pass on the Aleutian chain through the Bering Strait. The routing system also has an extension toward Russia in the vicinity of St. Lawrence Island and four different 8-nautical-mile precautionary areas.⁸

Future Focus

The waters off western Alaska are resource-rich, often hazardous, and of immense importance to maritime commerce and Alaska native subsistence. The U.S. Coast Guard is committed to ensuring safe navigation, collaboration with port stakeholders, and other initiatives. As vessel traffic continues to evolve in western Alaska, the U.S. Coast Guard will remain ready to be a part of sound solutions.

About the author:

CDR Hector Cintron has served in the U.S. Coast Guard for 28 years. CDR Cintron has served in many capacities, most notably as the Prevention Department chief of Coast Guard Sector Anchorage, and has received five Coast Guard commendation medals, one joint service achievement medal, and four Coast Guard achievement medals, in addition to other personal and unit awards.

Endnotes:

¹ More information about the 2015 Aleutian Islands Risk Assessment Summary Report is available at: www.aleutiansriskassessment.com/images/150313_AIRA_SummaryReport_vFINAL_hr.pdf.

² Ibid.

³ Innocent passage is the right of non-interference for a vessel transiting inbound, outbound, or through a foreign territorial sea. For a vessel to enjoy this right, it must be engaged in "passage" that is "innocent." "Passage" means a continuous and rapid traversing of the territorial sea, but may include anchoring in the course of ordinary navigation. Passage is "innocent" so long as it is not prejudicial to the peace, good order, or security of the coastal state. More information about innocent passage is available under Section 3 of the United Nations Convention on the Law of the Sea at: www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf. With respect to the U.S. territorial sea, it means the waters, 12 nautical miles wide, adjacent to the coast of the U.S. and seaward of the territorial sea baseline, per 33 CFR 2.22.

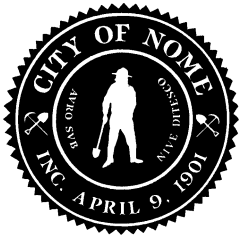
⁴ More information about Arctic vessel traffic off the coast of Russia is available at the Northern Sea Route Information Office at: www.arctic-lro.com/node/229.

⁵ The "10-Year Projection of Maritime Activity in the U.S. Arctic Region" report of the Committee on the Marine Transportation System is available at: www.cmts.gov/Bulletin.aspx?id=87.

⁶ See www.ak-mprn.org.

⁷ The U.S. Coast Guard will publish the draft port access route study via the Federal Register with an additional comment period. Public comments are available by going to www.Regulations.gov, then searching for "USCG-2014-0941."

⁸ Precautionary areas are "a routing measure comprising an area within defined limits where ships must navigate with particular caution and within which the direction of traffic flow may be recommended," as defined by the National Oceanic and Atmospheric Administration. More information about precautionary areas in U.S. waters is available at: <https://catalog.data.gov/dataset/precautionary-areas-in-u-s-waters>.



CITY OF NOME

City Manager's Office

P.O. Box 281

Nome, Alaska 99762

907.443.6600

tmoran@nomealaska.org

City Manager's Report

From: Tom Moran, City Manager
Reporting Period: August 23 – September 9, 2016

- Still no new leads have turned up in the search for missing Nome resident Joseph Balderas. Even a minor clue could help break the case wide open, so if you know of anyone who knew him personally, please encourage them to talk to the State Troopers. The family is now offering a \$10,000 reward.
- My applause goes out to everyone who helped make the Crystal Serenity's visit a *roaring* success. Initial reviews were extremely positive from both the tour company and the passengers themselves. It took a lot of effort from the community, but it was well worth it. In fact, the Crystal Serenity has already announced a return trip next summer.
- The candidacy period for October's municipal election opened at 8:30 AM on Monday, August 22nd, and runs until 5:00 PM on Tuesday, September 13th. The seats that will be on the ballot are: Councilmen Brown and Culley, Utility Board Members Moody and Willson, School Board Member Amarok, and the ballot proposition on an increased seasonal sales tax.
- The ARCTIC CHINOOK search and rescue drill is finally in the books. Mayor Beneville and Fire Chief West traveled to Kotzebue to participate in the main field training exercise on August 24th, while the rest of us remained in Nome to participate in an auxiliary tabletop training exercise. The State Department of Homeland Security and Emergency Management, the American Red Cross, the U.S. Coast Guard, and U.S. Customs and Border Patrol all attended the Nome exercise. Our team performed admirably, and an "After Action Report" will be forthcoming in the near future. Stay tuned.
- National Geographic was in town on Friday, August 26th to discuss climate change preparedness. They've selected a small number of diverse geographical areas, including: American Samoa, Guam, the Chesapeake Bay, Louisiana, Florida, and Alaska.
- At its very busy rescheduled meeting of August 30th, the Planning Commission voted to recommend approval of Senator Olson's request to rezone the old hospital property. The rezoning process will be an ongoing one for the Commission, as the Zoning Code is nearly a decade old.

- At its meeting of August 31st, the Museum/Library Commission reviewed the in-house landscaping plan that has been put into place. As landscaping was the last item to be “value engineered” out of the project, it has always been the Commission’s wish to revisit it with any project contingency. The landscaping plan was completed in a very frugal fashion.
- As you all know, my vehicle was stolen and crashed in the early morning hours of September 6th. On September 7th, a new City-wide policy was implemented to prohibit leaving vehicles unlocked with the keys inside. My sincere apologies go out to the entire community for my carelessness.
- Assistant Secretary Jo-Ellen Darcy of the U.S. Army will be in town on September 14th to speak at the Nome Elementary School. The Secretary will be here specifically to support a nationwide initiative called “Every Kid in a Park,” but we’ll certainly be sure to bend her ear about the status of our Deep Draft Port.
- I’ll be on personal leave the week of September 26th. During my absence, Chip Leeper has agreed to serve as Acting City Manager. Though the Council can make a motion to appoint someone else, I recommend Chip based upon his 15 years as a City employee and the fact that he has served as Acting City Manager upon a number of other occasions.
- Mayor Beneville will be attending the Arctic Science Ministerial at the White House on September 27th. His travel will be funded entirely by the Port of Nome’s budget. Due to his long transit time, the Council will need to appoint an Acting Mayor for the September 26th regular meeting.
- Fall Clean-Up has been announced for October 10th – 14th. This will be the last clean-up event until May. Please encourage your families and friends to alleviate any “blight” that may be building up in their homes and yards.
- Congressman Don Young will be in town to campaign on October 31st and November 1st. His staff has asked us to help plan a community Halloween celebration, so stay tuned for more details.
- The Police Department is still recruiting for a Police Officer. This is not a new position, but one that is already built into the FY17 budget.



Memo

To: Tom Moran – City Manager
From: Joy L. Baker – Port Director *JLB*
CC: Mayor & Nome Common Council
Nome Port Commission
Date: 9/8/2016
Re: Port & Harbor Report/Projects Update –September 2016

The following provides a status update on active issues and projects pertaining to the Port & Harbor.

Administrative:

August activity remained fairly busy at the Port/Harbor with the Quintillion vessels wrapping up dockside on the 13th and departing to complete their offshore operations, and gravel export continuing through the 31st. Ship-to-ship fuel transfers continued offshore with a few dock deliveries, while cargo movement was frequent and multiple cruise/research/USCG ship calls filled in the gaps. Overall dock occupancy was less than July at just 68%, but anchored traffic remains high at 128 vessels for the month (each vessel counted/each day).

Docking permits for the home-ported harbor fleet increased to 114 to date for 2016, but continue to mix well with the transient traffic of sailboats and research vessels that squeeze into the harbor, as well as the landing craft-tug/barge operations transshipping cargo at the loading ramps. Invoiced activity for August shows the F17 budget achieving 40.7% of forecasted revenue – with just 15.6% in expenditures.

Causeway:

Arctic Deep Draft Port Study: Discussion is ongoing with the USACE Alaska District and Headquarters regarding the ADDP Study rescoping, with the issue receiving a higher level of scrutiny as a result of the August 18, 2016 joint letter from the Congressional Delegation. The City will meet with Secretary Jo-Ellen Darcy of the Army Corps of Engineers during her brief stop in Nome on Wednesday for the “Every Kid in a Park” event, and discussions continue with Congressional staff on new developments regarding the USACE’s use of WRDA 2014 as a mechanism for project authorization.

Middle Dock: After many tweaks to the drawings/specs of the concrete ramp extension, we are expecting a price from the contractor very soon. However, due to the lateness of the shipping season for procuring the galvanized beams and curing the concrete, the project schedule will be extended to June 30, 2016 to allow for construction of the extension and final inspection.

West Gold Dock: Gravel operations at the West Gold Dock for the Hooper Bay export continued through August, with the project reaching completion around Sept 1st. This is much earlier than anticipated, but the necessary quantity needed on the project was reported to be received.

USACE O&M Dredging – the annual maintenance dredging has been completed for the 2016 season, with the post-dredge survey showing all of the shoaling in the outer harbor removed, as well as a portion of the east sump to the extent of available funds. Additional material will be removed from the sump next season, while the contractor is in town clearing the harbor entrance channel.

Inner Harbor:

Snake River Moorage Expansion – Dredging Phase II: In effort to pursue additional dredging of the Snake River associated with development of the Thornbush site, an interim bathymetric survey was done in the previously dredged area to use as a comparison against the 2014 post-dredge survey to determine the rate of infill of sediment in the dredged basin from the adjacent river flow. PND recently completed their investigation and submitted the attached report/drawings for review and consideration. Although the report is attached in its entirety, the Executive Summary provides a brief conclusion of the results.

Garco Building Upgrade: Staff looking into affordable ways to make improvements to this unit with new siding/roofing with insulated panels. EEIS ROM estimate was over \$500K, which exceeds budgetary limits at this time; therefore, we continue to evaluate options to reduce costs.

Port Industrial Pad:

Port Pad Development:

While a determination on further dredging of the Snake River is being considered, the scope of work for development of the Thornbush site is still underway based on a recent topographical survey to include a fill plan, drainage, access and SWPPP compliance. Once the SOW is fine, it will be incorporated into a bid package for release in the late September – early October timeframe.

Port Road Improvements: Periodic teleconferences with the ADOT planning team continue to occur to discuss progress on the scope of work/design based on the City's priorities for this project. Construction is scheduled for FY2018, based on STIP funding. We have requested the State provide an updated cost-share agreement and timeline for the design work.

West Nome Tank Farm (WNTF): The USAF is completing their final report to EPA, USACE and ADEC to reflect the environmental work done to meet federal/state requirements. The City should receive notice at some point during the latter part of 2017 to begin negotiating with the USAF on an interim lease that will facilitate final transfer of the property.

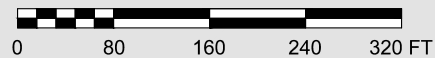
External Facilities:

Seawall Erosion Repair: Orion completed the Seawall Project in early June, both ahead of schedule and 3% under budget. The post-construction survey results have been received by the engineers, and as-built drawings are in verification. This will provide a base line for monitoring the structure for the future. The as-builts and final survey will be provided to the USACE for the historical record.

Cape Nome:

The Cape Nome Jetty Repair Project was recently awarded to Knik Construction in the form of the Base Bid and Additive Alternate No 1, which will allow the rock procurement to commence immediately, along with a project survey that will produce a template of the jetty condition, with rock placement occurring in 2017.

Additional information on any of these projects is available upon request.



Area A Dredge Volume = +/- 16,500 cu yds

Area B Dredge Volume = ±28,000 cu yds
± 80 cu yds/ft of dredged length



**PROPOSED SNAKE RIVER
DREDGING - PHASE II**

DRAFT
8/5/2016

PND Engineers, Inc. is not responsible for safety programs, methods or procedures of operation, or the construction of the design shown on these drawings. Where specifications are general or not called out, the specifications shall conform to standards of industry. Drawings are for use on this project only and are not intended for reuse without written approval from PND. Drawings are also not to be used in any manner that would constitute a detriment directly or indirectly to PND.

REV	DATE	DESCRIPTION

DATE: _____

1506 West 36th Avenue
Anchorage, Alaska 99503
Phone: 907.561.1011
Fax: 907.563.4220
www.pndengineers.com



**CITY OF NOME HARBOR IMPROVEMENTS
INNER HARBOR HIGH RAMP & FLOAT PHASING**

TITLE: DREDGE PLAN		SHEET NO: 1 OF 1
DESIGNED BY: XXX	DATE: 8/5/16	PROJECT NO: 101053
CHECKED BY: XXX		



ENGINEERS, INC.

Ms. Joy Baker
Port Director
P.O. Box 281
Nome, AK 99762

September 9, 2016

Subject: Snake River West Basin Dredging study

PND # 11115

Dear Ms. Baker:

At your request we have prepared the attached letter report of sedimentation in the Snake River where it discharges into the West Basin and as it relates to dredging and future development of the West Basin of the inner harbor.

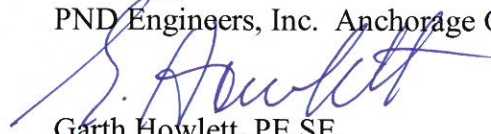
You should find attached with the report drawings we have prepared based on Hughes & Associates 2011, 2014 and 2016 surveys. We necessarily made adjustments to the datum's of the surveys to allow ready comparison. We used the ramp elevation as a baseline check of the surveys.

We also attached in Appendix A an excerpt from the USACE 1998 EA for the Snake River dredging that provides comparative information to help judge the results of this dredge study.

Thank-you for your assistance with gathering information, confirming data and assumptions and general feed-back. This has certainly assisted us in developing this report in a short period of time.

We also thank you for the opportunity to provide Nome with this analysis and report. If you have any further questions or comments please contact me.

Sincerely,
PND Engineers, Inc. Anchorage Office



Garth Howlett, PE SE
Principal

Executive Summary

Based on discussions with the Port Director Nome has a current need for about 20 to 30 mooring locations for small water craft with increased draft. The so-called West Basin has historically been periodically used for shallow draft vessels.

In March 2014 the southern end of the West Basin was dredged to accommodate deeper vessels. See attached Sheet 3 for the post dredge survey. As additional infrastructure is considered for this area the question of sediment deposition dredging costs has become more relevant. In August 2016 a bathymetric survey was performed to help estimate the amount of in-fill since the July 2014 survey was performed. See Sheet 2. The purpose of these surveys was to provide a better estimate of the sedimentation rates and the annualized dredging costs. Sheet 1 shows the test area and the difference in elevations between the two bathymetric surveys. Sheet 5 shows the cross-sections cut across the area. We necessarily adjusted the survey datum's, calibrating them from the cross-sections at the concrete ramp that are known to be a hard point. Making these adjustment seemed to make the results visually and analytically consistent.

The difference between the 2014 and 2016 survey amounts appears to be a net 656 CY in-fill into the area. When averaged, this amounts to about 330 CY in-fill per year. In the COE EA they estimated that the influence of the Snake River would be about 400 CY in-fill of sediment per year.

Using our measured net in-fill, the average annual depth in-fill would be about 0.05 feet per year. Using the assumptions that this value is both representative and consistent over area, depth and time, we expect the West Basin globally to fill in from -8' MLLW to -4' MLLW in about 80 years. The deposition rate for this study was based on the basin being dredged to a nominal elevation of about -6' MLLW. If the dredge depth were increased to -8' MLLW it should be expected that the infill rate would be higher. The -6' MLLW is a good median depth that should provide average infill rates all other variables staying constant.

It should be said that some of these assumptions are likely un-conservative. Even if the deposition rate increased and the time to global dredge increased the time to say 40 years that would likely not significantly affect normal civil projects.

Other external effects and localized deposition are going to be more relevant than the global sedimentation.

Looking further at Sheet 1, it becomes apparent that there are alternating areas with localized variations as well as knobs. The green areas show areas of localized erosion while the red shows areas of localized deposition. Looking just at the change in elevation there were 1,012 CY of fill and 356 CY of erosion giving the 656 CY of net in-fill. There are many areas that show apparent alternating erosion and deposition, particularly on the west side. This may be attributed to localized redistribution of sediments, or sloughing or normalization after the

dredging. It may also be that the limits of the survey precision have been reached and so we see many small variations in the color contours.

On sheet 1 there are knob areas where there are up to 1.9 feet of localized deposition. Conversely there are erosion holes that are up to 1.6 feet deep. We would expect that with these kinds of knob and holes, the deposition and erosion change in bathymetry will further change the river flow and deposition locally. At this level of study we cannot predict what these effects would be.

Additional downstream dredging performed by the COE on an annual basis may be having some effect on the West Basin dredging as well that cannot be readily analyzed or predicted. The COE predicted that this proximal dredging will have some effect on the upstream bathymetry but that the differences would quickly re-stabilize.

Based on the current available data it is prudent to assume that, at a minimum, the City of Nome would be required to provide periodic localized dredging in the West Basin. If the data set reflects representative conditions and the localized conditions are assumed to be consistent over time, which is the best data set we currently have, we expect to dredge localized areas every 2 to 4 years. More frequent and/or larger scale dredging may be required following storm events in the Snake River and/or changes to the COE dredging plans at the mouth of the river.

History

There has been significant interest in developing the West Basin of the inner harbor estuary that receives the outfall of the Snake River. The community has long desired to deepen the West Basin to accommodate water craft that have a deeper draft than the current 20-inch nominal draft limit.

With the increased interest in commercial and recreational dredging the need for small vessel mooring space has increased to about 50 vessels. This number may have peaked from the initial surge of mom-and-pop dredgers and is in the process of stabilizing towards more typical commercialized operations. Currently the fisheries support about 25 local vessels that range from 32' to 39' in length.

In response to this need, the City of Nome has asked PND to develop various concepts to provide expanded mooring in the West Basin. Some of these have included: less expensive ground lines with mooring buoys and more expensive removable float systems to be installed in a phased construction as need and available financing increased.

In accordance with these studies PND has recommended performing additional site sedimentation studies to ensure we can at least bracket the long-term dredging maintenance costs associated with potential projects.

In the 2012 COE EA for the harbor dredging project, the COE reported an expectation of only about 400 CY of sediment annually coming from the Snake River. See the attached excerpt from that report in the appendix. Note that the basis of their estimate is not provided.

With the recent 2014 excavation dredging PND recommended an opportunity to gather site information on the sedimentation in-flow by obtaining a new bathymetric survey in the area of concern. The Port Director's efficient management and support of a marine surveyor working in the area in 2016 allowed us to acquire site specific data to ascertain differences in the bathymetry and assess the influx of sediment in the West Basin. The results of this bathymetric analysis appear to be in the same magnitude of that reported by the COE.

This report provides our findings from the sedimentation evaluation, provides a qualitative discussion of the results and provides conclusions and recommendations.

Sedimentation Processes

Sediment transport down a river is generally considered to include: bed load sediments, suspended load sediment and wash load sediments. Bed load sediments typically contribute about 5-10% and potentially up to 20% of total sediment transport. These comprise larger gravel and sand particles on or near the bottom of the bed that are being pushed down the river. The remainder of the sediment is suspended load that is finer sand, silt and clay sediment carried in the water column as the river flows downstream. The amount of fine and coarse sediment transport is primarily a function of flow velocity and sediment size. The total

sediment load is a function of upstream river erosion and surface water in-flow of sediments from surface runoff.

The February 2013 Bristol Environmental *Snake River Moorage Sampling* report provided borings in the moorage area, which characterized the near surface materials varying as follows: 0 to 25% gravel, 30 to 100% sands and trace to 30% silts. This is generally consistent with the visual appearance of the 2014 dredge spoils placed on the Thornbush site development area.

As both bed load and suspended load sediments flow down a river, they either deposit or settle out depending upon the velocity of water and river slope. Flood flows have recently been characterized by USKH in 2009 for the ADOT Snake River bridge replacement. Peak flood flows vary from 1900 CFS for mean annual flows to 4900 CFS for 50-year events, showing significant variability with the flow levels.

Water velocity and slopes are not always uniform across the river cross-section, and there are often areas of deposition immediately adjacent to erosion areas, particularly where eddies exist. As the river slope becomes flatter the flow velocity will slow down and the suspended sediments will tend to drop out of suspension. As might be expected, flattening the river slope generally requires the river section to widen.

This widening can be seen at the West Basin where it receives the Snake River. The Snake River is fairly channelized upstream of the new ADOT Snake River Bridge with a relatively straight run of about a mile and fairly constant 80-foot width and normal flows. The upstream slope of the Snake River appears to be about 0.1%. Below the bridge the estuary widens to about 400 feet, and as the flow must necessarily slow down, the suspended sediment load tends to drop out.

Sedimentation can also vary significantly from year to year depending upon a number of variables. Factors that can markedly increase sedimentation include: freeze-up conditions, snow and ice ground cover and thawing conditions during breakup, summer time storms and flooding that produce higher velocity flows, mining, and construction activities (such as at the airport). As an example, peak snowmelt sediment load in the river has been reported to increase by 15 times or more over averages on other rivers.

The upstream Snake River hydrograph, see figure 1, shows considerable variation in flow even in the “average year”.

The COE reported that the Nome harbor estuary appears to be less affected by nearshore littoral sediments pushed into the harbor by southern swells. These swells can push suspended sediments from the dredge trap east of the causeway bridge, but these would likely be finer grained suspended sediments rather than bed load. The COE believes that the amount of material brought in from this source is relatively minor.

This seems to be substantiated by the results of a wave study conducted by USKH for the Snake River Bridge, which indicated significant reduction in wave energy, described in the 2009 Hydrology and Hydraulics report for the Snake River Bridge Replacement.

Sedimentation also depends upon the local dredging near the West Basin. If dredging is performed immediately south of the West Basin, then upstream sediments will preferentially infill these dredged areas.

This concept is further discussed but downplayed in the COE 2012 EA (page 14) for dredging,

“There is little circulation between the harbor basin and Norton Sound. Deepening the channel from the basin to the ocean may temporarily alter the flow of freshwater out of the harbor, perhaps thickening the wedge of surface low-salinity water that flows into Norton Sound. Any such effects of dredging on currents and circulation would be fairly quickly negated as the channels refill with sediment.”

The effects and timing of the COE dredging are quite variable and were not considered in this report.

The data reveals some localized variability in the amount of sedimentation, and making firm predictions based on a small data set could be difficult and should be considered speculative.

Survey Results

In March 2014, during construction of the High Ramp, the City of Nome project subcontracted with Q Trucking to perform excavator dredging from the ground-fast ice in the southern end of the west basin. The excavator operation has the advantage of being able to quickly and efficiently remove hard sediments that would be difficult to remove with a suction dredge or even a cutter head dredge. PND performed a ROM estimate that indicated removal of approximately 10,000 cubic yards of material. After breakup a bathymetric survey was performed by Hughes & Associates of the area in July 2014 to confirm quantities, extents and depth. A 2011 survey, also performed by Hughes & Associates, was used as a comparative pre-dredging survey. The July 2014 post excavator dredge survey is shown on Drawing 1.

As the 2014 dredging occurred prior to breakup and the survey necessarily occurred after breakup, there was undoubtedly some infill that occurred between the dredging and the survey.

In August of 2016, Hughes & Associates performed a bathymetric survey of the previously dredged area and from that PND produced the attached drawings.

We tested the data sets by looking at cross-sections of the data at the concrete low ramp. Once Hughes made the correct datum adjustments, the surveys appeared to reveal good consistency.

The difference between the 2014 and 2016 survey amounts appears to be a net 656 CY in-fill into the area. If averaged this amounts to about 330 CY in-fill per year. In the COE EA (presumably a desktop study) they estimated that the influence of the Snake River would be about 400 CY in-fill of sediment per year.

Looking further at Sheet 1, there are alternating areas with localized variations as well as knobs that are apparent. The green areas show areas of localized erosion while the red shows areas of localized deposition. Looking just at the change in elevation there were 1,012 CY of fill and 356 CY of erosion giving the 656 CY of net in-fill. There are many areas that show apparent alternating erosion and deposition. This may be localized redistribution of sediments, sloughing or normalization after the dredging. The effect may be that the limits of the survey precision have been reached, and so we see many small variations in the color contours.

On sheet 1 there appear to be knobs, areas where there is up to 1.9 feet of localized deposition. Conversely there are erosion holes up to 1.6 feet deep. Normally, with these kinds of knob and holes, the deposition and erosion change in bathymetry will further change the flow and deposition.

The Drawing 1 coloration shows the relative change of sedimentation or erosion. As indicated in the legend each color is assigned to a 0.5-foot zone of change in elevation, indicating either deposition or erosion.

We believe that local dredging south of the boundary area may be causing some of the apparent “erosion.” What this indicates is that the amount of deposition from the Snake River sediments is small enough that other effects such as dredging may be more relevant. Also we may be at the tolerance limits of reproducible bathymetric surveys using only two years of sedimentation data.

There are areas of change around the 2014 excavation dredging that appear as erosion. The transitions of the 2014 excavation appear to be block cut; that is there was no gradual transition to the existing grade. Over the subsequent two years it appears that the block cuts have sloughed and eroded, creating more natural transitions.

From comparing the 2011 and 2014 surveys there also appears to be some additional lowering or erosion along Belmont Beach, particularly at the south. We believe the southern erosion is subject to some wave attack of long-period waves that enter through the entrance from the outer harbor to the inner harbor. There is evidence from the USKH study for the ADOT Bridge that the energy entering the inner harbor is significantly reduced once it shoals and enters the narrow neck between the inner and outer harbors. This is an area that probably should continue to be monitored. We understand there has been some discussion for providing some small armor stone to better control the erosion in this area.

To the north of the 2014 dredge area and south of the bridge is a narrow north-south running band about 40 feet wide by 400 feet long which is lowered about a foot below the adjacent

area which appears to be erosion where the thalweg, or lowest part of the channel, has migrated west to the center of the basin from its former location. Previously the thalweg tended to hug the east side of the channel toward Belmont Beach.

The deposition rate for this study was based on the basin being dredged to a nominal elevation of about -6' MLLW. It could be expected that the lower the area is dredged the more infill potential there is.

Using our measured net in-fill the average annual depth in-fill would be about 0.05 feet per year. Using the assumptions that this value is both representative and consistent over area and time you could expect the West Basin globally to fill in from -4' MLLW to -8' MLLW in about 80 years. There are localized deposition and erosion and external effects that will control the maintenance dredging.

Some of these assumptions are likely un-conservative. Even if the deposition rate increased and the time to global dredge increased the time to 40 years that would not significantly affect normal civil projects. Obviously other external effects and localized deposition are going to be more relevant than the global sedimentation.

On sheet 1 there are knob areas where there are up to 1.9 feet of localized deposition. Conversely there are erosion holes that are up to 1.6 feet deep. We expect that with these kinds of knob and holes the deposition and erosion change in bathymetry will further change the flow and deposition.

Additional downstream dredging performed by the COE on an annual basis may be having some effect on the West Basin dredging as well that cannot be readily analyzed or predicted. The COE predicted that this will have some effect on the upstream bathymetry but that the differences would quickly stabilize.

Based on the current available data it is prudent to assume that, at a minimum, the City of Nome would be required to provide periodic localized dredging in the West Basin. If the data set reflects representative conditions and the localized conditions are assumed to be consistent over time, which is the best data set we currently have, you would expect to dredge localized areas every 2 to 4 years. More frequent and/or larger scale dredging may be required following storm events in the Snake River and/or changes to the COE dredging plans at the mouth of the river.

Dredging Costs

The port director has reported negotiated costs for maintenance dredging in Nome which is very good value for a suction dredge. These unit costs have been fairly consistent over recent years but should not necessarily be relied on for long term planning. The COE dredging program also pays for its own mobilization, setup, take-down and demobilization, so the City receives the benefit of a very good unit dredge cost by not bearing these expenses directly. Our understanding is that the COE will rebid a new multi-year contract with a dredging

contractor in early 2018, and the City may or may not continue to be the beneficiary of these low unit costs.

If you assumed all of the net increase of annual sedimentation of 330 CY needed to be dredged, which seems conservative, the annual cost would be about \$10,000.

Conclusions and Recommendations

Nome is prudently investigating the capital and long-term operational costs associated with facilities in the West Basin. A potential major part of these costs, that have been previously unknown, were the maintenance dredging costs associated with a facility in this area.

With the recent dredging project and follow up bathymetric survey, data is now available to better determine the ROM in-fill rates, which appear to be low. There are however localized erosion and deposition that will likely require periodic localized dredging. These are likely effected by COE dredging downstream of the West Basin, spring thaw and storm flooding.

Based on information from these surveys and comparing the results to the COE studies we think that the anticipated quantities for periodic localized maintenance are small. That coupled with the low unit dredging costs would indicate a moderate annual maintenance dredging costs for the West Basin.

Other construction, operational and maintenance costs should be further estimated and included to properly weigh against the benefit of having this additional moorage/anchorage for small vessels. A secondary benefit would be the reuse of spoils at an upland site. Nome currently has several nearby sites where reuse of dredge spoils would be currently be a benefit and dewatering would not be a significant problem.

PND recommends that the City of Nome continue to monitor the West Basin area when contracting for other bathymetric surveys in the area. Once set up the cost of additional survey area should be small. These surveys should use a consistent datum and they should always survey the concrete ramp area in order to check the data for consistency with the datum.

Because the stream gauge for the Snake River has not been operating since 1991 the stream flow that provided two years of sedimentation cannot be readily calibrated. We don't know how it would compare with the normalized flow (see figure 1). While a desk top study could be performed to look at rainfall and compare that with a model of the normalized flow it would probably not be as relevant as the local downstream COE dredging and other localized effects. It would be prudent however to monitor year to year the areas dredged by the COE and the volumes and elevations dredged to.



Photograph 1 – Looking East - West Shoreline of the West Basin, note dredge cut



Photograph 2 – Looking West - West Shoreline of the West Basin, note dredge cut.



Photograph 3 – Looking West – North of the West Basin

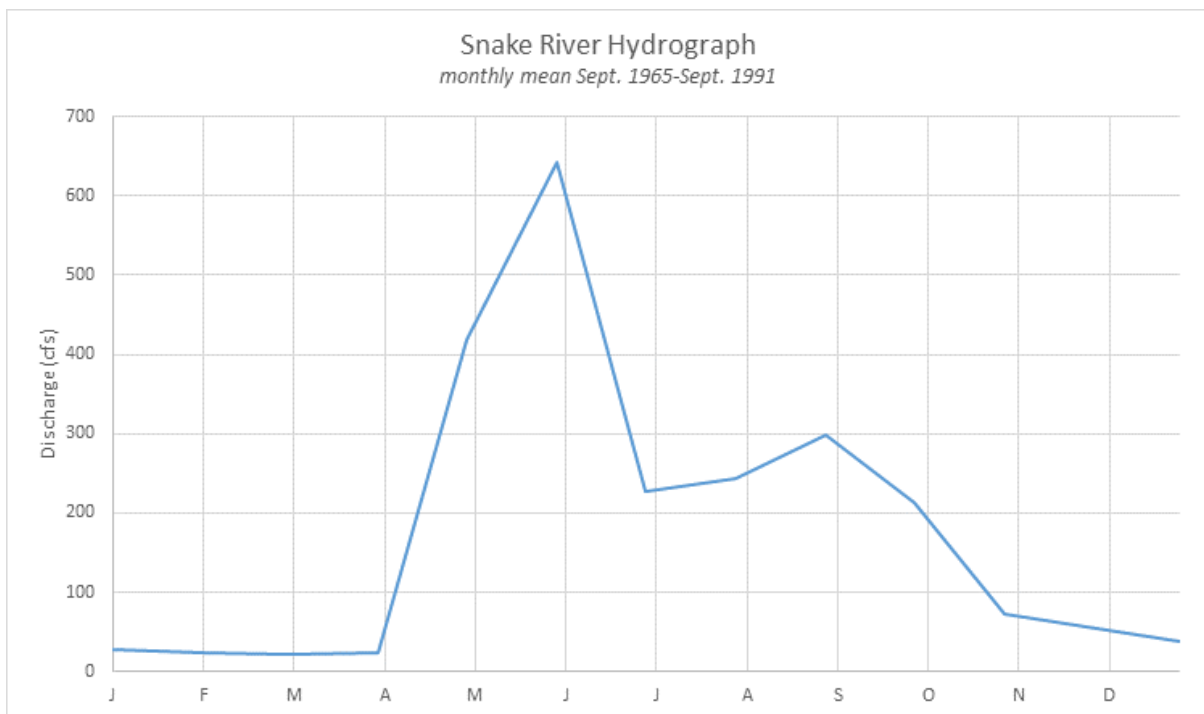


Figure 1 – Summary Mean Hydrograph of Snake River

APPENDIX A - USACE 1998 EA Excerpt

3.1.3 Snake River

The Snake River runs from the northeast to the southwest, flowing through the currently authorized turning basin and then passing through the existing sheet-pile lined navigation channel and out into Norton Sound. The approximate drainage area of the Snake River is 225 square kilometers. The discharge of the Snake River is less than 14 cubic meters per second (m³/s) (500 CFS) on average, except for June. The highest daily mean recorded was 105 m³/sec (3600 CFS) June 1966.

At a U.S. Geological Survey stream gauging station 8 kilometers northeast of Nome, the mean annual flow has been approximately 5.3 m³/s (180 CFS). The typical peak annual flow results from snowmelt in early May. Summer rains bring progressively lower discharge peak flows, and flow continues to decline through the winter.

The 1991 water-year graph for discharge of the Snake River through Nome shows a peak of 220 m³/s (7500 CFS) during early May. The Snake River, because of its short-period spring high discharges, with estimated velocities exceeding 3.1 m/s (10 fps) and sediment introduced by ice scouring, has the potential to transport sediment loads if the upstream material types are fine sand and silt.

A gauging station was re-established on the Snake River from May to October 1997 to determine flows and sediment discharge relationships. Measurements are shown below. These discharges throughout the summer months show a below average discharge, which coincides with the local residents observations. The average annual sediment discharge from the Snake River is estimated at < 300 m³ (**400 CY**) per year.

Sediment concentration is the weight of dry sediment in a water-sediment mixture per volume of mixture and is expressed in milligrams/liter (mg/l). The total rate of sediment transport is the sum of contributions from bedload and suspended load. Sediment load transport can be divided into bedload and suspended load, where bedload is the material moving on or near the bed, with particles moving intermittently by rolling, sliding, or jumping.

The bedload rate varies according to river velocity and the correspondingly shear stress. Wash-load consists of the finest particles in the suspended load that are continuously maintained in suspension by flow turbulence. Wash-load is determined from upstream sources and is relatively independent of flow discharge. However, greater discharge may contribute to greater wash-load because of more erosion.

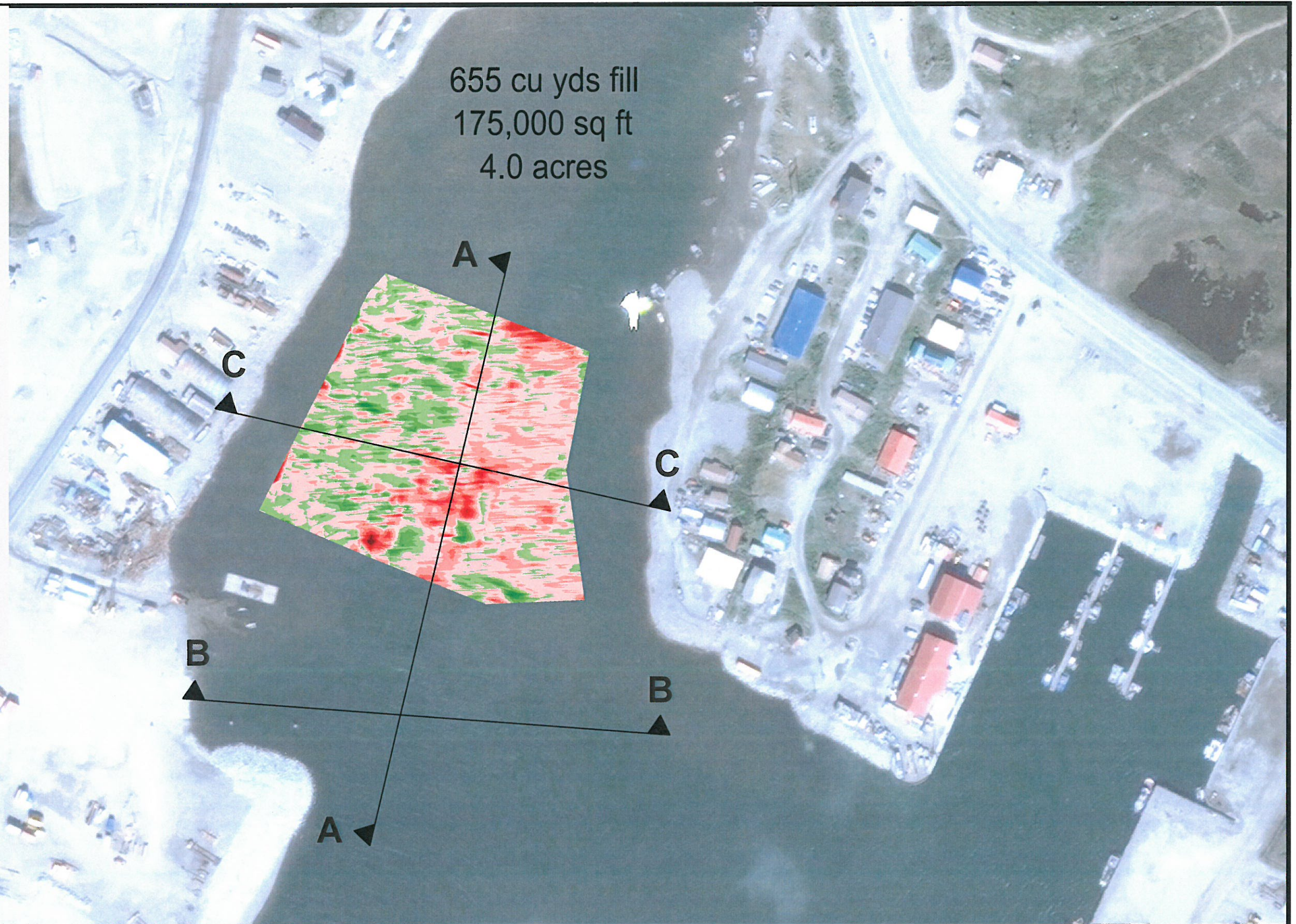
A deposition-dominated environment is characterized by a region of relatively low bed shear stress in which the rate of supply of sediment to the bed significantly exceeds the rate of removal by erosion.

Therefore, under normal low flow conditions, the Snake River does not contribute a significant amount of sediment. The river is probably typical of many of Alaska's rivers and streams, with the greatest 10 percent of the flow rates contributing 90 percent of the sediment.



ELEVATION COMPARISON 2014-2016

ZONE	MIN ELEV	MAX ELEV	Color
1	-6.00	-3.00	
2	-3.00	-2.00	
3	-2.00	-1.00	
4	-1.00	-0.75	
5	-0.75	-0.50	
6	-0.50	-0.25	
7	-0.25	0.00	
8	0.00	0.25	
9	0.25	0.50	
10	0.50	0.75	
11	0.75	1.00	
12	1.00	1.25	
13	1.25	1.50	
14	1.50	2.50	
15	2.50	3.50	
16	3.50	4.50	



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0 80 160 240 320 FT

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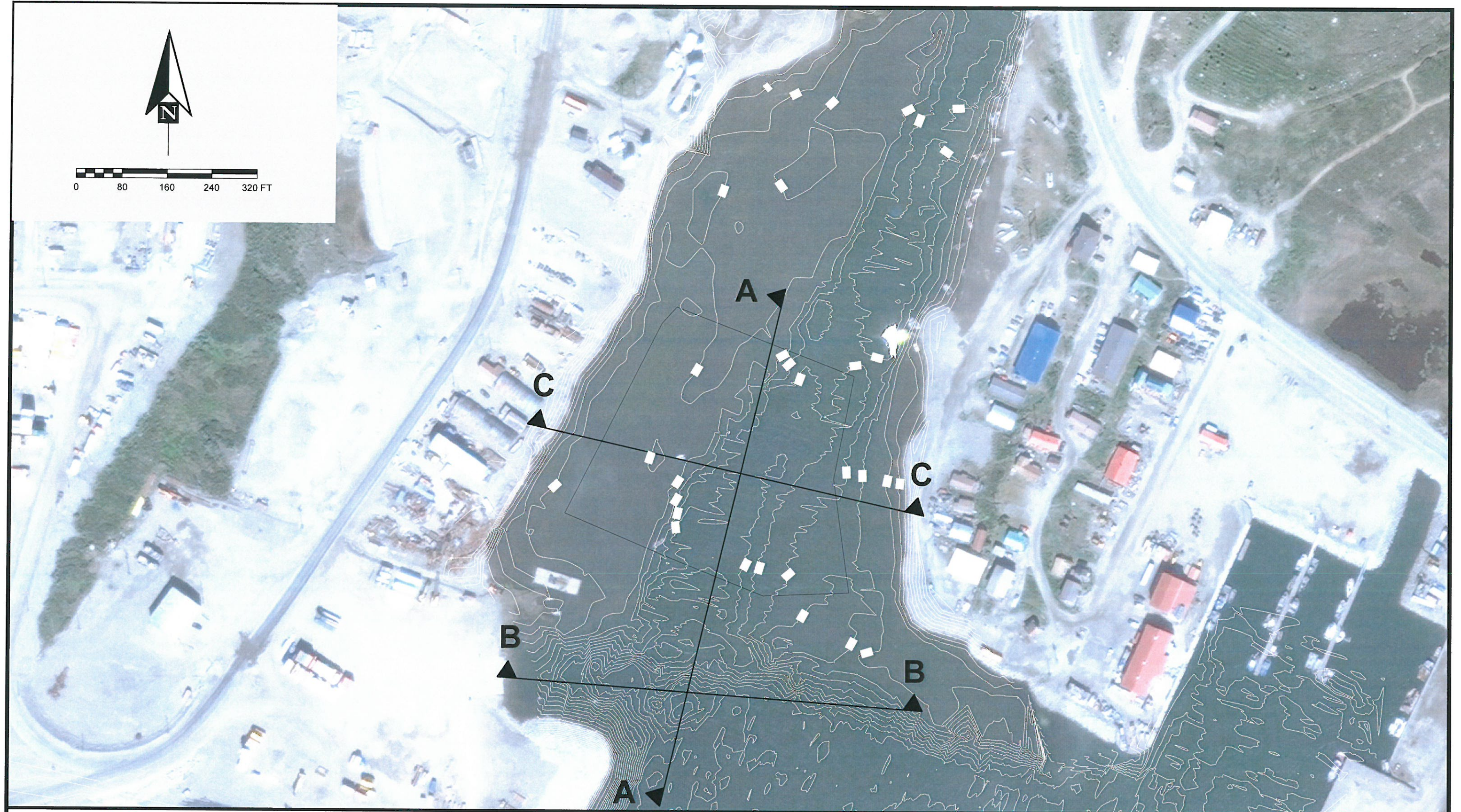
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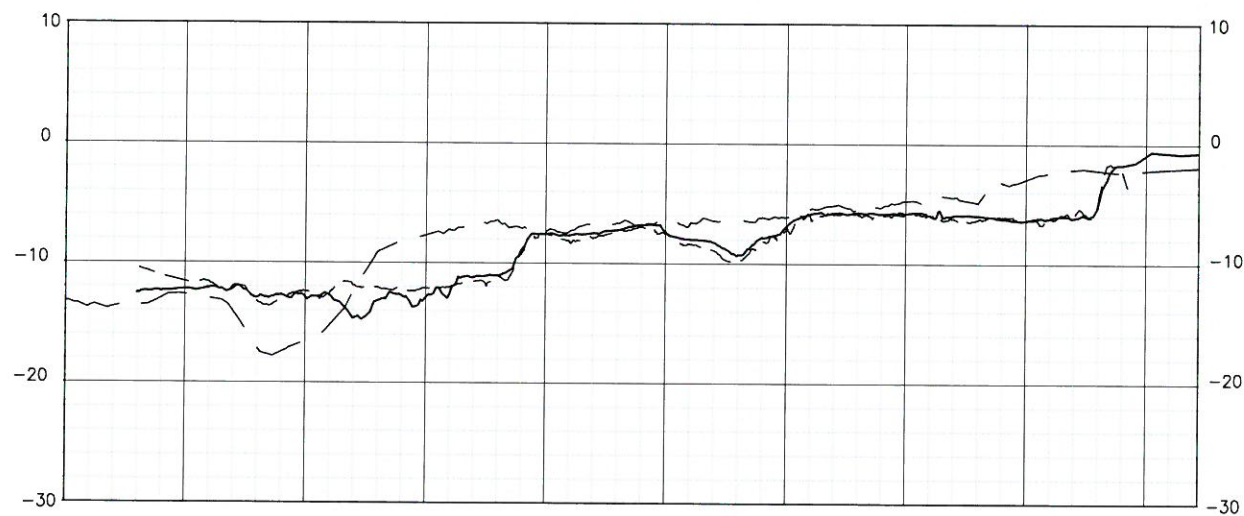
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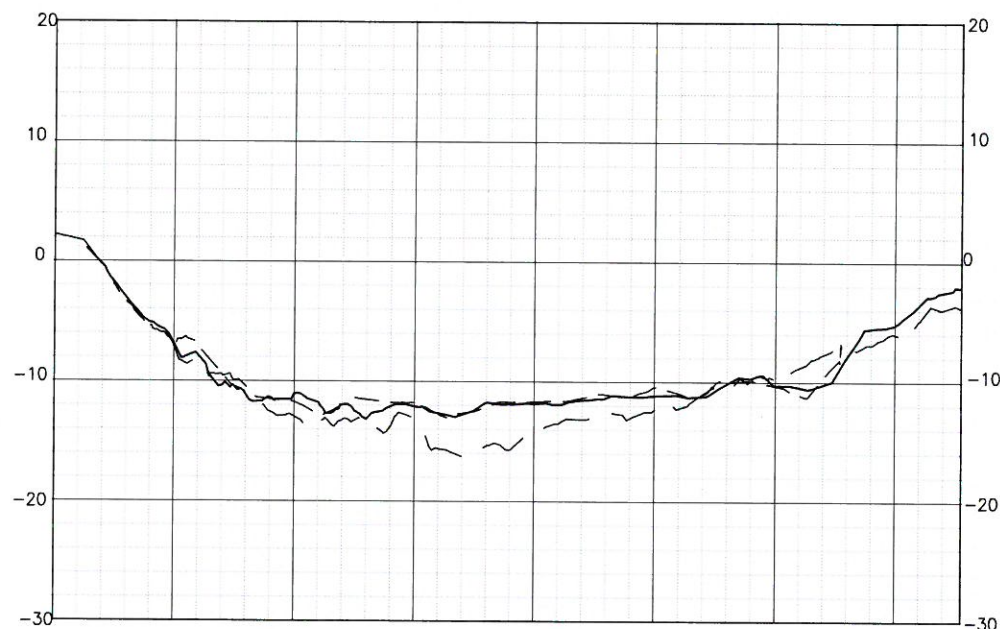
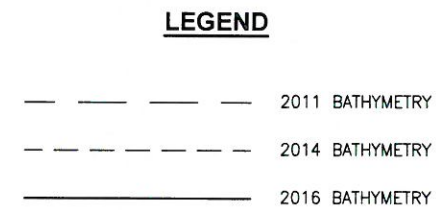
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TITLE: INNER HARBOR BATHYMETRY 2011

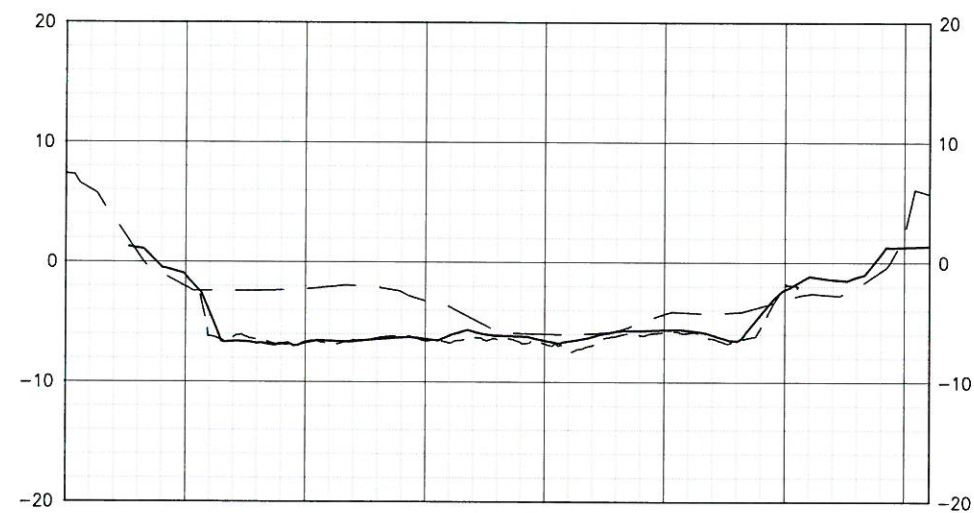
DESIGNED BY: XXX	DATE: 8/6/16	SHEET NO: 4 OF 5
CHECKED BY: XXX	PROJECT NO: 101053	



SECTION A
SCALE: 1H:10V



SECTION B
SCALE: 1H:10V



SECTION C
SCALE: 1H:10V

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