Finding of No Significant Impact

Environmental Assessment for Newtok Relocation Project
Phase I and Phase II Housing Development
Village Center Development
U.S. Department of Housing and Urban Development, September 2016, Mertarvik, Alaska
HUD Program IHBG/ICDBG HUD Project Number 55IH0202000

The U.S. Bureau of Indian Affairs (BIA) is adopting the Environmental Assessment (EA) completed by the U.S. Department of Housing and Urban Development (HUD), in which a Finding of No Significant Impact (FONSI) was issued on September 14, 2016. This decision is consistent with 43 CFR 4.120(D) use of existing National Environmental Policy Act (NEPA) documents by supplementing, tiering to, incorporating by reference, or adopting previous NEPA environmental analyses to avoid redundancy and unnecessary paperwork.

The proposed action included many components:

- 1920 linear feet of roads
- Construction/relocation of 15 homes
- 15 driveways and gravel pads

The potential of the proposed action to impact the human environment was analyzed in the previously approved Environmental Assessment (EA), as required by the National Environmental Policy Act (NEPA). The BIA revisited the information within the document and determined that the document adequately assessed the environmental effects and reasonable alternatives. Based on that EA and our review of current information, I have determined that the proposed action will not significantly affect the qualityy of the human or natural environment. In accordance with Section 102(2)(c) of NEPA, as amended, an Environmental Impact Statement is not required.

This determination is based on the following factors:

- 1. Agency and public involvement solicited for the preceding NEPA document was sufficient to ascertain potential environmental concerns associated with the currently proposed project.
- 2. Protective and prudent measures were designed to minimize impacts to air, water, soil, vegetation, wetlands, wildlife, public safety, water resources, and cultural resources. The remaining potential for impacts was disclosed for both the proposed action and the No Action alternatives.
- 3. Guidance from the U.S. Fish and Wildlife Service has been fully considered regarding wildlife impacts, particularly in regard to threatened or endangered species. This guidance includes the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds",

and the Endangered Species Act (16 U.S.C. 1531 et seq.).

- 4. The proposed action is designed to avoid adverse effects to historic, archaeological, cultural and traditional properties, sites and practices. Compliance with the procedures of the National Historic Preservation Act is complete.
- 5. Environmental justice was fully considered.
- 6. Cumulative effects to the environment are either mitigated or minimal.
- 7. No regulatory requirements have been waived or require compensatory mitigation measures.
- 8. The proposed project will improve the socio-economic condition of the affected Indian/ Alaska Native community.

Regional Director

Date

April 14,

Part 50 Environmental Review Record

Newtok Relocation Project

Phase I, Phase II & Village Center Metarvik, Alaska

Environmental Assessment and Compliance Findings for the Related Laws

Previous Editions Are Obsolete

U.S. Department of Housing and Urban Development Project Number:
 HUD Program:

55IH0202000 IHBG/ICDBG

form HUD-4128 (10/28/96)

2. Date Received:

Findings and Recommendations are to be prepared after the environmental analysis is completed. Complete items 1 through 15 as appropriate for all projects. For projects requiring an environmental assessment, also complete parts A and B. For projects categorically excluded under 24 CFR 50.20,

 Project Name and Location (Street, City, Coun Newtok Relocation Project Phase I and Phase II Housing Develops Village Center Development 		4. Applicant Name, Address (Street, City, ST, Zip Code), Phone: AVCP Regional Housing Authority PO Box 767, Bethel, Alaska 99559 Newtok Village PO Box 5596, Newtok, Alaska 99559			
5. Multifamily Elderly Other (Explain) Relocation/New Construction	6. Number of: dwelling buildings 14 ;sto	j units 78 ;	7. Displacement: No Yes (Explain)	'es	
	Other 10.	10. Planning Findings: Is the project in compliance or conformance with the following plans? Local Zoning: Yes No Not Applicable Coastal Zone: Yes No Not Applicable			
(Identify)		Explain any "No" answe	res No Not Applicable er: ed conflicts concerning the use of the site?		
11. Environmental Finding: (Check one) Categorical Exclusion is made in accordance Environmental Assessment and Finding of Impact (FONSI) is made in accordance with	No Significant	made, and an	plain): al Assessment and a Finding of Significant Impact a Environmental Impact Statement is required in with §§ 50.33 (d) and § 50.41.	is	
	s located within Phase I	in Metarvik. Additional ho	truction and/or relocation of 15 homes in Metarvik, to lousing and/or community development projects will rand ends December 10, 2017.		
12. Preparer: (Signature) 14. Comments by Environmental Clearance Off (Required for projects over 200 lots/units)		2016 13. Supervisor (S		016	
ECO: (Signature) 15. Comments (if any) by HUD Approving Officia	ıl·		Date:		
HUD Approving Official: (Signature)			Date: 9/14/16		

Part A: Compliance Findings for § 50.4 Related Laws and Authorities

§ 50.4 Laws and		ect is ipliance	Source Documentation and Requirements for Approval	
Authorities	Yes	No		
16. Coastal Barrier Resources	х		Alaska has no known or designated Coastal Barrier areas.	
17. Floodplain Management	x		Metarvik will not be prone to flooding due to the elevations of the proposed development, which vary from 70ft to 180ft, See topo maps; Newtok/Metarvik is not participating in the National Floodplain Insurance Program; undeveloped site is not within a known 100/500 year floodplain and is unmapped	
(24 CFR Part 55)			by FEMA.	
18. Historic Preservation	Х		State Historic Preservation letter dated 7/29/16 concurring that a finding of "no historic properties affected" will be appropriate for the following project components: Phase I Housing, Phase II Housing and activities planned within the Village Center. As noted by SHPO, project related activities will be conducted to avoid and protect the nearest known site, "XBI-00183", identified in Metarvik.	
(36 CFR Part 800)			Conducted to avoid and protect the hearest known site, ABT 50 T00 , Identified in motal till	
19. Noise Abatement	х		Metarvik sits on largely undeveloped land and does not have any major roads or highways, railroads and/or is located within 15 miles of a civil or military airfield in Newtok. There are no noise sensitive projects that will interfere with the housing development project being proposed. Noise Calculations are not necessary at this time.	
(24 CFR Part 51 Subpart B)			are not necessary at this time.	
20. Hazardous Operations	X		Metarvik sits on largely undeveloped land and does not have, nor is it located in close proximity to a bulk fuel storage facility. Future plans for a bulk fuel storage facility in Metarvik will be planned in accordance with 24 CFR Part 51C and located outside of the acceptable separation distance requirements from residential housing and community structures to ensure safety of structures as wel as open areas where people will gather outside, such as parks.	
(24 CFR Part 51 Subpart C)				
21. Airport Hazards	x		An airport runway does not currently exist in Metarvik. However, several plans exist and call for a proposed local airport in the future. Based on proposed airport runway maps, proposed project activities will be outside the Aiport Runway Zones.	
(24 CFR Part 51 Subpart D)				
22. Protection of Wetlands	1 X	1	Corp of Engineers letter dated 9/8/16 authorizes the construction/relocation of 15 homes in the new community of Metarvik under General Permit 2007-541-M1. The 8-Step process was completed - 1 st Notice posted 8/5/16 pulled 8/24/16 - no comments; 2 nd Notice posted.	
(E.O. 11990)				
23. Toxic Chemicals and Radio active Materials (§ 50.3(j))	· X		Metarvik is not listed or located within one mile of an EPA Superfund Site or within 2000 feet of a site on the CERCLIS List; not located within 3000 feet of a toxic or solid waste land fill. Any future proposed solid waste landfills will be located further than 3000 feet from any properties projected for use in HUD programs.	
24. Other § 50.4 authorities (e.g., endangered species,	X		Endangered Species - Will have no effect on listed species, per email dated 7/6/16 from Douglas Cooper, Branch Chief - Ecological Services; No effect on species under National Marine Fisheries Services, per email dated 7/27/16 from Jon Kurland, Asst Regional Administrator for Protected Resources; No further permitting required within Yukon Delta National Wildlife Refuge, per email dated 7/22/16 from Kent Stahlnecker, Refuge Manager, Yukon Delta NWR. Wild and Scenic Rivers - Metarvik is not located within 1 mile of any listed Wild and Scenic River system.	
			Farmland Protection - There are no prime, unique or statewide importance farmlands in Alaska	
			Clean Air Act - Metarvik is not located in a designated non-attainment area.	
			Environmental Justice - Proposed housing development sites are being developed so that they will not be located in areas that have a new, continued or historically disproportionate potential for high and adverse effects on minority or low-income populations; and that do not suffer from disproportionate adverse health and environmental effects relative to the community at large.	
			Sole Source Aquifers - There are no Sole Source Aquiferes in the State of Alaska	
sole source aquifers			Coastal Zone Management Act - Currently the State of Alaska doe not have a Coastal Zone Management Plan.	
farmlands protection, flood insurance, environmental justice);				

Part B: Environmental/Program Factors:

Factors	Anticipated Impact/Deficiencies			Source Documentation and Requirements for Approval			
	None	Minor	Major				
25. Unique natural features and areas	х			No unique natural features are present in Mertarvik (Source: Newtok Village/DOWL Eng.)			
26. Site suitability, access, and compatibility with surrounding	X			Although a comprehensive plan has not been developed for the Mertarvik site, in March of 2012 the Tribe adopted Guiding Principles (Maligtaquyarat) and developed a Strategic Management Plan which are considered the guiding documents for development at Mertarvik. No current zoning applies to this project. It has not been determined if this project will result in zoning regulations.			
development				The proposed one-story, single-family units are compatible with the proposed village layout and are typical of village housing units. The project is not sited within an urban environment and will not result in an urban environment. (Source: Newtok Village/DOWL Engineering)			
27. Soil stability, erosion,	x			Surface rock in the vicinity of the project site is vascular basalt. The soil in most areas is basalt weathered to sand and gravel. The surface of the unweathered basalt ranged from 7 to more than 31.5 feet below the ground surface. The ground surface has a layer of organic that varies in depth, but is generally 1 to 2 feet thick. Below the surface organics there is a transition layer of silt that contains roots and organics. The volume of organics decreases with depth.			
				Permafrost in the general project area was and the depth to permafrost in most areas is probably about 18 to 24 inches. The permafrost is ice rich and has moisture content (on the basis of weight) of 20 to 30 percent. There is surface evidence that ice wedges are present in the area, although none was observed. (Source: Newtok Village/DOWL Engineering)			
and drainage							
28. Nuisances and hazards	. x			No natural hazards have been identified at the project site. A hazard mitigation plan for Newtok was updated in 2015 and evaluated hazards at Mertarvik. The project site also shares the following hazard type with Newtok: earthquake, ground failure, severe weather, and tundra fire. The Newtok Village Council supports all projects that provide mitigation measures from all natural hazards of earthquake, ground failure, severe weather, and tundifire at the current as well as the new Mertarvik Village site (2015 Newtok HMP).			
(natural and built)				For safety, residents will likely move back to Newtok during the spring and fall when movement back and forth from Newtok to Mertarvik would be too risky (2012 SMP background report).			
29. Water supply/sanitary sewers	Х			Water is currently available through access to a local spring, a well, or through rainwater catchment. Residents will select their source and then point-source water treatment plants will treat water in homes. After the initial phase, a washeteria/water plant will be constructed (Source: Newtok Village/DOWL Engineering)			
				Mertarvik residents will gather their water from multiple sources: from the nearby spring, from rainwater off the roof in summer, and from ice chipped and carried from ponds in the winter.			
				The demonstration home currently being built in Metarvik will contain the PASS (Portable Arctic Sanitation System) model, which is an in-house water treatment plant to bring water potable standards whatever the source. The system pulls water through a set of 5 micron and .5 micron filters through either an electric pump or a hand pump up to a holding tank, where it can gravity feed back down into a sink. The filters clean the water of common contaminants such as giardia and other bacteria. If viruses are a concern, chlorine can be added to the tank at the top of the system. See attached the schematic drawings and a fev pictures of the system. (Cold Climate Housing Research Center - email dated 9/6/16 from Aaron Cooke, Architectural Researcher)			
30. Solid waste disposal	X			A burn unit will be available to manage solid waste during the initial phase of relocation; a "mini dump" is planned. (Source: Newtok Village/DOWL Engineering)			
				The first where of become useful upo the eviction postic field that has already been			

The first phase of housing would use the existing septic field that has already been constructed at the MEC Site. As of yet, the interface point between the haul-distribution point and this septic system has not been designed. The draft housing plan will focus on a community-wide waste system. (Source: Newtok Village/DOWL Engineering)

The demonstration home currently being built in Metarvik will utilize a separating toilet to provide a cleaner and more sanitary way of disposing of human waste in the absence of conventional sewer. The toilet separates solid waste from liquid waste through its geometry. The liquid waste is stored in an airlocked container so as to minimize any spillage or odor. The solid waste is kept in a holding container in the toilet. The demonstration house uses the toilet as the exhaust port for its ventilation system, running stale air on its way out of the

When more families come across the water, it is the intent the septic field below the MEC can be used as the second-stage interim system for village relocation. The septic field has already been constructed and could support dozens of households. (Cold Climate Housing Research Center - email dated 9/6/16 from Aaron Cooke, Architectural Researcher) 31. Schools, parks, recreation, An Education Action Plan was developed to ensure sufficient educational opportunities for school-age children prior to school building. Children will be home-schooled or be given distance learning opportunities and if needed, a temporary teaching facility could be built if needed; Social services will be accessed in Newtok; Due to the remote location, open space and outdoor recreational facilities are not currently planned during the initial phase. (Source: Newtok Village/DOWL Engineering) and social services 32. Emergency health care, fire Х During the initial phase, health care and police services will be provided primarily in Newtok. A MASH unit will be established to provide first aid and limited health care service at the new village site. After the initial phase, a public safety building (for police and fire) and clinic will be constructed at the new village site. Initially homes in the new village site will also be provided with fire suppression equipment. (Source: Newtok Village/DOWL Engineering) and police services Х All goods and services will be obtained in Newtok. After the initial phase, a store will be 33. Commercial/retail and

transportation

Х

34. Other

waste is able to be burned in the local incinerator.

constructed (Source: Newtok Village/DOWL Engineering)

Energy Consumption - The average modern home in Newtok uses 300 gallons of heating fuel every 1-2 weeks. In light of this, housing in Phase I will be 6-star rated homes.

house over the solid waste and desiccating it. This guarantees that odor isn't getting into the house. A ventilation diagram and a photo are attached to this email. The desiccated

Heat will be provided to Phase 1 residents through wood stoves with individual generators providing electricity. Energy consumption by residents in Phase II has not been established. The first homes will have their own generators that feed into battery banks and are solar/wind ready as well as ready to plug into a conventional grid. Current design is focused on self-contained pioneer units that can tie into an electrical grid when a grid is created.

Current plans exceed property and energy-efficiency standards currently established in Alaska. The home is modeled to use approximately 250-300 gallons of heating oil annually. Currently, the average usage in the region is around 800gallons annually.

There are currently three storage containers for heating oil and gasoline (two near the barge landing and another one up near the MEC). A 350kw generator will be used to operate the rock crusher and electricity from it will be provided to residents and other buildings during the initial phase using a 480V line. A #2 diesel tank will be used to store diesel for heavy equipment use and for heating. After the initial phase, a fuel tank farm and power plant will be constructed (Source: Newtok Village/DOWL Engineering)

Demographic Character Changes - No demographic data for the project site exists. The project would not change the demographics of the area. An Elder Housing Model is being developed to accommodate the needs of elderly residents. (Source: Newtok Village/DOWL Engineering)

Displacement - The eventual relocation of all of the residents of Newtok to the new site in Metarvik will result in zero displacement. As additional housing units are constructed, and families from Newtok relocate to Metarvik; activities will be done in accordance with the Uniform Relocation Act to ensure displacement issues, if any, are properly addressed. (AKONAP HUD)

Employment and Income Patterns - The school, clinic, village services and commercial fishing provide employment. Subsistence activities and trapping supplement income. In 2009, 17 residents held commercial fishing permits. The project is not anticipated to affect employment or income patterns. (Source: Newtok Village/DOWL Engineering)

Open Space, Recreation and Cultural Facilities - Due to the remote location, open space and outdoor recreational facilities are not currently planned. No organized recreational opportunities will exist for the initial phase. After the initial phase, a multi-purpose building and/or community gym will be constructed. The Mertarvik Evacuation Center will serve as a community space and would host a variety of cultural events, such be also be Traditional Eskimo Dance, Community meetings and other activities. After the initial phase, a tribal hall, library, and church will be constructed. (Source: Newtok Village/DOWL Engineering)

Transportation - A Long Range Transportation Plan (LRTP) developed in accordance with 25 C.F.R. Part 170 for the Newtok Traditional Council will guide transportation-related decisions. All transportation off-site is currently by boat. Travel within the project site is by 4-wheeler or by foot. An airport serving future residents is anticipated but has not yet been designed. (Source: Newtok Village/DOWL Engineering)

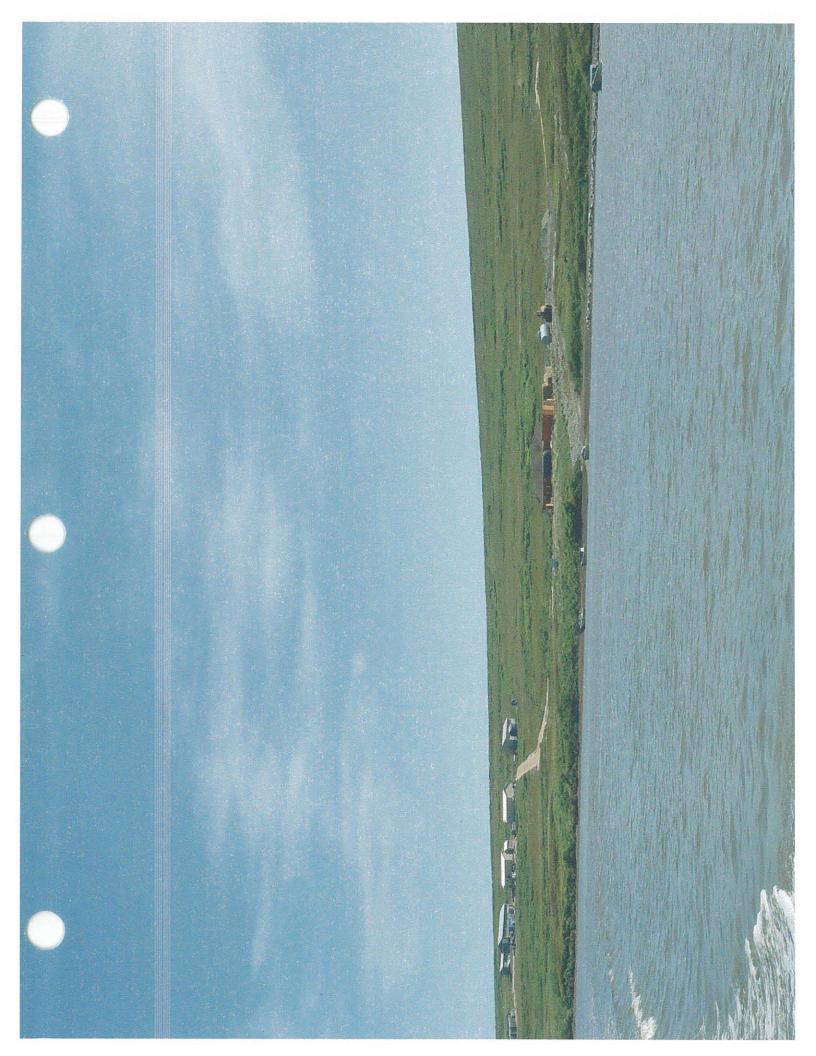
Vegetation and Wildlife -The site is dominated by wetlands with vegetation typical of western Alaska and the lowlands of the Yukon-Kuskokwim Delta. Upgradient of the project site, the vegetation changes to heath tundra, a complex of vegetative associations that vary according to small differences in exposure, drainage, and disturbance. Heath tundra is characterized by a moss and lichen mat on which other plants grow. Sedges and grasses are abundant. In drier areas, woody plants consisting primarily of prostrate or low-growing shrubs are common. In 2005 the Corps of Engineers refined the delineation of wetland and vegetation types around the project site. Wetland vegetation at the project site is composed mostly of palustrine emergent persistent/scrub-shrub evergreen/moss and palustrine emergent persistent/scrub-shrub evergreen/moss and palustrine emergent persistent/scrub-shrub broad-leaved deciduous wetland. Vegetation types are mostly mesic shrub-birch ericaceous and tussock tundra interspersed with low, open willow shrub and blue joint herb shrub complex patches. These wetland and vegetation types are typical and widespread throughout higher ground on Nelson Island and are not unique to the project site.

Small mammals, including voles, shrews, lemmings, short-tailed weasels, and mink, range across much of Nelson Island and could be present throughout the project area.

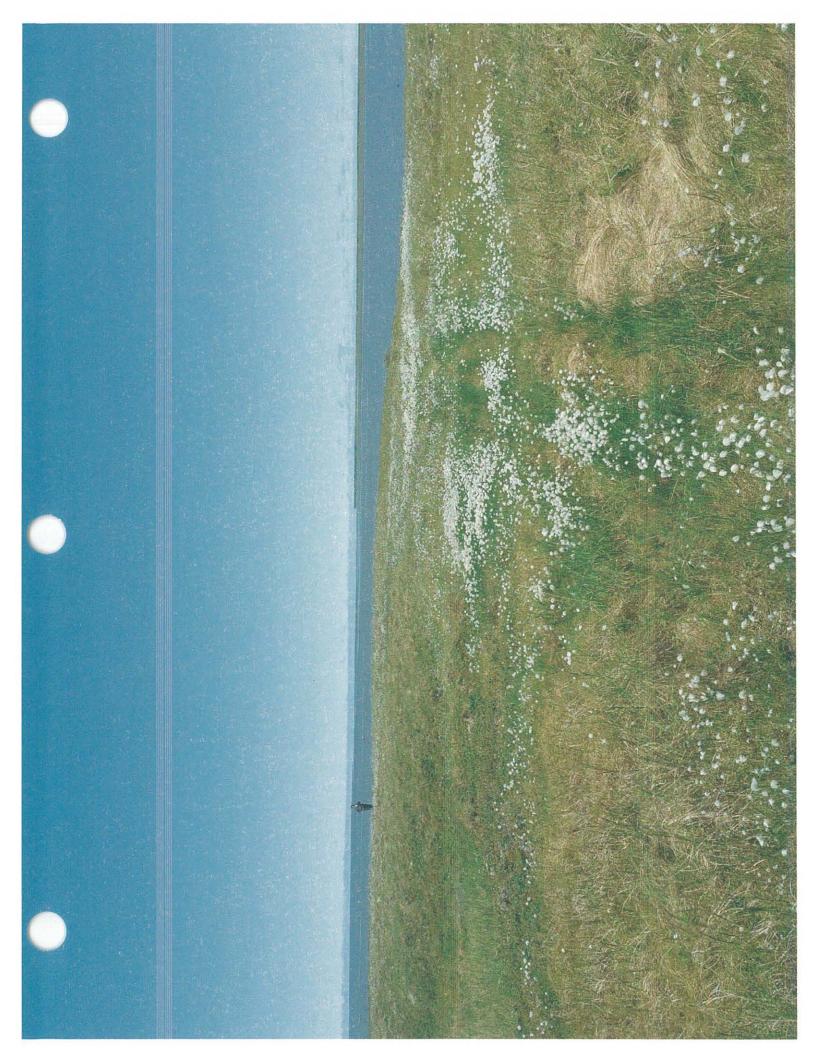
Fish and Wildlife Service biologists noted an abundance of voles and lemmings during an August 2006 field study of the area (USFWS 2006). Reindeer were introduced to Nelson Island in 1934, but there are no reindeer on the island today. There are also no caribou on Nelson Island. Caribou range to north, east, and southeast of Nelson Island, but their range does not extend to the island. The Mulchatna herd, which ranges south of the Kuskokwim River, possibly comes closest to Nelson Island.

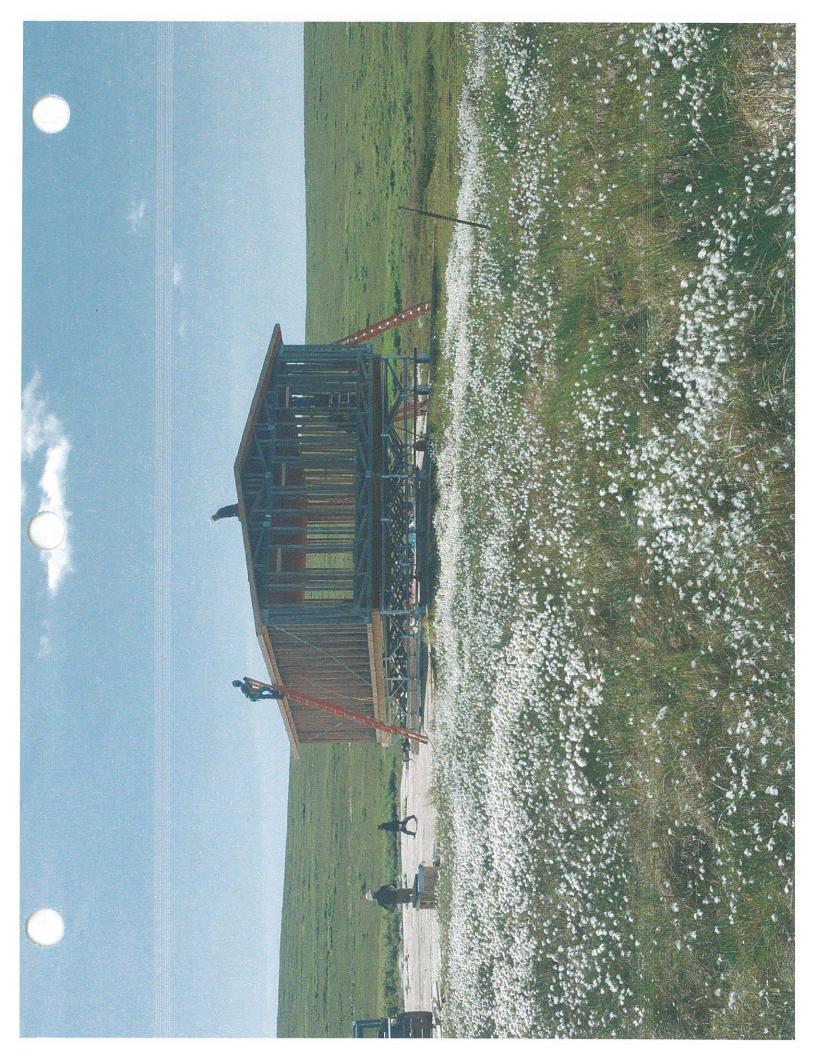
The Yukon-Kuskokwim Delta is rich in bird species diversity, especially during the summer when the delta hosts large numbers of nesting waterfowl. It is one of the most productive areas in the world for geese. Baird Inlet Island, about 5 miles southwest of Newtok and 4 miles north of the project site, is home to a colony of about 4,500 to 10,122 nesting pairs of Pacific black brant. The sea bird colony closest to the project site is on the outer coast of Nelson Island, approximately 40 miles from the site. (Source: 2008 EA)

NEWTOK RELOCATION PROJECT



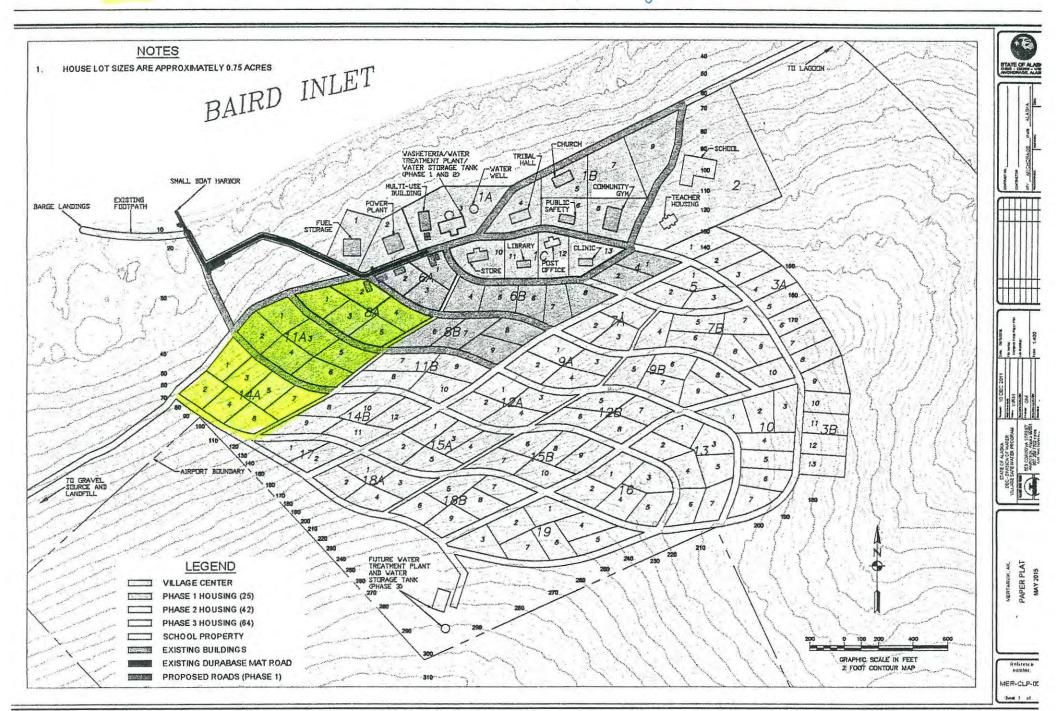


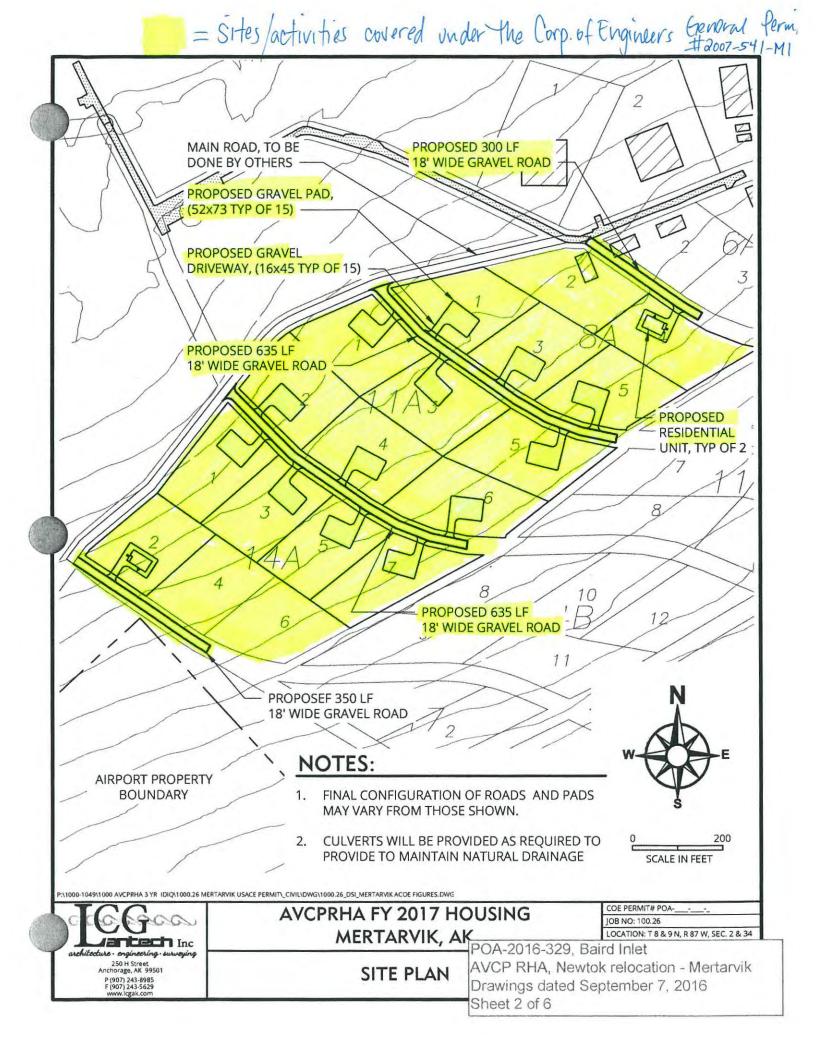


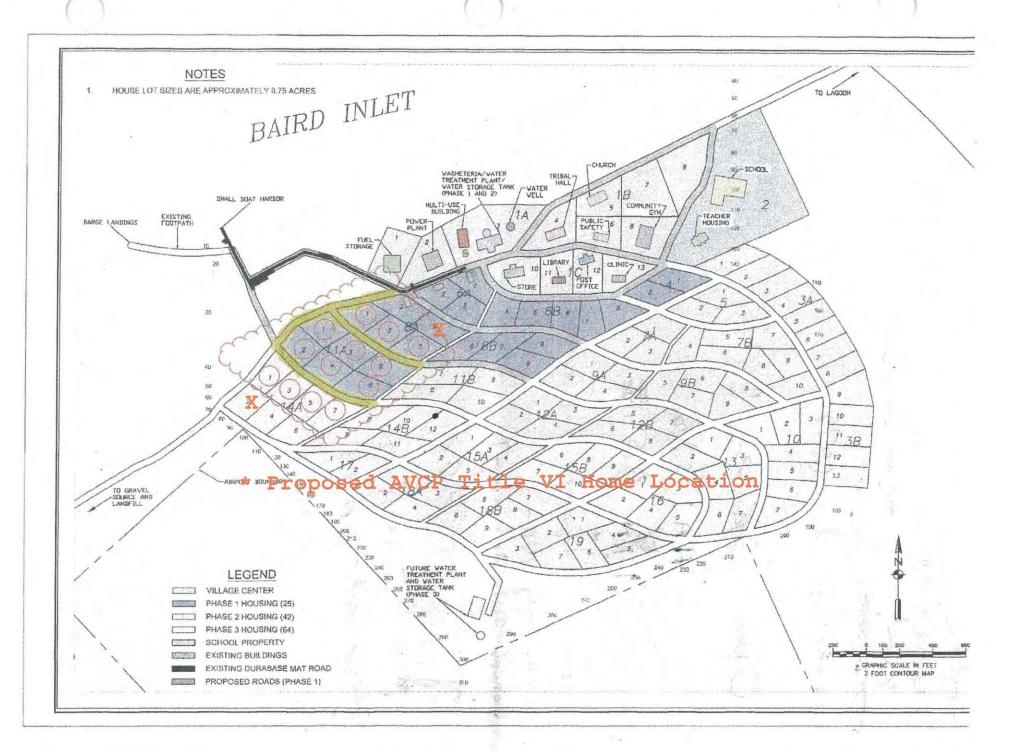


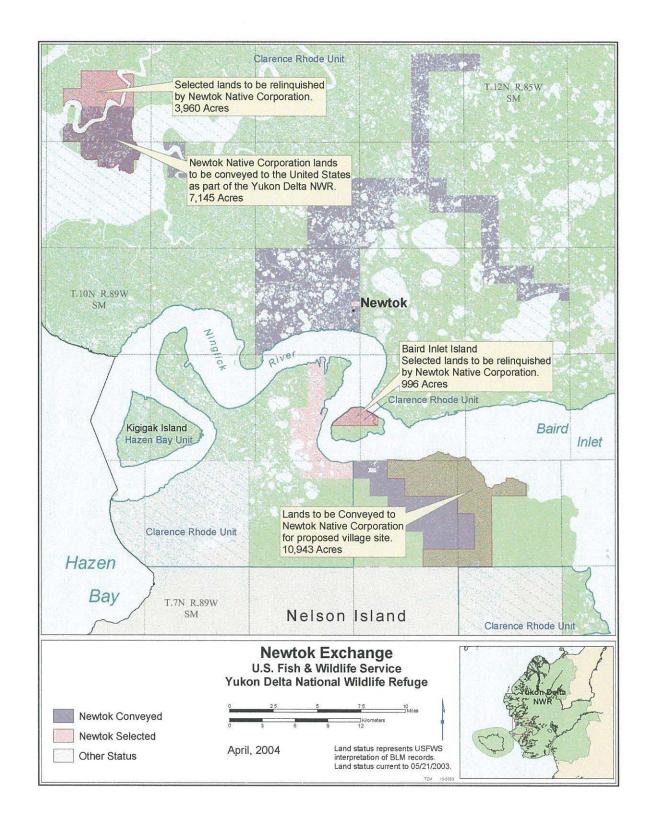
Phase I Howing Village Center NOTES BAIRD INLET HOUSE LOT SIZES ARE APPROXIMATELY 0.75 ACRES PAPER PLAT
MAY 2015 LEGEND VILLAGE CENTER PHASE 1 HOUSING (25) PHASE 2 HOUSING (42) PHASE 3 HOUSING (64) SCHOOL PROPERTY EXISTING BUILDINGS EXISTING DURABASE MAT ROAD PROPOSED ROADS (PHASE 1) Retirence number: MER-CLP-002

Phase II Housing









Introduction

Newtok is a community of approximately 325 residents in the Yukon-Kuskokwim Delta, situated between the Newtok and Ninglick rivers (figure 1). In 1954, the Ninglick River was about 4,000 feet south of the community, but by 2006, the river had moved to within 800 feet of the nearest structures. Over the last 50 years, the erosion problem has been addressed unsuccessfully in many ways. Relocating the community has been proposed as the best solution to the problem. The Newtok Traditional Council (the federally recognized tribe) evaluated six relocation sites through polls of residents in 1996, 2001, and 2003, and the preferred location was Mertarvik on Nelson Island (92% for Mertarvik, 3% for other locations, 5% for other solutions, no votes for relocating to one of the other area communities). Congress approved a land exchange between the Newtok Village Corporation and the U.S. Fish and Wildlife Service in 2003, under the Alaskan Native Village and the Interior Department Land Exchange Act of November 17, 2003 (Public Law 108-129, 117 Stat. 1358). The Department of Interior conveyed 10,943 acres at Mertarvik to the Newtok Village Corporation on April 28, 2004.

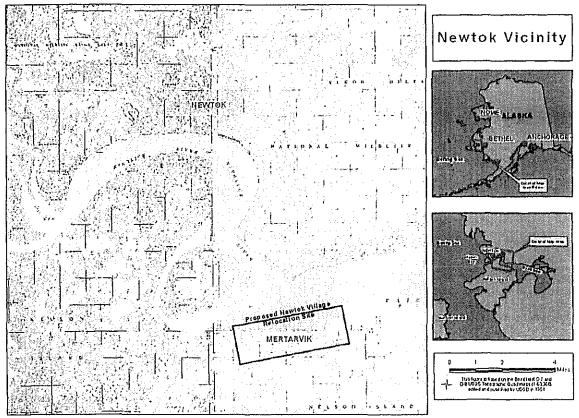
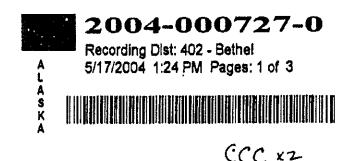


Figure 1. Location and vicinity.

The environment around Newtok is similar to many portions of the lower Yukon-Kuskokwim Delta – a moist low lying plain with little elevation change, a great deal of surface water, and many lakes (figure 2). In contrast, Mertarvik gently slopes to the toe of the Kaluyut Mountains on the north shore of Nelson Island. The underlying basaltic bedrock is volcanic in



The United States of America

Interim Conveyance

AA-85363

This Interim Conveyance is issued by the UNITED STATES, Department of the Interior, Bureau of Land Management, 222 West Seventh Avenue, #13, Anchorage, Alaska 99513-7599, as GRANTOR, to Newtok Native Corporation, P.O. Box 5528, Newtok, Alaska, 99559, as GRANTEE, for lands in the Bethel Recording District.

WHEREAS

Newtok Native Corporation

is entitled to a conveyance pursuant to the Alaskan Native Village and the Interior Department Land Exchange Act of November 17, 2003, Pub. L. 108-129, 117 Stat. 1358, of the surface and subsurface estates in the following-described lands, designated as Proposed Village Site on the map entitled Proposed Newtok Exchange, dated September 2002, referenced in the Act:

Seward Meridian, Alaska

T. 9 N., R. 85 W.,
That portion of Nelson Island lying within:

Sec. 31.

Containing approximately 0 acres.

T. 8 N., R. 86 W.,

Those portions of Nelson Island lying within:

Secs. 3 to 10, inclusive; Secs. 17 and 18; Secs. 20 and 29;

Secs, 31 and 32.

1876

Interim Conveyance No.

Page 1 of 3

Containing approximately 5,563 acres.

T. 9 N., R. 86 W.,

Those portions of Nelson Island lying within:

Secs. 32 to 36, inclusive.

Containing approximately 70 acres.

T. 8 N., R. 87 W.,

Those portions of Nelson Island lying within:

Secs. 1 to 4, inclusive; Secs. 10, 11, and 12; Secs. 35 and 36.

Containing approximately 5,310 acres.

Aggregating approximately 10,943 acres.

Excluded from the above-described lands herein conveyed are the submerged lands, if any, up to the ordinary high water mark, beneath rivers or streams 3 chains wide (198 feet) and wider, and lakes 50 acres in size and larger, which are meanderable according to the 1973 Bureau of Land Management Manual of Surveying Instructions, as modified by Departmental regulation 43 CFR § 2650.5-1, and navigable waters, if any, of lesser size. These submerged lands will be identified at the time of survey. Also excluded from the above-described lands herein conveyed are lands covered by tidal waters up to the line of mean high tide. The actual limits of tidal influence for those water bodies, if any, will be determined at the time of survey.

NOW KNOW YE, that there is, therefore, granted by the UNITED STATES OF AMERICA, unto the above-named corporation the surface and subsurface estates in the lands above described; TO HAVE AND TO HOLD the said lands with all the rights, privileges, immunities, and appurtenances, of whatsoever nature, thereunto belonging, unto the said corporation, its successors and assigns, forever.

THE GRANT OF THE ABOVE-DESCRIBED LANDS IS SUBJECT TO:

1. Issuance of a patent after approval and filing by the Bureau of Land Management of the official plat of survey confirming the boundary description and acreage of the lands hereinabove granted;

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Interim Conveyance No.

Page 2 of 3



- The provisions, conditions, and limitations of the Alaskan Native Village and the Interior Department Land Exchange Act of November 17, 2003, 117 Stat. 1358; and
- 3. Valid existing rights therein, if any.

IN WITNESS WHEREOF, the Secretatry of the Interior has, in the name of the United States, set her hand and caused the seal of the Bureau of Land Management to be hereunto affixed on this 28th day of April, 2004, in Anchorage, Alaska.



UNITED STATES OF AMERICA

Gale A. Norton

Secretary of the Interior

Return recorded document to:

P.O. BOX 4739
PALMER, ALASKA 99645
(907) 746-5970

Interim Conveyance No.___

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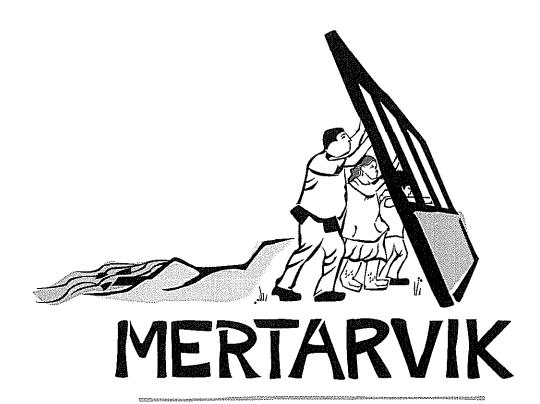
Page 3 of 3



Strategic Management Plan

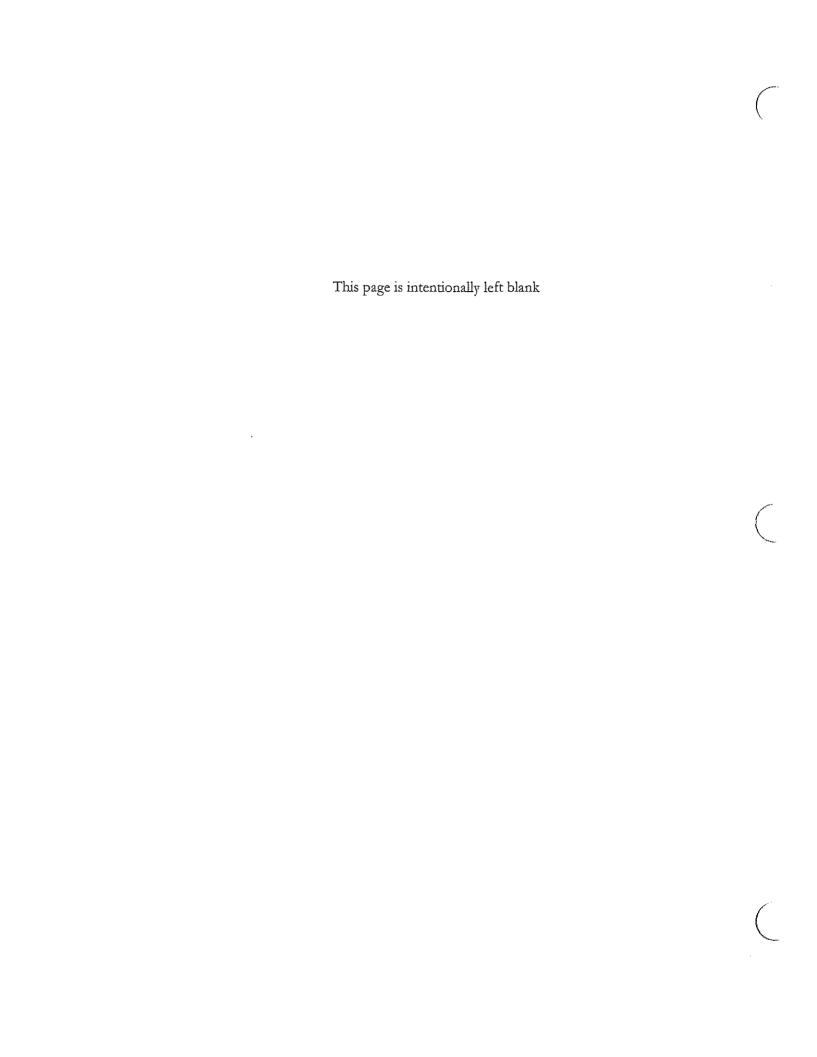
Newtok to Mertarvik

March 2012



Nunaullemteggun ikayuqulluta tamamta, assirluta aknirtenritellerkamtenun, nuggtarllemtenun ciunerkamteni

a community that builds together for the safe and healthy future of Newtok



STRATEGIC MANAGEMENT PLAN :: Newtok to Mertarvik FINAL DRAFT

Prepared for the State of Alaska Department of Commerce, Community, and Economic Development (DCCED)

Division of Community and Regional Affairs by Agnew::Beck Consulting.

This report is funded with qualified outer continental shelf oil and gas revenues by the Coastal Impact Assistance Program, U.S. Fish and Wildlife Service, U.S. Department of the Interior.

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Greg Magee, Program Manager, Village Safe Water Program, Alaska Department of Environmental Conservation

With special acknowledgement to the Newtok Community and the Newtok Planning Group



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Newtok Traditional Council
Newtok Native Corporation
PDC Engineering

Participants of the October 21, 2011 Newtok Planning Group Meeting Robin Bronen, University of Alaska Fairbanks, Resilience and Adaption Program USKH, Inc.

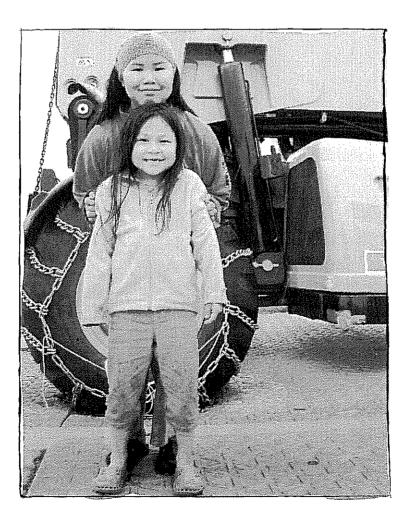
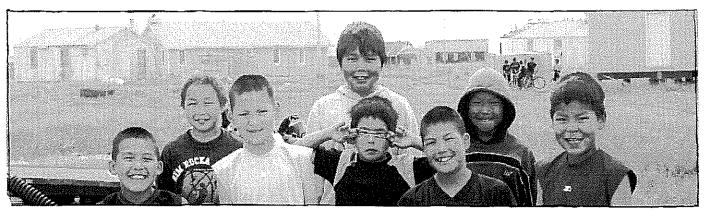
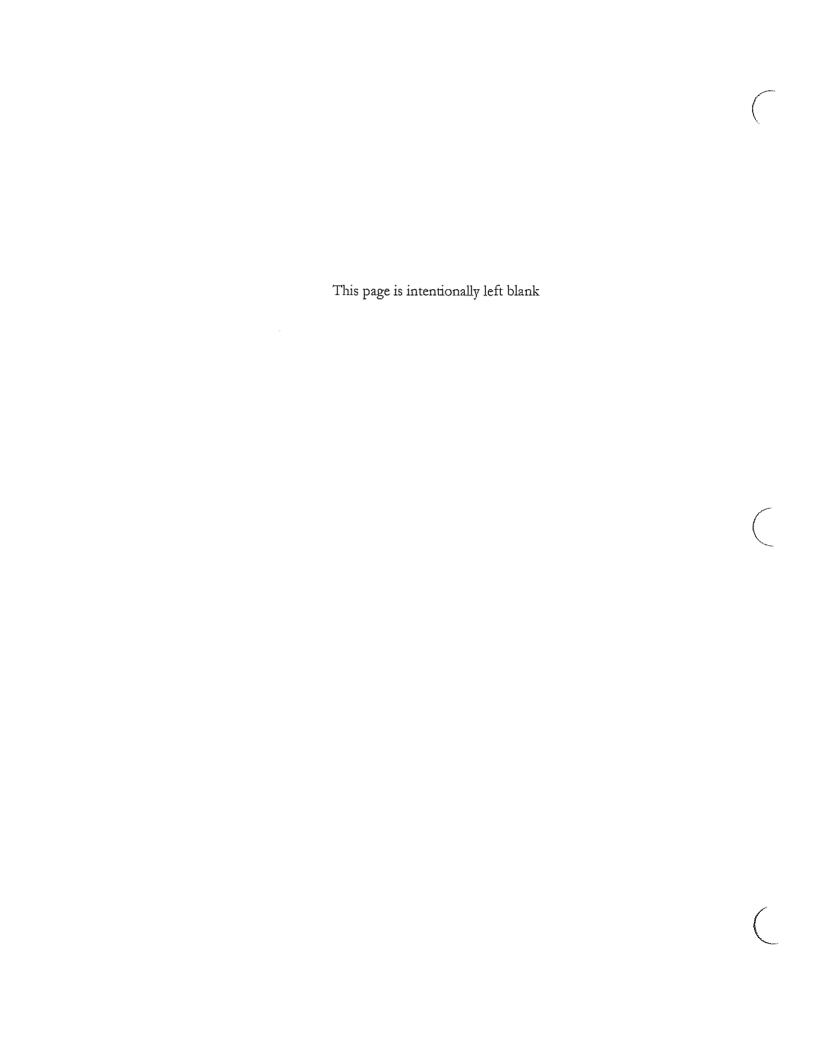


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Cover photo of Mertarvik site by Agnew::Beck Consulting, Photo of Newtok children by PDC Engineers. Report photos by Agnew::Beck Consulting, or PDC Engineers unless otherwise noted.



A Message from the Community

March 9, 2012

It is with excitement and great pride that we share with you our *Strategic Management Plan – Newtok to Mertarvik*. This document will chart the course of our future, which is to relocate as a community to Mertarvik. We will not be separated. We will stay together and we will move together.

Not that long ago the water was far from our village and could not be easily seen from our homes. Today the weather is changing and is slowly taking away our village. Our boardwalks are warped, some of our buildings tilt, the land is sinking and falling away, and the water is close to our homes. Our infrastructure that supports our village is compromised and affecting the health and wellbeing of our community members, especially our children. Our children should not know the governmental term "disaster declaration."

We saw the changes coming, we consulted our elders, and we have taken steps to move to safer land. By a vote of the people we selected Mertarvik as the place for our new village and we worked for many years to secure the land. Mertarvik is a place that we know well as we frequently stop there for fresh water before hunting and fishing trips. It is on higher ground and it will provide us with a safe site on which to build our new village.

Over five and a half years ago we joined with the State of Alaska and federal and regional agencies to create the Newtok Planning Group. This joint effort was new and has been led by Maligtaquyarat, our guiding principles, as it is our desire that our relocation be defined by our Yup'ik way of life. We have had the great benefit of working with dedicated, thoughtful partners. We believe these years have seen significant progress and this Plan is an indicator of that progress.

As we look to the future we are dedicated to the hard work of moving our community. We are strong people and are used to hard work. It has taken years of partnership to get to this point, but we also know that the water is getting closer and time is running out. With this Plan, we look to both renew the commitments with our current partners and to develop relationships with new partners to help us turn this document into action and to make our move to safer land a reality.

We have taken instruction from our elders, who are our advisors and our greatest resource. We owe it to our elders to provide them with a life where they can focus on community and our culture and not worry about the water coming into the village. We owe it to our children to provide them with a life where they do not worry about illness or the coming of the next storm. We will all sleep better when we know that our elders and children are safe.

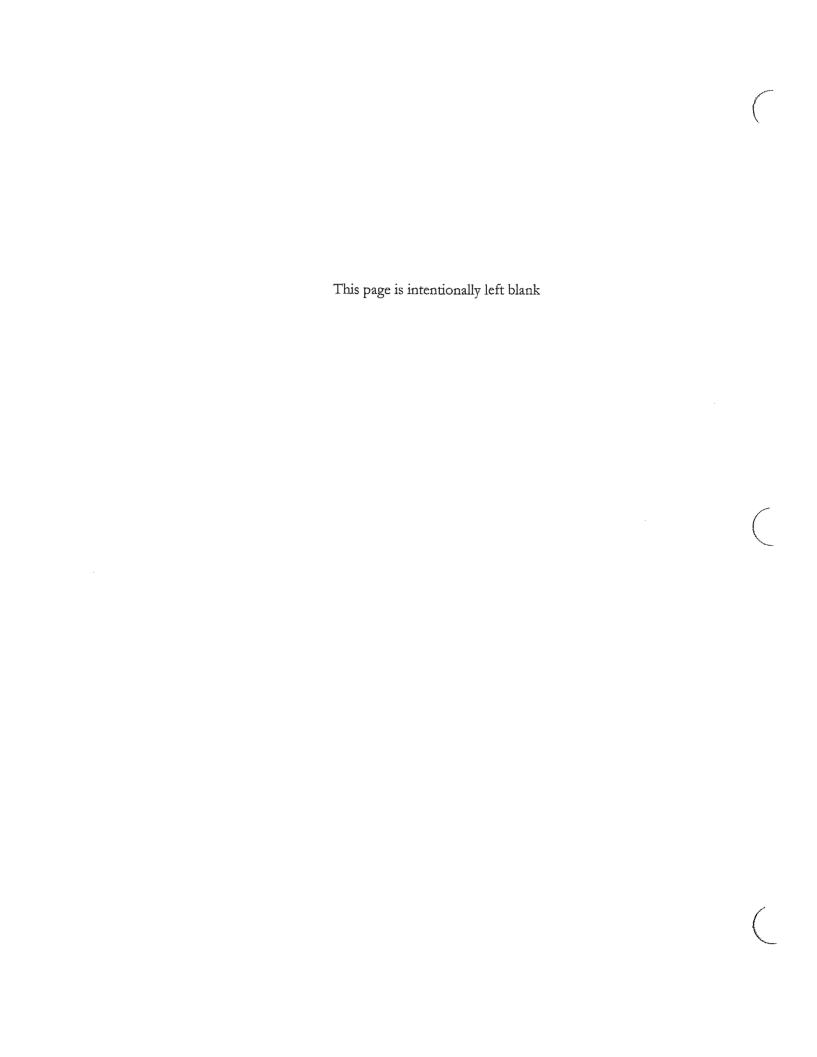
With the guidance of our elders, we look forward to working with current and future partners who share our collective vision of creating our new village in accordance to our guiding principles. Thank you for helping us move our village.

Moses Carl

George Tom

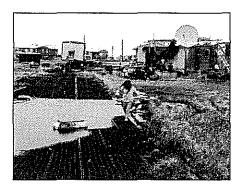
Newtok Traditional Council

Newtok Native Corporation



Introduction

Newtok is a growing Yup'ik Eskimo village located on the Yukon-Kuskokwim Delta along the western coast of Alaska, near the confluence of the Newtok and Ninglick Rivers. As detailed in the accompanying Relocation Report::Newtok to Mertarvik (August 2011),¹ the community's health and safety are currently threatened by severe coastal erosion and flooding. The Ninglick River, which is tidally influenced and connects Baird Inlet to the Bering Sea, is eroding toward the village at an average pace of 72 feet per year (with an observed rate of up to 300 feet in one

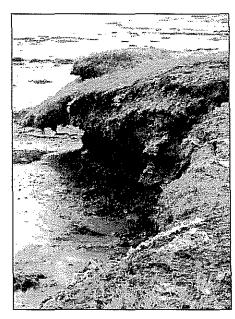


The community's health and safety are currently threatened by severe coastal erosion and 'flooding.

year) and has been moving toward the village for decades. Erosion projections (last updated in 2007) indicate that the river could reach the school by 2017.1

Although the fast pace of erosion is alarming, it was the capture of the Newtok River by the Ninglick River in 1996 that has had the most dramatic impact on livability of the current village. Nearly overnight, the village became more susceptible to storm surges on the Ninglick River due to the direct hydrologic connection. The Newtok River, which runs alongside the village, turned from a free flowing river into a slough. When the slough silted in, commercial vessels could no longer navigate to the village and honey bucket waste no longer flowed out. These changes, which are likely exacerbated by climate change and thawing permafrost, have increased the frequency and severity of flooding in Newtok during the last decade.

A powerful storm surge can raise tide levels 10 to 15 feet above normal. Severe flood events, such as the 20-year flood of 2005 and the lesser flood of 2006, permeate the village water supply, spread contaminated waters through the community, displace residents from homes, destroy subsistence food storage, and shut down essential utilities. The U.S. Army Corps of Engineers (USACE) predicts that a 50-year flood would flood almost the entire community. Staying in place is not an option for Newtok. On November 8th of this year, the National Oceanic and Atmospheric Administration (NOAA) issued a severe storm warning for the western coast of Alaska. The posting concluded with "[t]his will be an extremely dangerous and life threatening storm of epic magnitude rarely experienced" - a powerful reminder of Newtok's vulnerability.



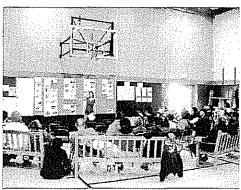
Erosion projections (last updated in 2007) indicate that the river could reach the school by 2017.

In early 2006, the Newtok Traditional Council requested assistance from the DCCED Division of Community and Regional Affairs (DCRA). Despite the community's acquisition

¹ The Relocation Report includes citations for the background information summarized within this section.

of a suitable new village site, Newtok was facing resistance with its relocation effort, the threat of erosion was ever present, and no state or federal agency was authorized to relocate an Alaskan community. DCCED is directed through two State of Alaska Administrative

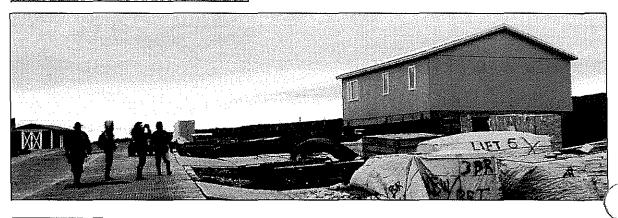
Residents discuss
the phases
of relocation
and what life
might be like
in Mertarvik
and Newtok as
the community
moves.





Orders² to "to act as the state coordinating agency to coordinate with other state and federal agencies to propose long-term solutions to the ongoing erosion issues in ... affected coastal communities in this state." In order to carry out this coordination for Newtok, the Newtok Planning Group (NPG) was formed.

Under this backdrop, the community and their NPG partners have made significant progress laying the groundwork for the future townsite, Mertarvik. Amongst the progress, the NPG saw the need to develop a strategic management plan for the relocation and, in doing so, set clear direction and priorities for relocating Newtok to Mertarvik. DCCED secured a grant for the SMP through the federal Coastal Impact Assistance Program and in January 2011, awarded a contract for the project. This document represents the culmination of a year-long effort that included two community-wide meetings in Newtok, two Newtok Traditional Council meetings in Newtok, a site visit to Mertarvik, three Newtok Planning Group meetings, more than forty-five stakeholder and potential funder interviews, and numerous planning sessions.



State of Alaska Administrative Orders 231 and 239

Why Develop a Strategic Management Plan?

The goal of the Mertarvik Strategic Management Plan is to set a common vision for relocating the village of Newtok through a plan that provides guidance to all activities at Mertarvik, with a focus on priority actions during the next three years. The reasons for producing a strategic management plan are many:

Develop a Collective Vision

With growing concerns and urgency to relocate before Newtok is destroyed by erosion, it is important to focus the resources of the community and supporting partnerships behind a common vision and common set of priorities.

Establishing a Framework for Other Plans

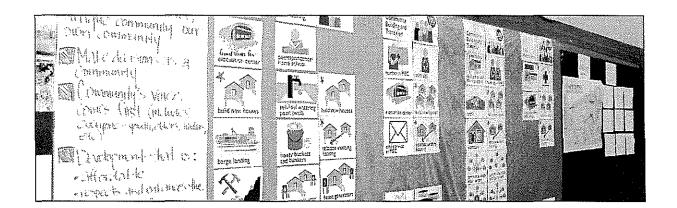
The strategic management plan acts like an "umbrella document" for relocation activities. All other plans, policies and strategies will support the strategic management plan and take direction from it.

Communicating the Strategic Plan

Strategic planning establishes and communicates the community vision, guiding principles and strategic actions in a positive and practical way to everyone in the community, government agencies, and other organizations.

Entering Into Effective Partnerships

A strategic management plan provides the basis for strengthening existing and building new partnerships with different levels of government, as well as other partners and funders. These partnerships are essential to achieving the strategic actions of the plan.



Mission Statement + Maligtaquyarat (Guiding Principles) for Mertarvik

Mission

The mission of the Mertarvik Relocation is to create a safe and self-sustainable village for this and future generations that is built by and governed by our own people working together as a tribe and people unified by our history, cultural traditions and language.

Maligtaquyarat (Guiding Principles)

On March 27, 2012, the Newtok Traditional Council unanimously passed and approved a set of guiding principles for the community's relocation to Mertarvik (Newtok Traditional Council Resolution 12-12, page 26). It is the hope and intent of the Newtok Traditional Council that all community residents and partners working toward the relocation will respect and promote these guiding principles.

The relocation of Newtok will be defined by our Yup'lk way of life. Our Guiding Principles are:

- Remain a distinct, unique community our own community.
- · Stay focused on our vision by taking small steps forward each day.
- Make decisions openly and as a community and look to elders for guidance.
- Build a healthy future for our youth.
- Our voice comes first we have first and final say in making decisions and defining priorities,
 by implementing nation-building principles and working with our partners.¹
- Share with and learn from our partners.
- No matter how long it takes, we will work together to provide support to our people in both Mertarvik and Newtok.
- Development should:
 - Reflect our cultural traditions.
 - Nurture our spiritual and physical well-being.
 - Respect and enhance the environment.
 - Be designed with local input from start to finish.
 - Be affordable for our people.
 - Hire community members first.
 - Use what we have first and use available funds wisely.
- Look for projects that build on our talents and strengthen our economy.

Two Approaches to Economic Development on American Indian Reservations: One Works, the Other Doesn't by Stephen Correll, and Joseph P. Kalt, 2006. The Harvard Project on American Indian Economic Development.

Vision: Relocation Plan to Mertarvik

'One thing that we gain from pioneering is continuing and honoring our values. If we rely on the western society's way of life, that's forgetting who I am. We need to go back to our way of life. We have to start somewhere.'

- Newtok Traditional Council Member

The Mertarvik Relocation Plan (Figure A, page 7) defines the long-term vision and goals for relocating Newtok. The Plan delineates four phases: the Getting Ready Phase, the Pioneering Phase, the Transition Phase (which includes early and late stages) and the Final Move Phase. These phases are driven by population levels at Mertarvik. The Relocation Plan also organizes work into nine strategic focus areas – site preparation; transportation; housing; drinking water, sewer, and solid waste; health and safety; communications; education; energy; and community resources – and sets clear goals by phase for each area. Priority strategic focus areas are discussed in detail in the next section while a description of each of the relocation phases is included below.

Phase I: Uplluteng (Getting Ready) Population 0

The getting ready phase refers to the current phase of development. The groundwork is being laid for future phases. This phase includes activities and infrastructure such as selecting the site, developing the quarry, drilling two drinking water wells, completing a Community Layout Plan and a Strategic Management Plan, conducting a harbor feasibility study, creating a topographic map to facilitate surveying, and building a barge landing, initial houses, pioneer roads, airport planning, and the foundation of the Mertarvik Evacuation Center (MEC). Efforts in this phase are now well established.

Phase 2: Upagluteng (Pioneering) Population ~25 to 100 People

Upagluteng refers to the traditional practice of moving with the seasons. The icons in this phase of the Relocation Plan depict what life might be like for the first residents living at Mertarvik. Self-haul water, honey buckets, wood stoves, and individual house generators, correspondence and home schooling, and VHF radio are some of the likely characteristics defining early life in Mertarvik. New technologies for waste water treatment and alternative energies might be piloted during this phase. For safety, residents will likely move back to Newtok during the spring and fall when movement back and forth to Mertarvik via water would be challenging and potentially dangerous because of annual thaw and freeze cycles.

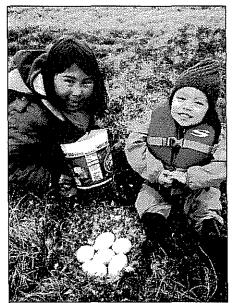
Phase 3: Nass'paluteng (Transition) Population ~100 People or More

In Yup'ik, Nass'paluteng refers to periods of transition. During the transition phase, more and more community members will make the move to Mertarvik. Early in this phase, a health aide and teacher(s) might be in place to provide health care and education. The MEC will be completed and serve as a multi-functional community facility. A pioneer runway may be completed and larger-scale demonstration projects might test promising technologies as agencies explore sustainable solutions for basic services. As the population -grows, reaching 200 or more, community systems that can later be scaled to meet the entire community's needs should be agreed upon and established for water, wastewater, energy, and communications. An airport, a landfill, a small school, a store, and community greenhouse might be set in place during this phase as well.



Phase 4: Piciurlluni (Final Move) Population 350 People or More

Piciurlluni means "We made it!" in Yup'ik. This stage represents the final move of all Newtok residents to the new town site. The systems developed during the transition phase are scaled to accommodate more people and more houses. Additional community facility projects, such a large school, a clinic, and a tribal court, are completed.



Photos by Carolyn George.

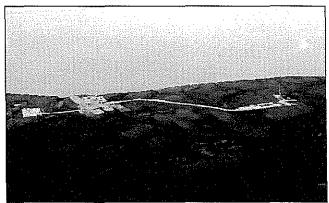
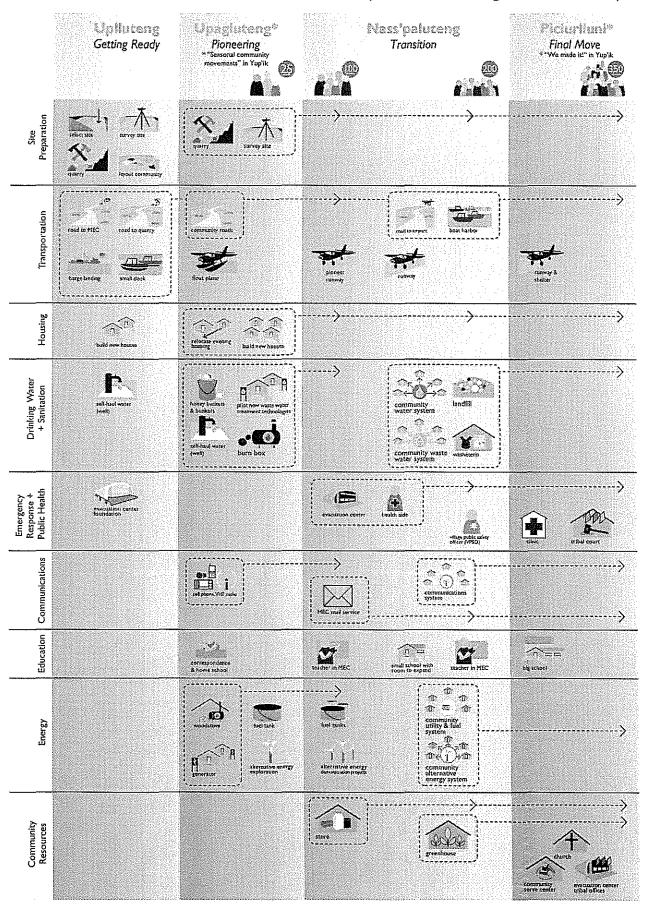
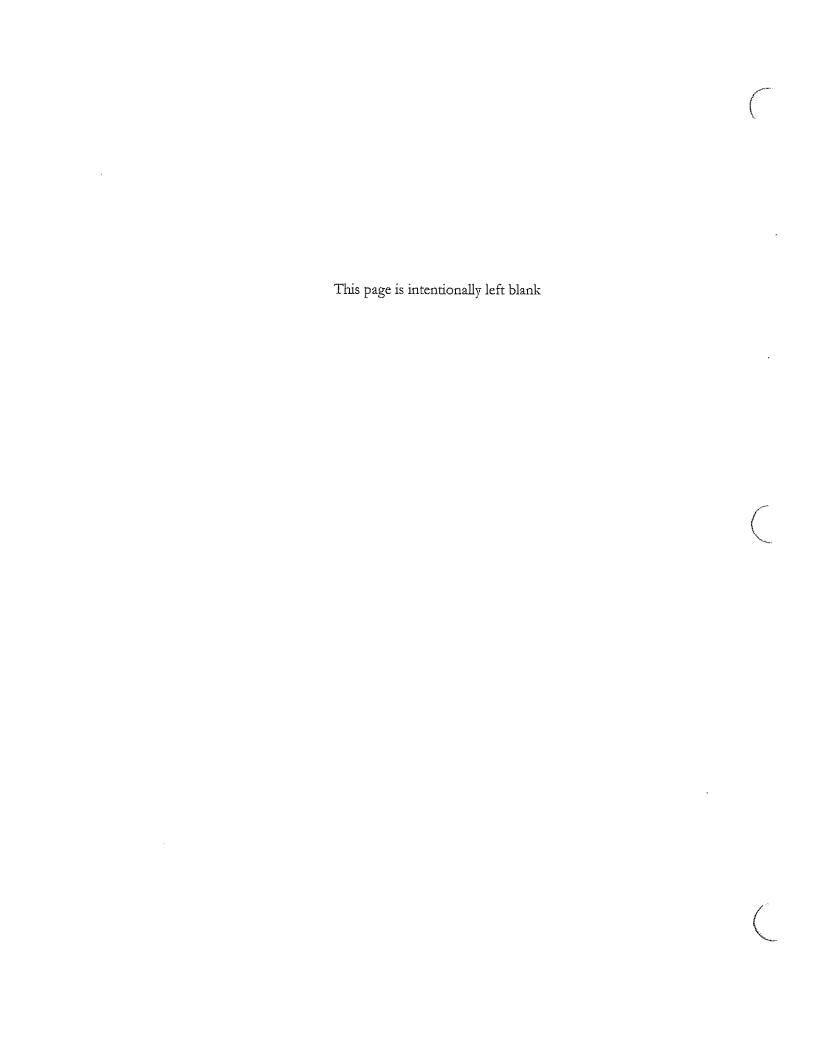


Figure A. Mertarvik Relocation Plan (Vision + Long-Term Goals)





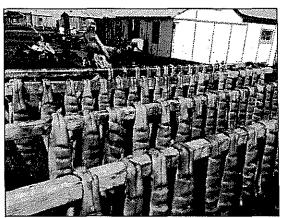
Strategic Focus Areas: 2012-2015 Action Plan

This section includes a discussion of strategic focus areas and lays out priority actions that should be undertaken by the community and their partners over the next three years, 2012-2015. The "priority" label indicates the importance of these actions to the relocation as a whole, but especially during the Pioneering phase. Completing these action items over the next three years is critical to the successful implementation of the overall Relocation Plan that will take place over the next ten to fifteen years. The intent of the priority actions is to jump-start progress in each strategic focus area, which in turn will trigger additional opportunities and investment for the relocation effort.

Strategic focus areas include:

- site preparation
- · building capacity
- emergency response and public health
- housing
- · drinking water and sanitation
- transportation
- education
- energy
- communications and community resources
- Newtok closure and restoration

As the community makes progress on current priorities, they will update the SMP to include new priority actions for each focus area. The result is a three-year action plan that draws from interviews and input from the community and a wide range of stakeholders.





Photos by Carolyn George.



Focus Area: Site Preparation 2012-2015 Action Plan

Surveying, Site Control, Planning, Quarry Development

OBJECTIVES

- Develop a village plan that sets a practical framework for guiding near-term locations of housing, community buildings and infrastructure, but is flexible enough to allow for incremental, organic growth.
- Survey parcels to provide for clearly defined ownership and/or rights to use designated lots.
- Secure material and equipment for essential pioneering site preparation.

I. Fund and prepare refined townsite plan.

PRIORITY ACTIONS

- 2. Secure funding for and complete townsite survey.
- 3. Clarify land ownership issues and develop a site control process both between Newtok Native Corporation and the Newtok Traditional Council, and between these entities and other involved organizations and individual users.
- 4. Determine method for assigning housing lots to individuals.
- 5. Establish basic development rules for placing homes on lots.
- 6. Secure materials for and construct essential pioneering roads.
- 7. Continue developing the quarry resource.

Focus Area: Building Capacity 2012-2015 Action Plan

Community-Agency Partnership Structure, Workforce Development, Quarry Development and MCDC

"I have confidence about this early more. When I was one or two years old, my family moved. I focus on the time when people decided to move. I believe our sovereign way of life will be stronger—we can start a new life, a new village. We shouldn't wait. We need to encourage ourselves to do it ourselves. The elders have said we need to change ourselves; we need to start a new beginning and new life. Leave hate and anger and put it away and start a new life."

- Newtok Traditional Council Member

OBJECTIVES

And the second s

- Build partnership capacity to drive the relocation process (with and without external funding).
- Expand organizational capacity of the Mertarvik Community Development Corporation (MCDC).
- Develop a skilled workforce that can pursue, construct, and maintain infrastructure at Mertarvik and help close and restore Newtok.

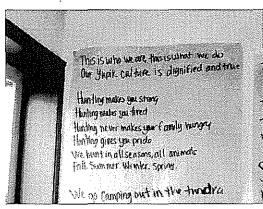
www.cinggetechnical.org.com

1. In the spirit of the Guiding Principles, Newtok will identify additional partners to work with the Newtok Planning Group to implement the SMP.

PRIORITY ACTIONS

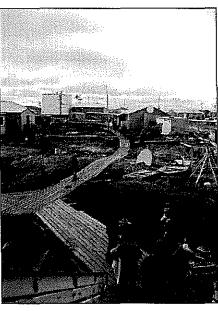
- 2. Determine role of MCDC and ramp up key functions required to support relocation efforts.
- 3. Assess existing local workforce skills and identify skills needed to complete upcoming projects; create a training plan to address labor needs and fill strategic skill sets.
- 4. Investigate feasibility of selling gravel and rock from quarry to region and invest profits in Mertarvik development.
- 5. Build relationships with foundations

 establish connections and be able
 to tell the story.



The guiding principles for the relocation draw upon the community's heritage and values. This poster hangs in the Newtok school.





A top priority for the project team was working with the community to develop a shared vision and framework for the relocation. Residents leave the school after an evening meeting.

Focus Area: Emergency Response + Public Health 2012-2015 Action Plan

Completion of Mertarvik Evacuation Center; Pioneer and Long-term Health and Safety

OBJECTIVES

- Provide a safe place for Newtok residents during a storm or flooding event.
- Create and implement a plan to protect health and safety of pioneers.
- Begin to plan for long-term health care needs and facilities.

PRIORITY ACTIONS

- 1. Determine whether current design will be used for MEC and, if not, engage in a redesign process.
- 2. Hire a construction project manager for MEC; train and secure local labor for 2012 construction season.
- Develop and implement funding strategy for remaining MEC construction needs.
- Identify trained health professional as a pioneer; secure space to act as housing and a place to practice temporarily, until MEC is constructed.
- 5. Complete MEC vertical wall construction.
- 6. Identify funding for assessing the feasibility of moving the existing clinic and begin developing long-term plan based on findings.

Focus Area: Housing 2012-2015 Action Plan

Assessment and Relocation of Existing Housing; Design, Funding and Construction of New Housing

OBJECTIVES

- Develop a financing and construction strategy for meeting the community's housing need.
- Assemble materials, resources and knowledge from construction training to outside funding – so residents can move to Mertarvik.
- i. Complete tasks outlined in Site Preparation.

- PRIORITY ACTIONS
- 2. Conduct housing survey to assess conditions in Newtok and determine specific needs in Mertarvik.
- 3. Develop a housing strategy.
- 4. Relocate Newtok houses.
- 5. Implement housing programs / continue to build new homes.
- 6. For new and relocated houses, research appropriate energy efficient technologies (space heating and electricity); identify funding needs to integrate those technologies; match need to funding opportunities.

Focus Area: Drinking Water + Sanitation 2012-2015 Action Plan

Feasibility Study - Analyze and Select Alternatives for Phases 2, 3, and 4 and Secure Funding for Design and Construction

OBJECTIVES

- Prepare a feasibility or preliminary engineering study to evaluate options for meeting the drinking water and sanitation (wastewater and solid waste) needs of Phases 2, 3, and 4 of the relocation plan.
- Secure funding to design the recommended alternatives for Phases 2, 3, and 4.
- Secure funding for the construction of the Phase 2 improvements.
- Construct the water and sewer infrastructure for Phase 2.

PRIORITY ACTIONS

- 1. Develop practical and affordable solutions that will provide the drinking water and sanitation facilities for the Mertarvik pioneers (Phase 2).
- VVork closely with Village Safe Water to identify and evaluate alternatives for either a centralized or decentralize water and wastewater system, including moving any of the existing infrastructure to Mertarvik.
- 3. Ensure that the alternative or alternatives selected for Phases 3 and 4 are sustainable by developing a business plan.
- 4. Seek and obtain funding for design of Phase 2, 3, and 4 and for construction of Phase 3.

Focus Area: Transportation 2012-2015 Action Plan

OBJECTIVES

- Meet immediate needs for access to/from and within the community for pioneers including a pioneer road system and float plane access.
- Build pioneering infrastructure needed to support future infrastructure and development projects.
- Work together to complete the Waterfront Development Plan and continue to use the existing barge landing and beach to safely moor community boats.

PRIORITY ACTIONS

- 2. Take advantage of the Newtok Long Range Transportation Plan.
- 3. Determine feasibility of quarry for gravel to develop pioneer road system and boat landing protection (more in "Site Preparation").
- 4. Clearly identify what roads are included in the "pioneer road system" and apply for funding.
- 5. Identify pioneer runway permitting, right of way, design and construction.

Focus Area: Energy 2012-2015 Action Plan

OBJECTIVES

- Have an energy efficient community; maximizing renewables.
- Have reliable and well maintained energy systems.



- 1. Finalize strategy for pioneering energy needs.
- 2. As part of the site planning process, choose locations for fuel storage and a diesel generator that allow use of waste heat for commercial buildings.
- 3. Investigate renewable and low cost energy solutions.
- 4. Seek funding to leverage vendor and engineering resources to design, install and demonstrate new, sustainable approaches to energy generation and conservation.



Focus Area: Education 2012-2015 Action Plan

OBJECTIVES

STATES AND STATES AND

• Sufficient educational opportunities for pioneering kids and youth.

i. Survey community to better understand short and long-term education delivery needs including the potential number of students at Mertarvik in different relocation phases.

PRIORITY

- 2. Work with pioneering families to secure sufficient correspondence and home school materials.
- 3. Develop a solution for temporary teaching facility at MEC or different location if MEC completion is further out than anticipated.
- 4. Begin planning process with LKSD for new facility that includes plan for closing down existing school.



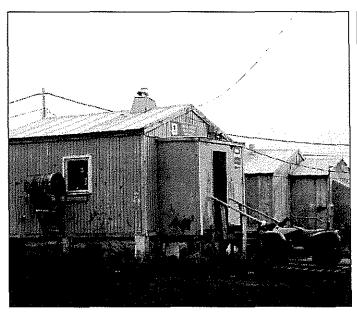
Focus Area: Communications + Community Resources 2012-2015 Action Plan

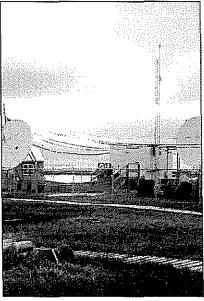
OBJECTIVES

- Ensure reliable communication between pioneers and Newtok, nearby communities and beyond.
- Ensure access to and protection of food sources.

PRIORITY ACTIONS

- 1. Ensure all pioneers have a cell phone and/or VMF radio.
- 2. Identify feasibility of mail service via float plane or drop service.
- 3. Develop cold storage facility for subsistence foods.
- 4. Research funding options for community garden/greenhouse.





Focus Area: Newtok Closure + Restoration 2012-2015 Action Plan

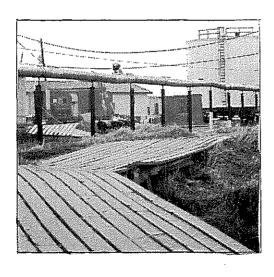
Health and Safety of Residents; Restoration of Land

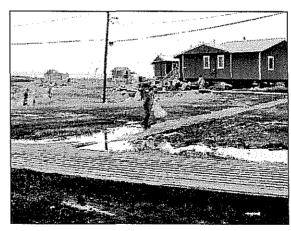
"(The community) would like to say a graceful goodbye to Newtok; we won't he able to see the old village but we will return to some of the same areas for subsistence activities."

- Stanley Tom, Newtok Traditional Council, Tribal Administrator

OBJECTIVES

- Ensure health and safety of Newtok residents.
- Develop a clear plan for the eventual closure and restoration of Newtok.
- · Develop support mechanisms for pioneer families.





Cleanup and restoration of the current village site is an important priority.

"I use[d] to volunteer [to] cleanup our village and it made a big difference. I hope the whole community will help each other and make a big, big difference. I know when the whole community help[s] each other the time will go fast."

Community Member in Letter
 Shared with Agnew::Beck

PRIORITY ACTIONS

- 1. Practice emergency plan including the instant command system.
- 2. Inventory village resources that can be used at the new village site.
- 3. Develop preliminary, mid- and long-term plans for closing and restoring the village.
- 4. Identify immediate activities to support pioneering families and assign tasks that community members can conduct in Newtok.



Mertarvik 2012-2015 Action Plan + Proposed Schedule

		20	012	,20	13	. 20)14
Strategic Foo	cus Areas	winter/ spring	summer/ fall	winter/ spring	summer/ fall	winter/ spring	summer/ fall
Site Preparat	ion	Marina mana	****	***************************************		2001 PEN 1000 PEN 100	***************************************
	1. Fund, develop townsite plan						
$-\Lambda$	2. Fund, carry out survey						
/1/	3. Resolve land ownership questions4. Determine lot allocation strategy						
	5. Construct pioneer roads						
	6. Establish basic housing development rules						
Salado (Aliado proportina por esta de esta esta esta esta esta esta esta est	7. Develop quarry resource	Colorica Constitute Annice Constitute Consti		**************************************			
Building Capa	icity fields of the control of the						
eta , 🚜	I Identify partnership team		F 10 (10 (15 f)	160 30 33 13			
	2. Define MCDC role, strengthen functions						
	Assess needed skills, create training plan Assess regional demand for rock/gravel						
	5. Build relationships with foundations						
Emergency R	esponse + Public Health						
and the second of the second of the second	I. Redesign MEC if necessary				\$3000000000000000000000000000000000000		1393 1000 650 BA
	2. Hire MEC construction manager and crew						
	3. Develop, implement MEC funding strategy						
*CONTRACTOR (CONTRACTOR)	4. Identify health professional pioneer5. Complete MEC vertical construction						1
	6. Develop long-term plan for clinic						
Housing							
	1. Complete site preparation tasks						
	2. Conduct housing survey					Al IA dea Market (complete con la contract	
	3. Develop a housing strategy			100		even e	
	4. Relocate houses5. Implement housing programs						
	6. Research housing energy technologies						
Drinking Wate	r+ Sanitation						
	I. Identify practical system alternatives			i wa wada shiil		i presidentis	1 10 60 7 10 60 60 60 6
H	2. Evaluate + select alternatives						
	3. Develop business plan	WAR-174-000-00				200000000000000000000000000000000000000	
	4. Pursue funding for design + construction						

= project initiation = project maintenance

Mertarvik 2012-2015 Action Plan + Proposed Schedule (cont'd)

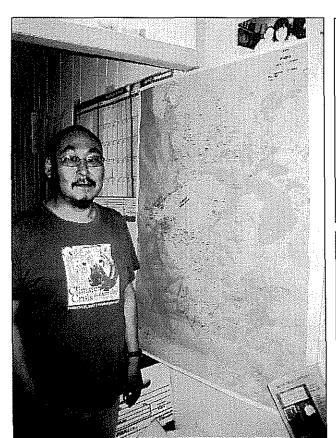
		20	12	. 20	13	20	14
Strategic Foc	us Areas	winter/ spring	summer/ fall	winter/ spring	summer/ fall	winter/ spring	summer/ fall
Transportation	n						
	 Complete Waterfront Development Plan Newtok Long Range Transportation Plan Determine gravel development feasibility Identify pioneer roads + apply for funding Runway permitting, design + construction 						
Energy	Finalize pioneer energy provision strategy Locate fuel storage + generator Investigate renewable/low-cost energy Funding for energy demonstration projects	:	Antonia (Control of Control of Co	Solution and a con-			
Education						SIRANI DI SERVIZIONI DI CONSTRUIRI	***************************************
	Determine education needs (survey) Home school materials for pioneer families Temporary teaching facility Plan for new school + closing old facility	Area thanso Areary, a. C.	The Linear Allegan		The second second seconds	a sasagouardia rhysmanid	Piter are out on the execute by
Communicati	ons + Community Resources						
	 Cell phones/VHF radio for pioneers Feasibility of mail service Develop cold storage facility Research funding for garden/greenhouse 						
Newtok Closu	re + Restoration						
	 Practice emergency plan Inventory resources useable at Mertarvik Develop preliminary plans for closing village Identify activities for supporting pioneers 						

= project initiation = project maintenance

Permitting + Why It's Important

During the development of the Strategic Management Plan, the following main messages regarding permitting of Mertarvik projects were as follows:

- It is possible that an Environmental Assessment (EA) will suffice for any projects requiring
 National Environmental PolicyAct (NEPA) documentation. If the case can be made that the
 relocation is initiated by the community and not driven by or dependent upon federally-funded
 projects, it will be less likely that a federal agency will be required to address the impact of the
 full relocation in its permitting process.
- As the relocation progresses, opportunities may arise for agencies to pool EA efforts to help conserve limited project resources. For example, the United States Army Corps of Engineers (USACE) Planning Assistance to States Program allows USACE to accept and match nonfederal funding from tribes, cities, states, etc. Partnering with USACE, one or more entities would lead the EA process, and individually or jointly take necessary next steps.
- NEPA compliance is only part of the permitting puzzle. The community and their partners must ensure appropriate permits are in place for all projects at Mertarvik. Table C (next page) highlights some, but not all, of the recommended consultations, required permits and clearances by agency and funding type (federal, state and federal, and private).



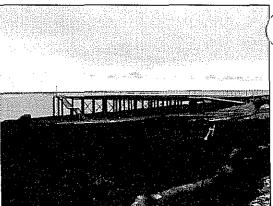




Photo by Carolyn George.

Table A. Permitting considerations for Newtok relocation projects.

Agency	Permit/Clearance/	When to initiate	Approximate firneline to
	Consultation		acquire permit/clearance
Federally Funded Projects			
NEPA Decision Document	Environmental Assessment (EA)	Upon receipt of funding*	1 year
	Environmental Impact Statement (EIS)	Upon finding of significance during EA process, unless funding agency decides to start with an EIS class of action.	3-5 years
State Historic Preservation Office (SHPO)/Tribes	Initiation of Consultation	Once a set of Alternatives are selected	30 days
	Finding of No Historic Properties Affected	After selection of a preferred alternative	30-120 days
State and Federally Funded P	rojects		
United States Fish and Wildlife Service (USFWS)	Under the Migratory Bird Treaty Act, there is no provision for consultation or for any allowance or take.	USFWS has established closure date of the state to presumptively protect are posted and can be used as a guid prosecution from taking migratory	et nesting birds. The dates de and as protection for
National Marine Fisheries Service (NMFS)	Consultation for Essential Fish Habitat	For any in-water work	14-30 days
Alaska Department of Fish and Game (ADF&G)	Title 16 Fish Habitat permit	For any work within Takikchak Creek	30-90 days
United States Army Corps of Engineers (USACE)	404 Wetlands permit	After a selection of a preferred alternative	120 days
Alaska Department of Environmental Conservation (ADEC)	Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit	1 month prior to construction, once 100% construction documents are complete	30 days**
Privately Funded Projects			
ADF&G	Title 16 Fish Habitat permit	For any work within Takikchak Creek	30-90 days
USACE	404 Wetlands permit, Individual or Nationwide Permit	For any work placing fill within wetlands	120 days
USFWS	Under the Migratory Bird Treaty Act, there is no provision for consultation or for any allowance or take.	USFWS has established closure dat of the state to presumptively prote are posted and can be used as a gui prosecution from taking migratory	ct nesting birds. The dates de and as protection for
ADEC	APDES Construction General Permit	For any work that is part of a development plan with greater than 1 acre of disturbance. 1 month prior to construction, once 100% construction documents are complete	30 days**

^{*}Initiation of NEPA document will begin with informal agency scoping and data gathering. The NEPA process will continue throughout the entire project until a decision document (Finding of No Significant Impact (FONSI) or Record of Decision (ROD)) is obtained.

⁺Length of consultation will depend on determination of affect by regulatory agency.

^{**} Includes review and approval of SWPPP, pre construction site visit, and submittal of notice of intent.

Next Steps

The next steps for the community are steps that will implement the SMP and move the community forward behind a common vision, strategies, and priority actions over the next three years.

- Bring the SMP "to life" by using the document as a communication tool to gain the support and the funding assistance needed to implement the strategic initiatives in the SMP.
- Solicit formal support for the SMP from existing partnerships and develop additional support from potential partners.
- Establish protocol for ongoing monitoring of the SMP. The SMP is a living document and a
 process to guide the community with relocation. The community and their partners should
 assess progress and update the plan at least annually. The update should report the progress
 made and highlight new challenges and issues, including the remaining focus areas not addressed
 in this version of the SMP.
- · Initiate the Three-Year Action Plan and embrace its direction and priorities.



Communicating
the SMP is a
key next step
in gaining the
commitment and
financial support
from existing
partnerships
and developing
further support
from other
potential
partners.

Photo by Carolyn George.

Newtok Traditional Council Resolution 12-12

MALIGTAQUYARAT (Guiding Principles for Mertarvik)

The relocation of Newtok will be defined by our Yup'ik way of life. Our Guiding Principles are:

- To remain a distinct, unique community our own community
- To stay focused on our vision by taking small steps forward each day
- · To make decisions openly and as a community and look to elders for guidance
- To build a healthy future for our youth
- Our voice comes first we have first and final say in making decisions and defining priorities, by implementing nation-building principles and working with our partners¹
- To share with and learn from our partners
- No marter how long it takes, we will work together to provide support to our people in both Mentarvik and Newtok
- Development should:
 - o Reflect our cultural traditions
 - Nurture our spiritual and physical well-being
 - Respect and enhance the environment
 - o Be designed with local input from start to finish
 - Be affordable for our people
 - Hire community members first
 - o Use what we have first and use available funds wisely
- To look for projects that build on our talents and strengthen our economy

¹ Two Approaches to Economic Development on American Indian Reservations: One Works, the Other Doesn't by Stephen Correll, and Joseph P. Kalt, 2006. The Harvard Project on American Indian Economic Development.



NEWTOK TRADITIONAL COUNCIL

P.O. Box 5545 Newtok, Alaska 99559-5545

Phone:907-237-2314/2316 Fax: 907-237-2428

RESOLUTION 12 - 12

A Resolution of the Native Village of Newtok's Traditional Council adopting Guiding Principles for the relocation to and development of Mertarvik, the new village site.

WHEREAS: The Native Village of Newtok's Traditional Council, hereinafter called the Council, is the State and Federally recognized governing body of Newtok, Alaska; and,

WHEREAS: The Village of Newtok has been threatened for years by the advance of the Ninglick River due to high rates of erosion of the river bank adjacent to the village; and,

WHEREAS: This progressive erosion is recognized as a serious long-term threat to the existence of the village; and,

WHEREAS: Seasonal flooding from coastal storms has exacerbated this situation. Newtok was included in two federal disaster declarations, DR-1571-AK (2004 Bering Sea Storm) and DR-1618-AK (2005 Fall Sea Storm); and,

WHEREAS: Studies performed by the U.S. Army Corps of Engineers and others have concluded that the village must relocate as there is no permanent and cost-effective alternative to remain at the current village site; and,

WHEREAS: The Newtok Traditional Council, by a vote of the people of Newtok, selected Mertarvik, a site on the northern coast of Nelson Island, located within the Yukon Delta National Wildlife Refuge, as the preferred relocation site for the village of Newtok; and,

WHEREAS: The Newtok Native Corporation entered into negotiations with the U.S. Department of the Interior, Fish and Wildlife Service to exchange Newtok Native Corporation land for the Menarvik site; and,

WHEREAS: In November 2003, the 108th Congress passed S. 924, allowing the Newtok Native Corporation to received title to the Mertarvik land in a land exchange with the U.S. Fish and Wildlife Service; and,

WHEREAS: In May 2006, the Council and the Newtok Native Corporation joined with state, federal and regional agencies and organizations to form the Newtok Planning Group to assist with Newtok's relocation effort; and,

WHEREAS: In 2008, the Council and the State of Alaska negotiated a commitment with the U.S. Department of Defense, Innovative Readiness Training Program to provide labor on development projects at Mertarvik; and,

WHEREAS: In 2011, the Council, the Newtok Native Corporation and the agencies and organizations involved in the Newtok Planning Group began working with a contractor to develop a Strategic Management Plan for the relocation of Newtok to Mertarvik.

NOW, THEREFORE, LET IT BE RESOLVED; that the Council hereby adopts the following Maligtaquyarat (Guiding Principles, attached) for all agencies and organizations to follow in working with Newtok on the relocation to Mertarvik. The Maligtaquyarat form the basis of our Strategic Management Plan. It is the Newtok Traditional Council's desire that the relocation of Newtok be defined by our Yup'ik way of life. All proposals for and activities at the new village at Mertarvik must consider, respect, be assessed by, and be carried out according to Newtok's Guiding Principles.

I the undersigned, hereby certify that the Newtok Traditional Council is composed of 7 members, of whom 7 constituting a QUORUM were present and that the foregoing resolution was PASSED AND APPROVED on this 27 day of freeh , 2012.

Votes: X Yeas Nays

Attest: Andy Patrick, Secretary, Newtok Traditional Council



Nunauliemteggun ikayuquluta tamamta, assiriuta aknirtanritelierkamtenun, nuggtarilemtenun ciunerkamteni

a community that builds together for the safe and healthy future of Newtok Strategic Management Plan :: Newtok to Mertarvik

FINAL DRAFT March 2012

by the Community of Newtok and the Newtok Planning Group, Prepared for the Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs by Agnew::Beck Consulting with PDC Engineers and USKH Inc.



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Coastal Barrier Resources Act

Environmental Record Determination

Alaska has no known or designated Coastal Barrier areas.

Source Documentation

- US Dept. of Fish and Wildlife Service Coastal Barrier Resources System

Coastal Barrier Resources System

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In the 1970s and 1980s, Congress recognized that certain actions and programs of the Federal Government have historically subsidized and encouraged development on coastal barriers, resulting in the loss of natural resources; threats to human life, health, and property; and the expenditure of millions of tax dollars each year. To remove the federal incentive to develop these areas, the Coastal Barrier Resources Act (CBRA) of 1982 designated relatively undeveloped coastal barriers along the Atlantic and Gulf coasts as part of the John H. Chafee Coastal Barrier Resources System (CBRS), and made these areas ineligible for most new federal expenditures and financial assistance. CBRA encourages the conservation of hurricane prone, biologically rich coastal barriers by restricting federal expenditures that encourage development, such as federal flood insurance. Areas within the CBRS can be developed provided that private developers or other non-federal parties bear the full cost.

- How do I know if my property is in the CBRS?
- How can I get information on changing the CBRS maps?
- How do I know if a federal project or activity is affected by CBRA?
- How can I see the official maps of the CBRS?

CBRS Mapping Projects by State

Click on a state in the table below to see the CBRS mapping project(s) affecting each state.

Connecticut	Delaware
Georgia	Louisiana
Maryland	Massachusetts
Minnesota	Mississippi
New York G.L.	New York L.I.
Ohio	Puerto Rico
South Carolina	Texas
Virginia	Wisconsin
	Georgia Maryland Minnesota New York G.L. Ohio South Carolina

* Maska not listed

Click Here for CBRA Mapper



Public Comment Period Closed for CBRS Maps in Gulf and Bay Counties, Florida and Monmouth and Middlesex Counties, New Jersey

The U.S. Fish and Wildlife Service (Service) held a 45-day comment period for six John H. Chafee Coastal Barrier Resources System (CBRS) draft revised maps. The draft maps, dated May 16, 2016, are for four CBRS units located in Gulf and Bay Counties, Florida, and for six CBRS units located in Monmouth and Middlesex Counties, New Jersey. We invited the public to review the draft maps and provide input to the Service. The Service will make any appropriate changes based on the comments received and will prepare final recommended maps for Congressional consideration. The final recommended maps will become effective only if they are adopted by Congress through legislation. Learn more.

Final Digital Conversion Maps Available for CBRS Units in 10 States

The U.S. Fish and Wildlife Service (Service) has conducted a digital conversion and 5-year review and prepared final revised maps for all of the John H. Chafee Coastal Barrier Resources System units in Alabama, Georgia, Michigan, Minnesota, Mississippi, Ohio, Wisconsin, the Great Lakes region of New York, 125 units in Florida, and 7 units in Louisiana. We held a 30-day comment period on the draft maps for Federal, State, and local stakeholders, from November 17, 2015 through December 17, 2015. Several comments were received from stakeholders during the comment period. The Service assessed the comments received during the comment period and officially adopted the final revised maps upon publication of a second notice in the Federal Register (81 FR 13407) on March 14, 2016. Click here to access the final revised maps and for more information.

Last updated: September 6, 2016

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Spil Response
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Wildlife and Habitat

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Official CBRS Maps

The John H. Chafee Coastal Barrier Resources System (CBRS) is a collection of specific units of land and associated aquatic habitats that serve as barriers protecting the Atlantic, Gulf, and Great Lakes coasts. The CBRS currently includes 585 System units, which comprise nearly 1.3 million acres of land and associated aquatic habitat. There are also 274 "otherwise protected areas," a category of coastal barriers already held for conservation purposes that include an additional 1.9 million acres of land and associated aquatic habitat.

Step 1: Use the CBRA Online Mapper or the State Locator Maps (PDF format) below to find a unit name (s).

State Locator Maps

<u>Alabama</u>	<u>Georgia</u>	Massachusetts	New Jersey	<u>Ohio</u>	<u>Texas</u>
Connecticut	Louisiana	<u>Michigan</u>	New York Great Lakes	Puerto Rico	Virgin Islands
<u>Delaware</u>	<u>Maine</u>	Minnesota	New York Long Island	Rhode Island	Virginia
<u>Florida</u>	Maryland	Mississippi	Norlh Carolina	South Carolina	<u>Wisconsin</u>

Step 2: Download Official CBRS Maps (PDF format)

To download a map, click on a file name to save it, then open the file with a PDF viewer or editor.



Click here to access Official CBRS Maps

Last updated: May 12, 2016

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FWS Regions Pacific (Region 1) Southwest (Region 2) Great Lakes (Region 3) Northeast (Region 5) Mountain Prairie (Region 6) Pacific Southwest (Region 8)

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U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Executive Order 11988 Floodplain Management

Environmental Record Determination

Area is not prone to flooding, see topo maps; not participating in the National Floodplain Insurance Program; new undeveloped site is not within a known 100/500 year floodplain, unmapped by FEMA

Source Documentation

FEMA Map Topography Map of Metarvik Who in Alaska participates in the NFIP Floodplain Management Checklist



Navigation

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MSC Frequently Asked Questions (FAQs) (/portal/resources/faq)

MSC Email Subscriptions (/portal/subscriptionHome)

Contact MSC Help (/portal/resources/contact)

FEMA Flood Map Service Center : Search By Address

Enter an address, place, or coordinates: 6

newtok, alaska Search

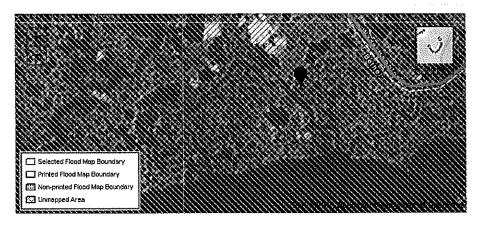
The buttons below let you view and print the selected flood map, download the flood map image, open an interactive flood map (if available), or expand the search to all products to view effective, preliminary, pending, or historic maps, and risk products for the community. The locator map shows flood map boundaries in your area of interest. You can choose a new flood map by clicking elsewhere on the locator map or entering a new location in the search box.

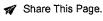
Search Results—Products for BETHEL

FEMA has not completed a study to determine flood hazard for the selected location; therefore, a flood map has not been published at this time.



Locator Map





Home (//www.fema.gov/) Download Plug-ins (//www.fema.gov/download-plug-ins) About Us (//www.fema.gov/about-agency) Privacy Policy (//www.fema.gov/privacy-policy) No Fear Act Data (//www.fema.gov/no-fear-act-data) Freedom of Information Act (//www.fema.gov/freedom-information-act) Office of the Inspector General (//www.oig.dhs.gov/) Strategic Plan (//www.fema.gov/fema-strategic-plan) Whitehouse.gov (//www.whitehouse.gov) DHS.gov (//www.dhs.gov) Ready.gov (//www.ready.gov) USA.gov (//www.usa.gov) DisasterAssistance.gov (//www.disasterassistance.gov/)

Official website of the Department of Homeland Security

U.S. Army Corps of Engineers, Alaska District PRECONSTRUCTION NOTIFICATION FORM

May be used instead of Form ENG 4345 to request verification under a Nationwide Permit (NWP)

Applicant: AVCP Regional Housing Authority	Phone: 907-543-3121
Address: PO Box 767	Fax: 907-543-4020
City, State, Zip: Bethel, AK 99559	Cell/Direct Line: 907-543-1343
Point of Contact: Mark Charlie	e-mail: mark@avcphousing.org
Agent: N/A	Phone:
Address:	Fax:
City, State, Zip:	Cell/Direct Line:
Point of Contact:	e-mail:
Location of the Pro	pposed Project Site:
Nearest Waterway: Confluence of Ninglick River and B	aird Inlet
Section, Township, Range, and Meridian: Sec. 34, T9N, R8	6W and Sec. 2, T8N, R87W, Seward Meridian
Latitude and Longitude (Decimal Degrees, NAD-83):	
Nearest City: Newtok, AK	Subdivision: N/A
Borough: N/A	USGS Quad(s):
Driving Directions to Site: N/A	
<u>Project D</u>	escription:
To ensure your project meets the requirements for a NW Conditions, which can be found on our website at	

Do you	u intend to use any othe General Permit (GP), o	er authorizations for any p er Individual Permit (IP)?	art of the p	proposed project or any related activity, for example, a
,		YES	or	√ NO
If YES	, specify what permit ty	pe (NWP, GP, IP) and for	what aspe	ect of the project:
ļ				
Will yo	our proposed project re	sult in the loss of greater t	han 1/10 o	of an acre of wetlands?
		YES	or	NO
	, describe how you will onal space is needed, p		uirement in	n Nationwide Permit General Condition 23 (attached). If
project demon threate	t located in designated nstrate compliance with ened or endangered sp	critical habitat? Federal a the agency's procedures	agencies m for complia oitat can be	ght be affected or is in the vicinity of the project, or is the nust provide the appropriate documentation to iance with the ESA. Information on the location of e obtained directly from the offices of the U.S. Fish and
If YES	, list all species:	YES	or	NO
Nation potenti Nation	al Register of Historic li ial to effect? Federal a al Historic Preservation	Places, including previous gencies must províde doc n Act. Assistance regardir	ly unidentif cumentation ng informat	for listing on, or potentially eligible for listing on the ified properties) that the proposed activity may have the on demonstrating compliance with the Section 106 of the tion on the location of or potential for the presence of
nistorio	c resources can be sou	ght from the State Historic	c Preserva or	NO
	, state which property of properties	ســــا or properties may be affec		rattach a vicinity map indicating the location of the
Will the	e proposed work involv	e ground disturbing activit	ties?	
		YES	or	VNO .
				materials (including seed) that you intend to use for naterials, identify the source.
	the following in addition Drawings of the site and website at http://www.	n to the above applicable and project plans (For mor poa.usace.army.mil/reg/	items: re informat permitapp.l	tion on acceptable drawings and plans, please visit ourhtm and click on "Guide to Drawings")
	sanctuaries and refuge ponds, and perennial prepared in accordar	ges, mudflats, vegetated s , intermittent, and ephemo ce with the current metho	shallows, a eral stream od required	pecial aquatic sites (riffle and pool complexes, and/or coral reefs), and other waters, such as lakes and ns, on the project site. Wetland delineations must be by the Corps. The applicant may request the Corps to if the PCN does not include a delineation we will take tha
[to mean you are requ complete the delinea	esting the Corps for one.	In these c	cases, the PCN will not be considered complete until we
Applica	Note: If you request a ation is hereby made for	a Corps delineation, you n or a permit or permits to a	nay be dela uthorize the	ayed in receiving authorization for your proposed project. e work described in this preconstruction notification form

	, ,		
Mune	524/4		
SIGNATURE OF APPLICANT	- DATE	SIGNATURE OF AGENT	DATE

•

NATIONWIDE PERMIT GENERAL CONDITION 23: MITIGATION

The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

- (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).
- (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.
- (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.
 - (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.
 - (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.
 - (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2)–(14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).
 - (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.
 - (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.
- (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.
- (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to

ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

- (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.
- (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.
- (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.



DEPARTMENT OF THE ARMY

ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS REGULATORY DIVISION P.O. BOX 6898 JBER, ALASKA 99506-0898

July 18, 2016

Regulatory Division POA-2016-329

Mr. Mark Charlie AVCP Regional Housing Authority PO Box 767 Bethel, Alaska 99559

Dear Mr. Charlie:

This letter is in response to your May 24, 2016, request for a Department of the Army (DA) jurisdictional determination for your proposed **Newtok relocation** project. The project is located within Section 34, T. 9 N., R. 86 W., and Section 2, T. 8 N., R. 87 W Seward Meridian, USGS Baird Inlet D-7; at Latitude 60.8199° N., Longitude 164.5062° W.; near Newtok, Alaska. Your project has been assigned number POA-2016-329, Baird Inlet, which should be referred to in all correspondence with us.

Based on our review of the information you provided and available to our office, and/or on our site visit dated 2006, we have preliminarily determined the subject project area contains waters of the U.S., and/or wetlands, under the Corps' regulatory jurisdiction. See the attached Preliminary Jurisdictional Determination (PJD) Form. Please sign and return the form to our office. A PJD is not appealable. At any time you have the right to request and obtain an Approved Jurisdictional Determination, which can be appealed. If it is your intent to request an Approved JD, do not begin work until one is obtained.

Department of the Army authorization is required if you propose to place dredged and/or fill material into waters of the U.S., including wetlands. You can find a copy of the DA permit application online at

http://www.poa.usace.army.mil/Missions/Regulatory.aspx. You can refer to the sample drawing on our website at

http://www.poa.usace.army.mil/Portals/34/docs/regulatory/guidetodrawings2012.pdf.

Section 404 of the Clean Water Act requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration

sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

If you have questions or to request a paper copy of the DA permit application, please contact me via email at mary.r.romero@usace.army.mil, by mail at the address above, by phone at (907) 753-2773, or toll free from within Alaska at (800) 478-2712. For more information about the Regulatory Program, please visit our website at http://www.poa.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

 Digitally signed by ROMERO.MARY.R.1259266617 DN: c=US, o=U.S. Government, ou=DoD,

 Output
 Description
 Descripti

ou=PKI, ou=USA, cn=ROMERO.MARY.R.1259266617

Date: 2016.07.18 14:48:01 -08'00'

Mary Romero Project Manager

Enclosures

CF: North Branch

ADEC

ADF&G-DH, Fairbanks
ADNR-DMLW, Anchorage

ADNR-DMLW, Anchorage (south of AK Range)

ADNR-DMLW SHPO, ADNR OHA

EPA

ADEC

USFWS

james.rypkema@alaska.gov shannon.dewandel@alaska.gov audra.brase@alaska.gov dnr.scro.dcom.cor@alaska.gov Michael.walton@alaska.gov jusdi.mcdonald@alaska.gov oha.revcomp@alaska.gov AOOARU.R10@epamail.epa.gov FW7_POANotices@fws.gov

'Walter Jim' <WJim@avcphousing.org>; Concepcion, Andy <andy.concepcion@hud.gov>



Site Number	Latitude/ Northing	Longitude/ Easting	Cowardin Class/ Stream Flow	Estimated Amount of Aquatic Resource in Review Area	Class of Aquatic Resource
Newtok relocation - Mertarvik PSS wetlands	60.8199	-164.5062	·	25 acres	Section 404
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PRELIMINARY JURISDICTIONAL DETERMINATION FORM

U.S. Army Corps of Engineers

BACKGROUND INFORMATION

- A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): July 18, 2016
- B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Mark Charlie AVCP Regional Housing Authority PO Box 767 Bethel, Alaska 99559

- C. DISTRICT OFFICE, FILE NAME, AND NUMBER: POA-RD, POA-
- D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
 (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: Alaska Borough: Bethel City: Mertarvik

Center coordinates of site: Universal Transverse Mercator: Latitude 60.8199 ° N Longitude 164.5062 ° W

Name of nearest waterbody: Baird Inlet

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet: # width (ft) and/or # acres.

Cowardin Class: Choose Class

Stream Flow: Choose Flow

Wetlands: 25 acres.

Cowardin Class: Palustrine Scrub-shrub

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: Waterbook

Non-Tidal: Waterbody

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

✓ Office (Desk) Determination. Date: July 18, 2016

Field Determination. Date(s): c 2006

- 1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.
- 2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of H) will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. §331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply)

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

Y	Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Click here to entertext.
	Data sheets prepared/submitted by or on behalf of the applicant/consultant.
	Office concurs with data sheets/delineation report.
	Office does not concur with data sheets/delineation report.
<u>V</u>	Data sheets prepared by the Corps: A JD was done by Marcia Heer/Estrella Campellone in c 2006
П	Corps navigable waters' study: Click here to enter text.
匚	U.S. Geological Survey Hydrologic Atlas: Click here to enter text.
	USGS NHD data.
	USGS 8 and 12 digit HUC maps.
Γ	U.S. Geological Survey map(s). Cite scale & quad name: Click here to enter text.
\Box	USDA Natural Resources Conservation Service Soil Survey. Citation: Click here to enter text.
\prod	National wetlands inventory map(s). Cite name: Click here to enter text.
<u> </u>	State/Local wetland inventory map(s): Click here to enter text.
<u> </u>	FEMA/FIRM maps: Click here to enter text.
J	100-year Floodplain Elevation is: <i>Click here to enter text.</i> (National Geodectic Vertical Datum of 1929)
<u>v</u>	Photographs: F Acrist Name & Date): Google Earth/Regulatory SimSuite July 2016
	or F Other (Name & Date): photos taken on site c 2006
!	Previous determination(s). File no. and date of response letter: POA-2005-533, POA-2005-1890, POA-2006-1801, POA-2006-1896, & POA-2010-281
П	Applicable/supporting case law: Click here to enter text.
Г	Applicable/supporting scientific literature: Click here to enter text.
Г	Other information (please specify): Click here to enter text.
	PORTANT NOTE: The information recorded on this form has not necessarily been
veri	fied by the Corps and should not be relied upon for later jurisdictional determinations.
-7 <i>^</i>	Parisative modifies 1

Signature and date of Reconstrony Project Manager (REQUIRED)

43. #OMERO.MARY.R.1259266617 #1 58. 1016.37 19.11.07:16.408'00'

Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)



ation of Village Council Presidents ousing Authority

gan Road ska 99559

1-543-3121

Fax (907)-543-3933

Toll Free (800)-478-4687

Ryan H. Winn Department Of The Army Alaska District, U.S. Army Corps Of Engineers Regulatory Division P.O. Box 6898 JBER, Alaska 99506-0898

Re: (2) New single 3 to 4 family dwelling units at Mertarvik, Alaska under Title VI, relocating 12 homes and future development.

Dear Mr. Winn,

The Association of Village Council Presidents will be assisting the Native Village of Newtok in constructing (2) single family dwelling units using Title VI at the new village site in Mertarvik, Alaska.

The proposed new village site of Mertarvik is the location where the Native Village of Newtok will also be relocating (12) homes. This site encompasses the Village Center, Phase 1 and Phase 2 for proposed housing units. The gravel source for these future projects is located approximately 2 miles southwest of this new site and this quarry road will need to be developed. This undeveloped new site will need gravel to develop access roads, roads between lots within phase 1 and phase 2, roads within the village center and all easements.

Total area encompassing the development of Phase I which includes the road to the Quarry is approximately 16,750 feet of road or equal to 3.17 miles.

House Lot sizes are approximately 0.75 acres. Inside Phase I of the subdivision there will be 25 Lots for homes. The Village Center consists of structures that will include the fuel tank farm, power plant, multi-purpose building, washeteria/water plant, water well, tribal hall, church, public safety building, community gym, clinic, post office, library, store, school and teacher housing.

The total length of roads inside the subdivision of Phase I is approximately 14,345 feet or equal to 2.71 miles.

The Native Village of Newtok Tradtional Council requests for a "Jurisdictional Determination" that the proposed project has "no effect" on wetlands.

The proposed project consists of constructing (2) single-family housing units at the new site of Mertarvik and relocating (12) homes from Newtok to Mertarvik.

The Native Village of Newtok Traditional Council requests concurrence with this determination from

May 24, 2016

the Alaska District, U.S. Army Corps of Engineers.

A current map of the proposed new village is enclosed for your review.

Your reply must be in writing and forwarded to:

Association of Village Council Presidents Regional Housing Authority C/O Walter Jim P.O. Box 767
Bethel, Alaska 99559

If you have any questions please do not hesitate to contact me at (907) 543-1323.

Sincerely,

Walter Jim Development Planner



ation of Village Council Presidents ousing Authority

gan Road ska 99559

1-543-3121

Fax (907)-543-3933

Toll Free (800)-478-4687

Doug Cooper Fish and Wildlife Field Office 4700 BLM Road Anchorage, Alaska 99507 June 7, 2016

Re: (2) New single 3 to 4 family dwelling units at Mertarvik, Alaska under Title VI, relocating 12 homes and future development.

Dear Mr. Cooper,

The Association of Village Council Presidents will be assisting the Native Village of Newtok in constructing (2) single family dwelling units using Title VI at the new village site in Mertarvik, Alaska.

The proposed new village site of Mertarvik is the location where the Native Village of Newtok will also be relocating (12) homes. This site encompasses the Village Center, Phase 1 and Phase 2 for proposed housing units. The gravel source for these future projects is located approximately 2 miles southwest of this new site and this quarry road will need to be developed. This undeveloped new site will need gravel to develop access roads, roads between lots within phase 1 and phase 2, roads within the village center and all easements.

Total area encompassing the development of Phase I which includes the road to the Quarry is approximately 16,750 feet of road or equal to 3.17 miles.

House Lot sizes are approximately 0.75 acres. Inside Phase I of the subdivision there will be 25 Lots for homes. The Village Center consists of structures that will include the fuel tank farm, power plant, multi-purpose building, washeteria/water plant, water well, tribal hall, church, public safety building, community gym, clinic, post office, library, store, school and teacher housing.

The total length of roads inside the subdivision of Phase I is approximately 14,345 feet or equal to 2.71 miles.

We are asking for a determination that this new proposed site of Mertarvik will have "no effect" on any listed species.

The proposed project consists of constructing (2) single-family housing units at the new site of Mertarvik and relocating (12) homes from Newtok to Mertarvik.

The Native Village of Newtok Traditional Council requests concurrence with this determination from the U.S. Fish and Wildlife Service.

A current map of the proposed new village is enclosed for your review.

Your reply must be in writing and forwarded to:

Association of Village Council Presidents Regional Housing Authority C/O Walter Jim P.O. Box 767
Bethel, Alaska 99559

If you have any questions please do not hesitate to contact me at (907) 543-1323.

Sincerely,

Walter Jim Development Planner

TOXIC CHEMICALS AND RADIOACTIVE MATERIALS



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Toxic Chemicals and Radioactive Materials

Environmental Record Determination

Metarvik sits on largely undeveloped land not known or suspected of having any toxic and/or radioactive materials.

Metarvik is not listed or located within one mile of an EPA Superfund Site or within 2000 feet of a site on the CERCLIS List.

Metarvik is not located within 3000 feet of a toxic or solid waste land fill. Any future proposed solid waste landfills will be located further than 3000 feet from any properties projected for use in HUD programs.

Source Documentation

- State of Alaska Division of Spill Prevention and Response Contaminated Sites Search No results for Metarvik
- United States Environmental Protection Agency EPA Superfund Sites Search No results for Metarvik
- United States Environmental Protection Agency Alaska Cleanup Sites

WELCOME



Program Manager: Jennifer Roberts (907) 269-7553

The Contaminated Sites Program protects human health and the environment by managing the cleanup of contaminated soil and groundwater in Alaska.

ABOUT CS



- ➤ Contact Information
- ▶ Core Services
- Program Annual Report
- ➤ Frequently Asked Questions
- ➤ Sign up for our Email List
- ➤ SPAR Annual Report

BROWNFIELDS



- > Brownfield Homepage
- > DEC Brownfield Projects in Alaska
- DEC Brownfield Assessments and Cleanups (DBACs)
- > Newsletters
- > Brownfield Handbook

UNDERGROUND STORAGE TANKS



➤ Underground Storage Tanks Homepage

REGULATIONS AND TECHNICAL GUIDANCE



- Current Regulations and Statutes, and Proposed Regulation Changes
- Technical Guidance
- > Method Three Calculator

RESOURCES FOR SITE CLEANUP



- > The Cleanup Process
- > Fact Sheets and Publications
- Environmental Consultants
- > Institutional Controls Information
- > Other Resources

STATE/PRIVATE CLEANUP



- > State, Local and Private Sites
- ➤ Leaking Underground Storage Tanks

FEDERAL FACILITIES CLEANUP



- Federal Facilities Overview
- ➤ Department of Defense Cleanup
- ➤ Civilian Federal Agency Sites
- Community Involvement for Federal Facilities

RESEARCH



- > Contaminated Sites Database
- > Map of Contaminated Sites
- > Contaminated Site Summaries

OF INTEREST



- ➤ Contaminated Real Estate New!
- Vapor Intrusion
- ▶ North Pole Sulfolane
- > Areawide Investigations

How Do I...



- ➤ Learn about the Cleanup Process
- > Search for Contaminated Sites
- ➤ Find Fact Sheets and Publications
- Qualify as an Environmental Professional or Sampler





Contaminated Sites Search

Site Name:	Metarvik	?	Street Address:		?
Record Key:		?	City:		Y ?
Hazard ID:		?	Zip Code:	100 - 100 -	~ ?
Event ID:		?	Borough:		> ?
Status:		v ?	File ID:		?
Site Type:		v ?	LUST Only: 7		
				Search	Clear

Hazard ID Site Nar	ne	Location	Status	File ID
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Download Search Results	Download All Site Records	Download Only CS Site Records	Download Only LUST Site Records	

Disclaimer. DEC makes every effort to ensure the data presented here is accurate based on the best available information currently on file with DEC. It is therefore subject to change as new information becomes available. We recommend contacting the assigned project staff prior to making decisions based on this information.

Note: DEC's Contaminated Sites program has changed the terms used to describe closure, replacing 'closed' and 'conditionally closed' with 'Cleanup Complete' and 'Cleanup Complete - Institutional Controls.'

DEC gives 'Cleanup Complete' status when efforts to reduce hazardous substance contamination have achieved the most stringent levels established in state regulation, or the possibility of human exposure to any residual contamination is highly unlikely. The Department may allow hazardous substances to remain in the environment at a site if the contamination does not pose a risk to human health or the environment, but there may be conditions or restrictions associated with the site that require compliance by current or future owners/operators. Those conditions or restrictions require follow-up reporting; the department would then grant a 'Cleanup Complete - Institutional Controls' status (See 'Institutional Controls ')

Details on closure of any site are viewable on the Contaminated Sites database. A special report on Institutional Controls is available for sites with that designation.

For information specific to a site, please contact the staffperson assigned, as noted in the upper right area of each site cleanup chronology. For CSP database support please contact: Evonne Reese at (907) 465-5229.



Superfund: Protecting Human Health and the Environment for 35 Years!

Learn more about how Superfund cleanups have made a visible difference in communities.

EPA's Superfund program is responsible for cleaning up some of the nation's most contaminated land and responding to environmental emergencies, oil spills and natural disasters. To protect public health and the environment, the Superfund program focuses on making a visible and lasting difference in communities, ensuring that people can live and work in healthy, vibrant places.

Learn About Superfund

Sites where you live Cleanup process History Superfund 35th Anniversary

Cleanup Support

Training and learning
Green remediation
Climate change adaptation
Cleanup optimization
Natural Resource Damages

Community Involvement

Technical assistance
Community Advisory Groups
Superfund Job Training Initiative
Tools and resources
Citizen excellence
Training conference

Accomplishments & Benefits

Annual accomplishments Performance measures Community benefits



Search Superfund Documents

Follow the links below to search for Superfund documents in specific areas:

- · Decision Documents
- Five-Year Review (FYRs)
- National Remedy Review Board Site Reviews
- Contaminated Sediments Technical Advisory Group Site Reviews
- · Remedial Investigation / Feasibility Study
- · Remedy Decision Policy and Guidance
- · Remedial Design / Remedial Action

- Hazard Ranking System Toolbox
- Federal Register Notices for NPL Updates
- Contaminants
- · Contaminated Media
- · Community Involvement Toolkit
- · Reuse In-Depth Case Studies
- Reuse "How-To" Reports
- Relocation Policy

Search all documents from Headquarters collections below. Note: the table below excludes FYRs and Decision Documents; see the FYR and Decision Documents links listed above.

Show 10 \(\rightarrow \) entries	C	L C C C 1 D	Search: metarvik	
	Searc	ch for Superfund De	ocuments	
Document Title	Date	Document ID	Site Name (if applicable)	
	No	o matching records	found	
Document Title	Date	Document ID	Site Name (if applicable)	

Showing 0 to 0 of 0 entries (filtered from 7,862 total entries)

Previous

Next

Last updated on August 3, 2016



Contaminants at Superfund Sites

This page contains links to Superfund contaminant-specific websites and information on common contaminants found at Superfund sites.

Lead - Lead contamination at Superfund sites presents a threat to human health and the environment. This website describes EPA's approach to addressing those risks, and the challenges of remediating lead contamination at Superfund sites, and includes information on human health effects, lead risk assessment, software, user manuals, guidance, frequent questions, and technical assistance.

Asbestos - This page contains information regarding addressing asbestos contamination at Superfund sites, which includes policy and guidance, technical assistance, health effects, and naturally occurring asebestos.

Dioxin - Provides information on characterization of dioxin contaminated soil.

Soil Bioavailability - This Web area describes how EPA is incorporating relative bioavailability information for human exposures at Superfund sites exposed to soil contaminants via oral pathway.

Radiation - This page contains information regarding addressing radiation contamination at Superfund sites, which includes frequently used guidance documents and reports.

Contaminants Documents

Search Tip: Type the document title in the search box to filter results

now 10 v entries	Contaminants Documents	Search: metarvi	k
Document Title	Collections	Date	Document ID
	No matching records found	1	
Document Title	Collections	Date	Document ID

Showing 0 to 0 of 0 entries

Previous Next

Last updated on March 18, 2016



Search for Superfund Sites Where You Live

Locate Additional Site Information

- · Advanced search: for NPL and non-NPL Superfund sites (advanced queries)
- Cleanups in my Community mapped search (includes Superfund and other EPA sites or facilities)

Additional Superfund site-related content:

- · Ambler Asbestos
- · GE-Pittsfield/Housatonic River Site
- · Lindsay Light Superfund Sites
- · Grants Mining District in New Mexico

Search for National Priority List (NPL)¹ Superfund Sites

1. Including proposed, final and deleted NPL sites and non-NPL Superfund Alternative Approach (SAA) sites

By default, all NPL sites appear. Click an EPA region on the map to display sites in a particular region (1-10).



Select a State After you select a link, press go to jump to Superfund sites for that State.



Search for Superfund Sites Where You Live

Locate Additional Site Information

- Advanced search: for NPL and non-NPL Superfund sites (advanced queries)
- Cleanups in my Community mapped search (includes Superfund and other EPA sites or facilities)

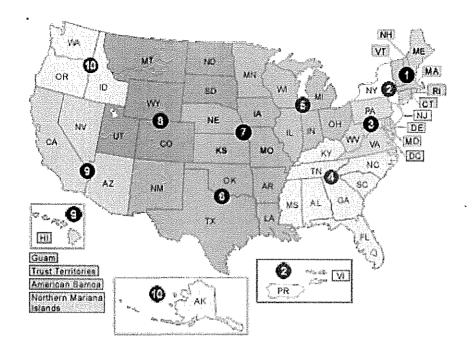
Additional Superfund site-related content:

- Ambler Asbestos
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- · Lindsay Light Superfund Sites
- Grants Mining District in New Mexico

Search for National Priority List (NPL)¹ Superfund Sites

1. Including proposed, final and deleted NPL sites and non-NPL Superfund Alternative Approach (SAA) sites

By default, all NPL sites appear. Click an EPA region on the map to display sites in a particular region (1-10).



Select a State

After you select a link, press go to jump to Superfund sites for that State.

1			٠,	
	All	 ⊻		Go

Region 10 Selected
Show All Regions

Show 10 v entries

Search:

Region	City	County	State	Zip Code	Site Name	NPL Status
+ 10	ADAK	[Blank County]	Alaska	99546	ADAK NAVAL AIR STATION	Final
+ 10	FAIRBANKS	FAIRBANKS NORTH STAR	Alaska	99701	ALASKA BATTERY ENTERPRISES	Deleted
+	ANCHORAGE	ANCHORAGE	Alaska	99501	ALASKA RAILROAD ANCHORAGE YARD	non- NPL
+ 10	FAIRBANKS	[Blank County]	Alaska	99701	ARCTIC SURPLUS	Deleted
Region	City	County	State	Zip Code	Site Name	NPL Status

Region	City	County	State	Zip Code	Site Name	NPL Status
+ 10	FAIRBANKS	FAIRBANKS NORTH STAR	Alaska	99702	EIELSON AIR FORCE BASE	Final
+ 10	ANCHORAGE	[Blank County]	Alaska	99506	ELMENDORF AIR FORCE BASE	Final
÷ 10	ANCHORAGE	[Blank County]	Alaska	99505	FORT RICHARDSON (USARMY)	Final
+ 10	FORT WAINWRIGHT	[Blank County]	Alaska	99703	FORT WAINWRIGHT	Final
+ 10	THORNE BAY	[Blank County]	Alaska	99919	SALT CHUCK MINE	Final
+ 10	ANCHORAGE	ANCHORAGE	Alaska	99501	STANDARD STEEL & METAL SALVAGE YARD (USDOT)	Deleted
Region	City	County	State	Zip Code	Site Name	NPL Status

Showing 1 to 10 of 110 entries (filtered from 1,844 total entries)

Previous 1 2 3 4 5 ... 11 Next

Last updated on August 12, 2016



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Toxic Chemicals and Radioactive Materials

Environmental Record Determination

Metarvik sits on largely undeveloped land not known or suspected of having any toxic and/or radioactive materials.

Metarvik is not listed or located within one mile of an EPA Superfund Site or within 2000 feet of a site on the CERCLIS List.

Metarvik is not located within 3000 feet of a toxic or solid waste land fill. Any future proposed solid waste landfills will be located further than 3000 feet from any properties projected for use in HUD programs.

Source Documentation

- State of Alaska Division of Spill Prevention and Response Contaminated Sites Search
- United States Environmental Protection Agency EPA Superfund Sites Search
- United States Environmental Protection Agency Alaska Cleanup Sites

Alaska Cleanup Sites Page 1 of 1



Region 10: the Pacific Northwest

Last updated on 9/7/2016

You are here: <u>EPA Home</u> <u>Region 10</u>

Alaska Cleanup Sites

Use the table below to find information about EPA cleanup sites in Alaska.

Click on the small triangle near the column heading to sort the information by state, city, title (site name), type of site. Note: NPL = National Priorities List (aka "Superfund"). Sites not associated with any particular city will show near the bottom of the list.

State ▲ City ▲	Title ▲	Type of Site ▲
Alaska Adak	Adak Naval Air Station	NPL
Alaska Fairbanks	Alaska Battery Enterprises	Deleted NPL
Alaska Anchorage	Anchorage Terminal Reserve	NPL Equivalent
Alaska Fairbanks	Arctic Surplus	NPL
Alaska Fairbanks	Eielson Air Force Base	NPL
Alaska Anchorage	Elmendorf Air Force Base	NPL
Alaska Anchorage	Fort Richardson (USArmy)	NPL
Alaska Fort Wainwright	Fort Wainwright	NPL
Alaska Ketchikan	Ketchikan Pulp Company	NPL Equivalent
Alaska	RCRA Corrective Action Sites in Alaska	RCRA CA
Alaska Prince of Wales Island	i <u>Salt Chuck Mine</u>	NPL
Alaska Anchorage	Standard Steel & Metals Salvage Yard (USDOT)	Deleted NPL

ENDANGERED SPECIES



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Endangered Species Act of 1973

Environmental Record Determination

- United States Fish and Wildlife Service Expected to have no effect on listed species, no further consultation is needed with the USFWS pursuant to the Endangered Species Act., email dated July 6, 2016 from Douglas Cooper, Branch Chief – Ecological Services.
- National Marine Fisheries Service Will have no effect on species under the National Marine Fisheries Service's jurisdiction that are listed under the Endangered Species Act., email dated July 27, 2016 from Jon Kurland, Assistant Regional Administrator for Protected Resources, NOAA Fisheries, Alaska Region
- Yukon Delta National Wildlife Refuge Does not need further permitting requirements, per email dated July 22, 2016 from Kent Stahlnecker, Refuge Manager, Yukon Delta NWR

Source Documentation

- USFWS Listed species believed to or known to occur in Alaska
- United States Fish and Wildlife Service email dated July 6, 2016 from Douglas Cooper, Branch Chief Ecological Services.
- National Marine Fisheries Service email dated July 27, 2016 from Jon Kurland, Assistant Regional Administrator for Protected Resources, NOAA Fisheries, Alaska Region
- Yukon Delta National Wildlife Refuge email dated July 22, 2016 from Kent Stahlnecker, Refuge Manager, Yukon Delta NWR



U.S. Fish & Wildlife Service

ECOS

ECOS / Species Reports / Species occurrence by state / Listed species believed to or known to occur in Alaska

Listed species believed to or known to occur in Alaska

Notes:

- As of 02/13/2015 the data in this report has been updated to use a different set of information. Results are based on where the species is believed to or known to occur. The FWS feels utilizing this data set is a better representation of species occurrence. Note: there may be other federally listed species that are not currently known or expected to occur in this state but are covered by the ESA wherever they are found; Thus if new surveys detected them in this state they are still covered by the ESA. The FWS is using the best information available on this date to generate this list.
- This report shows listed species or populations believed to or known to occur in Alaska
- This list does not include experimental populations and similarity of appearance listings.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

Listed species -- 12 listings

Animals -- 11 listings

<u>Status</u>	Species/Listing Name
Е	Albatross, short-tailed Entire (<i>Phoebastria (=Diomedea) albatrus</i>)
Т	Bear, polar Entire (<i>Ursus maritimus</i>)
T	Bison, wood Entire (<u>Bison bison athabascae</u>)

<u>Status</u>	Species/Listing Name
T	Eider, spectacled Entire (<i>Somateria fischeri</i>)
T	Eider, Steller's AK breeding pop. (<i>Polysticta stelleri</i>)
T	Otter, Northern Sea Southwest Alaska DPS (<i>Enhydra lutris kenyoni</i>)
Е	Sea lion, Steller Western DPS (<i>Eumetopias jubatus</i>)
Е	whale, beluga Cook Inlet DPS (<u>Delphinapterus leucas</u>)
E	Whale, blue Entire (<i>Balaenoptera musculus</i>)
E	Whale, bowhead Entire (<u>Balaena mysticetus</u>)
E	Whale, sperm Entire (<i>Physeter catodon (=macrocephalus)</i>)

Plants -- 1 listings

<u>Status</u>	Species/Listing Name	
E	Fern, Aleutian shield (<i>Polystichum aleuticum</i>)	:

Concepcion, Andy

m;	Walter Jim <wjim@avcphousing.org></wjim@avcphousing.org>
∍nt:	Wednesday, July 06, 2016 8:37 AM
To:	Mark Charlie
Cc:	Abraham Palacios; Allen Joseph; Concepcion, Andy
Subject:	FW: Mertarvik
Sent: Tuesday, July 05 To: Walter Jim <wjim< td=""><td>@avcphousing.org></td></wjim<>	@avcphousing.org>
Subject: Re: Mertarvil	K
Hi Jim,	
is expected to have the Endangered Spec	d response. Based on your determination that the proposed Newtok to Mertarvik relocation of effect on listed species, no further consultation is needed with the USFWS pursuant to cies Act. However, I am happy to discuss the project further if you would like. My direct ignature block below.
egards, oug Cooper	
On Tue, Jul 5, 2016	at 10:46 AM, Walter Jim < <u>WJim@avcphousing.org</u> > wrote:
Doug,	
Any new positive l	eads or concurrence for the proposed new Village site of Mertarvik?
Thank You,	
Walter Jim	
Planner, AVCP RH	IA
O. Box 767	
Bethel, Alaska 995	59

Douglass M. Cooper Branch Chief - Ecological Services Anchorage Fish and Wildlife Field Office, USFWS 4700 BLM Road Anchorage, Alaska 99507

(907) 271-1467 douglass cooper@fws.gov



The Association of Village Council Presidents Regional Housing Authority PO Box 767 405 Ptarmigan Road Bethel, Alaska 99559

Main # (907)-543-3121

Fax (907)-543-3933

Toll Free (800)-478-4687

June 7, 2016

Doug Cooper Fish and Wildlife Field Office 4700 BLM Road Anchorage, Alaska 99507

Re: Construction of 2 Single Family Units; Relocation of 12 Single Family Units; and Future Development at Mertarvik, Alaska.

Dear Mr. Cooper,

The Association of Village Council Presidents Regional Housing Authority (AVCP RHA) is the Tribally Designated Housing Entity (TDHE) for the Newtok Village Council to plan and implement an Indian Housing Plan with funding from the Native American Housing Assistance and Self-Determination Act (NAHASDA).

AVCP RHA is working to establish the Environmental Review Record (ERR) for the relocation project. The project includes construction of 2 single family units and relocation of 12 single family unit from Newtok to Mertarvik. Mertravik site was selected by the village to move the current village to escape the serious threat of erosion facing the village of Newtok. A current map of the proposed new village is enclosed for your review.

The project plans is for a development and construction of a village center; lots for house, fuel tank farm, power plant, multi-purpose building, water plant for a laundry facility and water well, community hall, church, public safety building, community gym, clinic, post office, library, store, school and teacher housing. Plans include a 2.5 mile road in the proposed site and a 3 mile road to the quarry. The site has plans for 25 lots for houses. Each lot is about .75 acre in size. At the site the project(s) will proceed taking all practicable measures to minimize harm.

The community has been working, with numerous federal and state agencies, for the last 20 to 30 years to relocate to another site. The community has no other land available to relocate the community. The land has been eroding to the point that it is now dangerously close to the existing house structures. The community got U.S. congressional support to swap land between the federal government and the village corporation so the village can relocate to higher and dryer ground and is not facing erosion. That land is now called Mertarvik. The new village site is located on elevation higher than the river at Nelson Island. The Newtok Village Council reviewed the listed species believed to or known to occur in Alaska from the USFWS ECOS web site and determines the project has no effect on the listed 12 species. The form is attached/

The Newtok Village Council is requesting concurrence with this determination from the U.S. Fish and Wildlife Service.

If you have any questions contact me at (907) 543-1323.

Sincerely,

Walter Jim Development Planner

Endangered Species

Ecological Services

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Alaska

Species Search:

Species common/scientific name

Species in Your County:

QUICK SEARCHES

Threatened/endangered "Box Score"

Threatened/endangered animals in the U.S and Foreign Specie

Threatened/endangered plants in the U.S and Foreign Specie

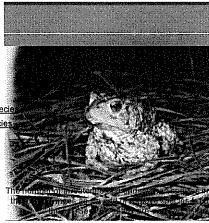
ESA petitions under review

Species proposed for listing

Species that are candidates for listing

Species proposed for a status change or delisting

More species searches...



Get to Know Your Species



Interactive Website

View our new interactive map to learn about endangered species success in your state or territory. Launch Map »

News



Service Creates ESA Listing Workplan to Provide Predictability and Encourage Proactive Conservation of Imperiled Wildlife

As part of its ongoing efforts to improve the effectiveness and implementation of the Endangered Species Act (ESA) and provide the best possible conservation for our nation's imperiled wildlife, the U.S.

Fish and Wildlife Service released today its National Listing Workplan for addressing ESA listing and critical habitat decisions over the next seven years. News Release »

More News »

More Info »



Featured Species

Channel Island Fox

Four of the six subspecies of island fox on California's Channel Islands – the San Miguel, Santa Barbara, Santa Rosa, and Santa Cataline island foxs – were listed as endangered in 2004 following catastrophic population declines...

Моге »

Photo credit: NPS

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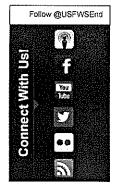
Rare Animals, Sierra Nevada Bighorn Sheep - Yosemite Nature

Sierra Nevada bighorn sheep are the rarest mountain sheep in North America. After the population dropped to around 100 animals in 1995, this unique subspecies was listed as an endangered species. In the spring of 2015, these charismatic animals were released into

the heart of Yosemite for the first time in over 100 years. Learn More »

More Info »

Last



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updated: September 6, 2016

Species Species Search/Map

Environmental Conservation Online Sys (ECOS) Information, Planning and Conservation System (IPaC)

U.S. Species Foreign Species Critical Habitat

Why Save Species? Frequently Asked Questions What We Do Consultations

Habitat Conservation Plans (HCPs) Foreign Species Listing and Critical Habitat Recovery

Working With Tribes Partnerships In Conservation For Landowners Habitat Conservation Plans (HCPs) Safe Harbor Agreements

Candidate Conservation Agreements with Assurances

Recovery Credits and Tax Deductions Conservation Banking Conservation Plans Database Information, Planning and Conservation System (IPaC)

Recovery Online Activity Reporting System (ROAR)

News Featured Species Recovery Success Stories Endangered Species Butetin

Partnership Stories

Contacts

About Us Featured Species Endangered Species Bulletin Glossary Frequently Asked Questions

FWS Regions Region Map Pacific (Region 1) Southwest (Region 2) Great Lakes-Big Rivers (Region 3) Southeast (Region 4) Northeast (Region 5) Mountain-Prairie (Region 6) Alaska (Region 7)

Pacific Southwest (Region 8) Headquarters

Laws & Policies Endangered Species Regulations and Policies Federal Register Notices

ESA Related Documents Federal Register Notices

For Kids Kids and Educators

Concepcion, Andy

om: ⊿nt: Walter Jim <WJim@avcphousing.org> Wednesday, July 27, 2016 3:33 PM

To:

Concepcion, Andy

Cc:

Mark Charlie; Abraham Palacios; Allen Joseph; shina.duvall@alaska.gov

Subject:

FW: Mertarvik and Lusted Species

From: Jon Kurland - NOAA Federal [mailto:jon.kurland@noaa.gov]

Sent: Wednesday, July 27, 2016 4:28 PM
To: Walter Jim <WJim@avcphousing.org>
Subject: Mertarvik and Lusted Species

Hi Walter. Per our phone conversation, I reviewed your letter and saw your conclusion that constructing 2 homes and relocating 12 homes from Newtok to Mertarvik will have no effect on species under the National Marine Fisheries Service's jurisdiction that are listed under the Endangered Species Act. In cases where a federal action agency such as the Corps of Engineers determines no effect to listed species, no concurrence from our agency is required. However, I certainly don't foresee any effects to listed species from your project. Good luck!

Jon Kurland Assistant Regional Administrator for Protected Resources OAA Fisheries, Alaska Region



The Association of Village Council Presidents Regional Housing Authority PO Box 767 405 Ptarmigan Road Bethel, Alaska 99559

Main # (907)-543-3121

Fax (907)-543-3933

Toll Free (800)-478-4687

July 22, 2016

National Marine Fisheries Service Protected Resources Division and Habitat Conservation Division 222 West 7th Ave., Box 43 Anchorage, Alaska 99513

Re: Construction of 2 Single Family Units; Relocation of 12 Single Family Units; and Future Development at Mertarvik, Alaska.

To whom it may concern,

The Association of Village Council Presidents Regional Housing Authority (AVCP RHA) is the Tribally Designated Housing Entity (TDHE) for the Newtok Village Council to plan and implement an Indian Housing Plan with funding from the Native American Housing Assistance and Self-Determination Act (NAHASDA).

AVCP RHA is working to establish the Environmental Review Record (ERR) for the relocation project. The project includes construction of 2 single family units and relocation of 12 single family unit from Newtok to Mertarvik. Mertravik site was selected by the village to move the current village to escape the serious threat of erosion facing the village of Newtok. A current map of the proposed new village is enclosed for your review.

The project plans is for a development and construction of a village center; lots for house, fuel tank farm, power plant, multi-purpose building, water plant for a laundry facility and water well, community hall, church, public safety building, community gym, clinic, post office, library, store, school and teacher housing. Plans include a 2.5 mile road in the proposed site and a 3 mile road to the quarry. The site has plans for 25 lots for houses. Each lot is about .75 acre in size. At the site the project(s) will proceed taking all practicable measures to minimize harm.

The community has been working, with numerous federal and state agencies, for the last 20 to 30 years to relocate to another site. The community has no other land available to relocate the community. The land has been eroding to the point that it is now dangerously close to the existing house structures. The community got U.S. congressional support to swap land between the federal government and the village corporation so the village can relocate to higher and dryer ground and is not facing erosion. That land is now called Mertarvik. The new village site is located on elevation higher than the river at Nelson Island. The Newtok Village Council reviewed the listed species believed to or known to occur in Alaska from the USFWS ECOS web site and determines the project has no effect on the listed 12 species. The form is attached/

The Newtok Village Council is requesting concurrence with this determination from the National Marine Fisheries Service.

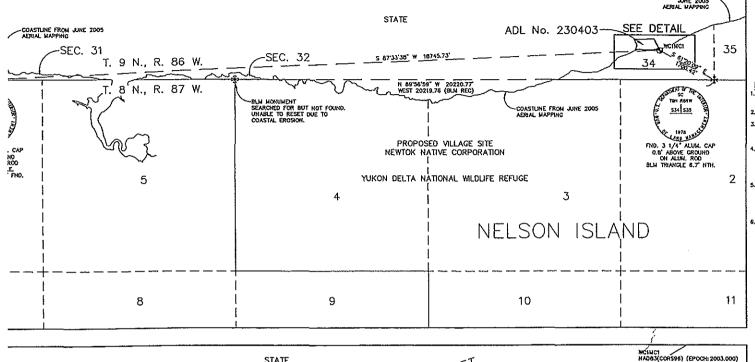
If you have any questions contact me at (907) 543-1323.

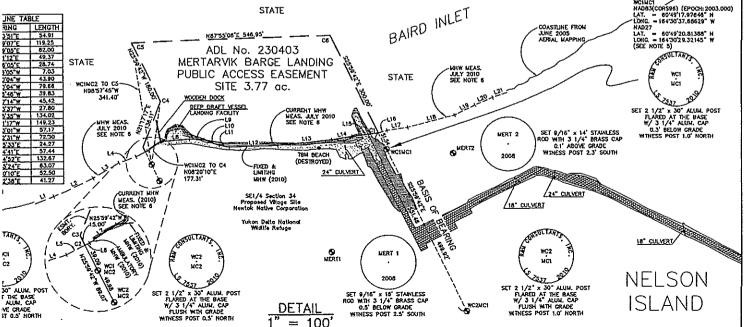
Sincerely,

Walter Jim

Development Planner AVCP Regional Housing Authority P.O. Box 767 Bethel, Alaska 99559

RAIRD INIFT







NOTES

COASTUNE FROM

- This survey does not constitute a subdivision as defined by AS 40.15.900(5)(A).
- The error of closure for this survey is not greater than 1:5000.
- 3. All bearings shown are true bearings as oriented to the Basis of Bearings and distances shown are reduced to horizontal field
- 4. The Basis of Bearing on this plat was determined by a high precision dated friumph-1 CPS survey, differentially corrected and processed with Trahabis Geomates Software. The measured mean—geodatic bearing between WCIMCI and WCZMCI was held fixed.
- 5. Caagraphic coordinates are based on OPUS solutions for MCIMCI. Two 4-hour observations were performed and then meaned. ANDBS (CORSSE) (EPOCH: 2003) geographic coordinates are opened from MADS with find MADZ7 geographic coordinates are converted from MADSS using IMADCOM version 2.11.
- ore converted from NADSS using NADCON version 2.11.

 6. Mean Nigh Water was determined through field observations. A NOAA accepted digital bubbler water level gauge (Water Loy H-355) was used to collect water level darb between June 10 and Ame 18, 2008 at the Mertarok Barge Landing Site. Dalums were comparison between the permanent NOAA Tide Station at St. Paul, Alarka (Visiage Cove 946-4212) and the Mertarok gauge. Temporary Bench Mark (IBM) "BEACH", a JA" duminum red driven to refused, was established with a MLLW elevation of 9.35 feet through skeet leveling from the gauge outlet. Elevations were transforted from TBM BEACH, using differential leveling, to Stations MERTI" and "MERTI". Shoreline tagograph and bathymatry was measured in July 2010, holding MERTI and MERTI "A Shoreline Langageph and bathymatry was measured in July 2010, holding MERTI and MERTI "A STATE STA

MERT 2 Gerotton = 27.55'
IRB BEACH Devetton = 9.35'
(IBM PEACH' has since been destroyed)
The Mean High Water line shown here is exteblished at MLLW
elevation 4.81. Some portions of the Mesterok Berge Facility
were built before survey measurements were performed. In
those areas were no survey was performed, the MHW is
exteblished at that location but inside the 2005 areat mapping
"Caast" line, which is consistent in it's relationship to the
measured MIMW line.

- f. Section Lines are protracted: all protracted lines shown are constrained at BLM SC 34335 and ratated to BLM WCMC Sec. 31, 19N, R86W, S.M.
- B. Ho boundaries of record exist adjacent to this survey.
- 9. This As-built represents a post construction survey of AOL 203403. It is intended to depict that portion of the permit as it perfoles to state is and and is not to be presumed to pict or dedicate those pertions performing to non-state lands. This or-built is not intended to be used to re-establish boundaries and except as indicated, no encroachments exist within the permitted area.
- All Position values shown were constrained to the NGS network.

MONUMENT LEGEND

- RECOVERED BLM MONUMENT
- ŧΧ BLM MONUMENT OF RECORD
- SET 3/4" ALUM, ROO TEMPORARY BENCH MARK (SINCE DESTROYED BY CONSTRUCTION)
- SET PRIMARY MONUMENT (SEE DESCRIPTIONS)
- SECTION LINES SURVEYED
- SECTION LINES UNSURVEYED

HATCH LEGEND

27.2

PLASTIC MATTING ON ROCK FILL COARSE ROCK/SLOPE PROTECTION

CONCRETE MATTING ON ROCK FILL

GRAVEL

--- IND CANDWENT TOCKHOUT

YU: VIC SCALL U.S.G.S. BARD INL

> THOAL IN MHHA MAN Lit W **HULW** SOURCE RELD SEE N

SURVEYOR'S CERTIFI I hereby cartify that I am p practice land surveying in it represents a survey made by that the movements shown he that all dimensions and att

William D. Cohen



DATE OF SURVEY Beginning: 6/9/08 Ending: 7/27/10

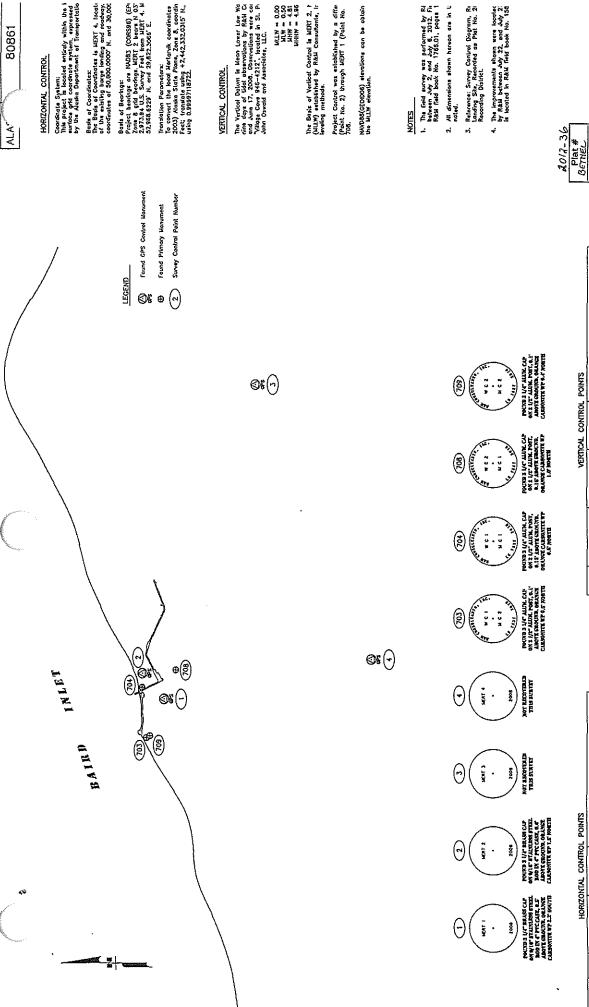
> STATE DEPARTMENT OF DIVISION OF MIL ANCHO

RECORD OF 1) MERTAL GTE 2) BARGE MERTARVIK I

PUBLIC A UNSURVE TOWNSHIP & N SEWARD 1

BETHEL RE

DRAWN BY: RHB DATE: 10/6/10



MCLW = 0.00 MLW = 0.50 MHW = 4.86

80861

Description Fd BC/SSR[R&M] WERT AM[7537-S]: WC1 UC1 48,15 AM[7537-5]; WC2 MC1 Elevation 27.55 Easting 28822 28640 28870 Korthing 52969 52975 52531 Point 208 704

Description

Elevation 27.55 162.64 320.23 16.57 46.15

Eseting 28495.4425

Morthing

52968.6229

Fd BC/SSR[R&W] MERT 2 FG BC/SSR[RAM] MERT 3 Fd BC/SSR[R&M] MERT 4

AM[7537-S]: WC1 MC2 AM(7537-5): WC1 IKC1 AN(7537-5): WC2 MC! AN[7537-5]: NC2 MC2

30000.0000 29822.3066 33547.2470

52919,4761 51504.6213 52698.1151

2 3 4 703 704 708

29640.4374 29869.6945 26994.0271

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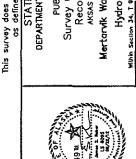
29016.9690

Fd BC/SSR[R&M] WERT

SURVEYOR'S CERTIFICATE

I BREEN CERTIFY FILM I AN PROPERLY REGISTREED AND LICENSED TO PRACTICE LLAD SUBSTRING IN THE STATE OF ALMSKI, AND THAT THIS DEMANDS REPRESENTS A SUBSTRICTION AND THAT THE SUBSTRICTION, AND THAT THE RONUNCT'S GROWN BEREON ACTUALY EXIST AS RESCON BEREON ACTUALY EXIST AS RECORDED, AND THAT ALL DIMENSIONS, AND OTHER DATA OF THE RESERVENCE AND OTHER DETAILS ARE CORDED TO THE EXTRAT SHOWN BEREON.





PC Reco

Survey 1

DEPARTMEN'

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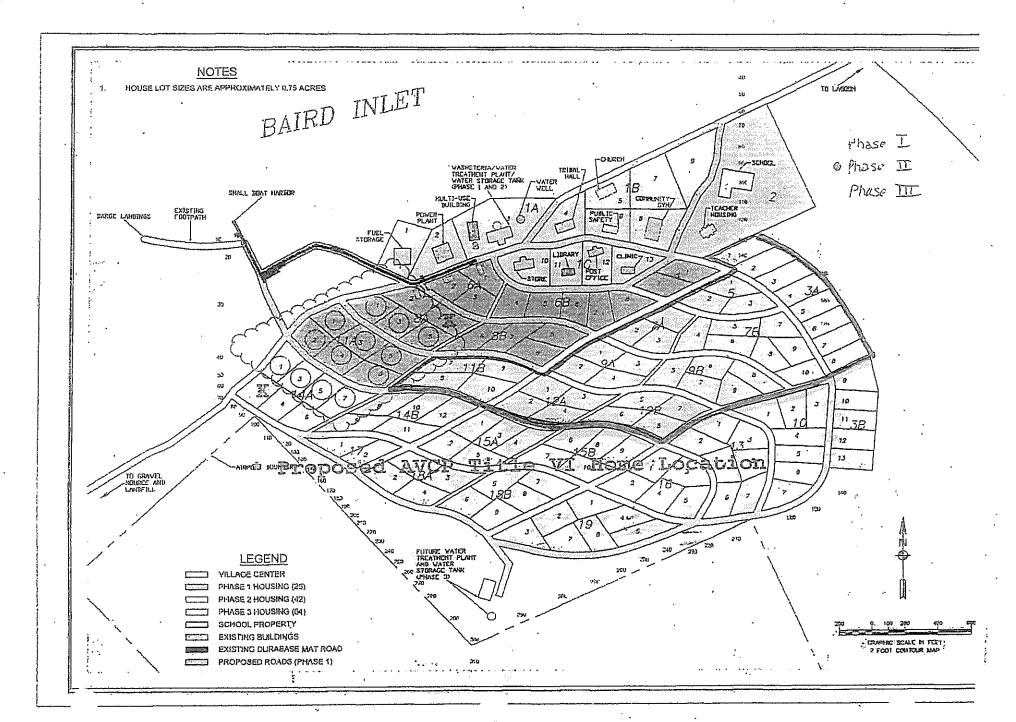
Bethel

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AKSAS

Mertarvík Wa





ALASKA REGIONAL OFFICE

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GRANTS

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Home

Protected Resources

The Protected Resources Division (PRD) is responsible for implementing marine mammal conservation and recovery programs under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) in close coordination with the State of Alaska and other partners.

PRD develops and implements conservation programs for marine mammats including whales, ice seals, harbor seals, northern fur seals, and Steller sea lions; develops and implements recovery programs for threatened and endangered species including Cook Intet beluga whales, bowhead whales, North Pacific right whales, western Steller sea lions, and Arctic ringed seals; coordinates the Alaska Marine Mammat Stranding Network to respond to stranded or entangled marine mammats; consults with federal agencies to minimize the effects of proposed actions on threatened and endangered marine mammats and their critical habitat, such as oil and gas development and coastal construction projects; develops and implements co-management agreements with Alaska Native organizations to cooperatively manage subsistence use of marine mammats; works collaboratively with stakeholders to implement guidelines and practices for marine mammat viewing to avoid harassment; conducts reviews to determine if species warrant protection under the ESA or if ESA-listed species no longer need such protection; and analyzes interactions between marine mammals and commercial fisheries to minimize adverse effects.

How Do I?

- View marine mammals from a safe distance?
- Report injured or enlangled marine mammals?
- · Report marine marnmal harassment?
- Purchase or collect marine mammal parts legally?
- Get a MMAP Authorization Certificate or a Research Permit?



Species Managed

- Steller Sea Lions
- Whales
- Seals
- Porpoises/Dolphins

Additional Species Information

- · Seabird Bycatch
- Pinto Abalone
- Corals
- Herring
- Walrus, Sea Otters, Polar Bears (USFWS)
- Maps

Contact Information

- Staff phone numbers and emails



Human Interactions

- Enlanglement and Injury
- Permits and Authorizations
- · Viewing Marine Mammals
- Buying Marine Mammal Parts and Products
- Marine Mammal and Fisheries Interactions
 Marine Mammal Harassment
- Strandings
- Seabird Bycatch
- Co-management
- Section 7 Consultations and Biological Opinions
- · Marine Mammal Observer Program
- Arctic Oil and Gas



Laws and Regulations

- Laws, Acts and Marine Mammal Protections
- Federal Register Rules/Notices

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This is an official United States government website.

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service is an agency of the U.S. Department of Commerce.





Concepcion, Andy

m: Romero, Mary R POA <Mary.R.Romero@usace.army.mil>

-nt: Friday, July 29, 2016 1:28 PM

To: Concepcion, Andy; Walter Jim; Abraham Palacios; Mark Charlie

Subject: Coordination on projects within Wildlife Refuge info...FW: [EXTERNAL] Re: Mertarvik

(UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Mary Romero Project Manager 907.753.2773

USACE Alaska District Regulatory Division CEPOA-RD-NN, North Section/North Branch PO Box 6898 JBER, Alaska 99506

* We want your feedback! Take the survey: http://corpsmapu.usace.army.mil/cm apex/f?p=136:4:0

----Original Message-----

From: Stahlnecker, Kenneth [mailto:kenneth stahlnecker@fws.gov]

Sent: Friday, July 22, 2016 11:07 AM

To: Romero, Mary R POA < Mary.R.Romero@usace.army.mil>

Spencer Rearden <spencer_rearden@fws.gov>
.bject: Re: [EXTERNAL] Re: Mertarvik (UNCLASSIFIED)

Hi Mary,

We were able to look into this matter, as we indicated on our phone call, and we confirmed that Yukon Delta National Wildlife Refuge does not have any further permitting requirements for this project.

Thanks for your help.

Ken

Ken Stahlnecker

Refuge Manager Yukon Delta NWR PO Box 346 Bethel, Alaska 99559 907-543-1002 - Office 907-545-2434 - Cell 907-543-4413 - Fax

n Wed, Jul 20, 2016 at 8:58 AM, Romero, Mary R POA <Mary.R.Romero@usace.army.mil nailto:Mary.R.Romero@usace.army.mil >> wrote:

CLASSIFICATION: UNCLASSIFIED

Hi Spencer,

I did receive this BLM conveyance paperwork from HUD. Does this have any relevance in the matter? I am not familiar with these types of documents but maybe it has been conveyed and it is no longer an NWR coordination issue?

Thanks,
Mary Romero
Project Manager
907.753.2773
USACE Alaska District Regulatory Division
CEPOA-RD-NN, North Section/North Branch
PO Box 6898
JBER, Alaska 99506

* We want your feedback! Take the survey: Blockedhttp://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

----Original Message----

From: Rearden, Spencer [mailto:spencer_rearden@fws.gov < mailto:spencer_rearden@fws.gov >]

Sent: Wednesday, July 20, 2016 8:23 AM

To: Cooper, Douglass <douglass_cooper@fws.gov <mailto:douglass_cooper@fws.gov > >

Cc: Romero, Mary R POA <Mary.R.Romero@usace.army.mil <mailto:Mary.R.Romero@usace.army.mil> >;
Concepcion, Andy <andy.concepcion@hud.gov <mailto:andy.concepcion@hud.gov> >; Abraham Palacios
<Abraham_Palacios@avcphousing.org <mailto:Abraham_Palacios@avcphousing.org> >; Mark Charlie
<mark@avcphousing.org <mailto:mark@avcphousing.org> >; Zachares, Bill <bill.zachares@hud.gov
ailto:bill.zachares@hud.gov> >; Vernon Born <vernon_born@fws.gov <mailto:vernon_born@fws.gov> >
ahlnecker <kenneth_stahlnecker@fws.gov <mailto:kenneth_stahlnecker@fws.gov> >

Subject: [EXTERNAL] Re: Mertarvik (UNCLASSIFIED)

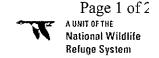
I do not believe that there has been any discussions over this project at Yukon Delta NWR. As far as I know, we are unaware of any planned activities near Newtok.

On Tue, Jul 19, 2016 at 3:59 PM, Cooper, Douglass <douglass_cooper@fws.gov <mailto:douglass_cooper@fws.gov> > wrote:

Hi All,

It does sound like there is some confusion over which Federal agency is responsible for what. My email to Walter Jim was in response to his (and ultimately HUD's) determination that the project would have "No Effect" on any federally threatened or endangered species. In cases where a Federal agency makes a "No Effect" determination, there is no further action taken under the Endangered Species Act (ESA). The Federal agency that has made that determination is taking full responsibility for the project under the ESA, and the US Fish and Wildlife Service has no further involvement under that law. However, this does not address other Federal laws and regulations, such as the Migratory Bird Treaty Act or the Marine Mammal Protection Act. I also does not address any coordination and/or approval needed for activities on other Federal property, such as National Wildlife Refuge (NWR) Lands. Typically, a NWR issues a Special Use Permit (SUP) when activities are to occur on their lands. I assume there has been coordination 'th our Refuge folks with the Yukon-Delta NWR? I have copied one of the NWR biologists on this email to see if he has y knowledge of such coordination.







Alaska's two largest rivers, the Yukon and the Kuskokwim, flow across the refuge and are the primary architects of the refuge's landscape.

FEATURES



Youth in the Great Outdoors

Are you interested in in pursuing a career in the outdoors? Visit YouthGo.gov to find out more information on how to get involved.

YouthGo.gov (https://youthgo.gov/)

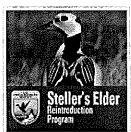


Words of Wisdom

"The joy of living is his who has the heart to demand it" - Theodore Roosevelt

CONSERVATION NEWS

Return of the Steller's Eider (https://www.facebook.com/pages/Stellers-Eider-Y-K-Delta-Reintroduction-Program/617455034968389)



The Steller's Eider Reintroduction Program is proposing to release captive-raised individuals of this beautiful masked seabird to the Yukon-Kuskokwim Delta.

Report Banded Birds (http://www.pwrc.usgs.gov/bbl/)



Have you seen a bird with bling? Biologists use reports of band observations to study many aspects of bird ecology including survival and dispersal. You can help by reporting sightings of banded or marked birds.

National Wildlife Refuge System (aboutNWRS.html)



The National Wildlife Refuge System, within the U.S. Fish and Wildlife Service, manages a national network of lands and waters set aside to conserve America's fish, wildlife, and plants.

REFUGE UPDATES

Kuskokwim River Daily Update

(/refuge/yukon delta/wildlife and habitat/dailyupdate.html)

This update provides current information regarding this years salmon run, fishing regulations, and message from our law enforcement

Final Regulatory Changes (https://www.fws.gov/alaska/nwr/ak_nwr_pr.htm)



The Service Publishes a Final Rule on the Non-Subsistence Take of Wildlife for Alaska National Wildlife Refuge Regulations. The rule was developed in response to public interest and concern about predator control and recent liberalization of predator harvest within the State of Alaska. The final rule will become effective on September 6, 2016.



Spectacled Eider

(http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action? spcode=Bo8Z)

This threatened species that spends its entire life within the bounds of the Bering Sea is one of the most unique species of waterfowl nesting on the Yukon-Kuskokwim Delta.

Learn more (http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Bo8Z)

Page Photo Credits — All photos courtesy of USFWS unless otherwise noted. Last Updated: Aug 04, 2016





U.S. Fish & Wildlife Service

National Wildlife Refuge System

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Department of the Interior (http://www.doi.gov/)

USA.gov (http://www.usa.gov/)

WILD AND SCENIC RIVERS



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Wild and Scenic Rivers Act of 1968

Environmental Record Determination

Proposed project is not located within proximity to a listed river and will have no effect.

Source Documentation

- Nationwide Rivers Inventory for Alaska Wild and Scenic River systems.

Alaska Page 1 of 2









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HOME NATIONAL SYSTEM MANAGEMENT RESOURCES PUBLICATIONS CONTACT US KID'S SITE

ALASKA

Alaska has approximately 365,000 miles of river, of which 3,210 miles are designated as wild & scenic—less than 1% of the state's river miles.

Alagnak River

Alatna River

Andreafsky River

Anlakchak River

Beaver Creek

Birch Creek

Charley River

Chilikadrotna River

Delta River

Fortymile River

Gulkana River

Ivishak River

John River

Kobuk River

Koyukuk River (North Fork)

Mulchatna River

Noatak River

Nowitna River

Salmon River

Selawik River

Sheenjek River

Tinayguk River

Tlikakila River

Unalakleet River

Wind River

Choose A State ✓ Go
Choose A River ✓ Go

What is it about Alaska's rivers that call to us? The mystic of wilderness? The thrill of exploration? The sheer immensity of the landscape?

NATIONWIDE RIVERS INVENTORY | KID'S SITE | CONTACT US | PRIVACY NOTICE | Q & A SEARCH ENGINE | SITE MAP

Alaska Page 2 of 2

Designated Rivers	National System	River Management	Resources
About WSR Act	WSR Table	Council	Q & A Search
State Listings	Study Rivers	Agencies	Bibliography
Profile Pages	Stewardship	Management Plans	Publications
	WSR Act Legislation	GIS Mapping	GIS Mapping
			Logo & Sign Standards
			Display

FARMLAND PROTECTION



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Farmland Protection Policy Act

Environmental Record Determination

- No unique farmlands have been designated in Alaska
- No farmlands of statewide importance have been designated in Alaska

Source Documentation

- USDA National Resources Conservation Service Alaska Prime and Important Farmlands website.

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Soils

Soil Health Soil Surveys

Prime and Important Farmlands

Prime and important farmland includes all land that is defined as prime, unique, and farmlands of statewide or local importance.

Alaska's Soil of Local Importance Fact Sheet

Prime Farmland

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). The soils are of the highest quality and can economically produce sustained high yields of crops when treated and managed according to acceptable farming methods.

Very specific technical criteria were established by Congress to identify prime farmland soils. In general, the criteria reflects adequate natural moisture content; specific soil temperature range; pH between 4.5 and 8.4 in the rooting zone; low susceptibility to flooding; low risk to wind and water erosion; minimum permeability rates; and low rock fragment content.

There are no prime farmlands in Alaska since our soil temperatures do not meet the threshold established by Congress.

Unique Farmland

Unique Farmland is land other than prime farmland that has a special combination of unique characteristics needed to economically produce sustained high yields of a specific crop. Specific examples are bog soils used for cranberry production in the Northeast, and manipulated lava fields used for macadamia nut production in Hawaii.

No unique farmlands have been designated in Alaska.

Farmland of Statewide Importance

This is land, in addition to prime and unique farmland, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Criteria for defining and delineating this land are to be determined by the appropriate state agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable. In some states, additional farmlands of statewide importance may include tracts of land that have been designated for agriculture by state law.

No farmlands of statewide importance have been designated in Alaska.

Farmland/Soil of Local Importance

In some local areas, there is concern for certain additional farmlands for the production of food, feed, fiber, forage, and oilseed crops, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned. In places, additional farmlands of local importance may include tracts of land that have been designated for agriculture by local ordinance.

The Fairbanks Soil and Water Conservation District (SWCD), the Matanuska-Susitna Borough and the Kenai and Homer Soil and Water Conservation Districts have adopted criteria for Farmlands/Soils of Local Importance for lands within their jurisdictional boundaries. Criteria encompasses all soils in Land Capability Classes 2 and 3, and those soils in Land Capability Class and Subclass 4c.

Soils of Local Importance (within the Matanuska-Susitna Borough and the Matanuska-Susitna Valley Area Soil Survey)

Soils of Local Importance (within the Matanuska-Susitna Borough and the Yentna Area Soil Survey) Soils of Local Importance (within the Fairbanks SWCD and the Greater Fairbanks, Greater Nenana,

Fort Wainwright, North Star, and Totchaket Soil Surveys) Criteria for Soils of Local Importance

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CLEAN AIR ACT



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Clean Air Act

Environmental Record Determination

Metarvik in not located in a nonattainment area

Source Documentation

- Current Nonattainment Counties for All Criteria Pollutants



Green Book Nonattainment Areas

Current Nonattainment Counties for All Criteria Pollutants

As of June 17, 2016

The 8-hour Ozone (1997) standard was revoked on April 6, 2015 and the 1-hour Ozone (1979) standard was revoked on June 15, 2005.

View Notes

Listed by State, County, NAAQS * Part County NA NAA Area Name (Classification, if applicable)

ALABAMA

Pike Co

Lead (2008) * Troy, AL

ALASKA

Fairbanks North Star Borough

PM-2.5 (2006) * Fairbanks, AK - (Moderate)

ARIZONA

Cochise Co

PM-10 (1987) * Paul Spur/Douglas (Cochise County), AZ - (Moderate)

Gila Co

Lead (2008) * Hayden, AZ

 PM-10 (1987)
 * Hayden, AZ - (Moderate)

 PM-10 (1987)
 * Miami, AZ - (Moderate)

Sulfur Dioxide (2010) * Hayden, AZ Sulfur Dioxide (2010) * Miami, AZ

Maricopa Co

 PM-10 (1987)
 * Phoenix, AZ - (Serious)

 8-Hr Ozone (2008)
 * Phoenix-Mesa, AZ - (Moderate)

Pima Co

PM-10 (1987) * Ajo (Pima County), AZ - (Moderate)

PM-10 (1987) * Rillito, AZ - (Moderate)

Pinal Co

Lead (2008) * Hayden, AZ

 PM-10 (1987)
 * Hayden, AZ - (Moderate)

 PM-10 (1987)
 * Phoenix, AZ - (Serious)

 PM-10 (1987)
 * West Pinal, AZ - (Moderate)

 PM-2.5 (2006)
 * West Central Pinal, AZ - (Moderate)

 Sulfur Dioxide (1971)
 * Hayden (Pinal County), AZ

Sulfur Dioxide (2010) * Hayden, AZ

8-Hr Ozone (2008) * Phoenix-Mesa, AZ - (Moderate)

Santa Cruz Co

 PM-10 (1987)
 * Nogales, AZ - (Moderate)

 PM-2.5 (2006)
 * Nogales, AZ - (Moderate)

Yuma Co

PM-10 (1987) * Yuma, AZ - (Moderate)

CALIFORNIA

Alameda Co

PM-2.5 (2006) San Francisco Bay Area, CA - (Moderate) 8-Hr Ozone (2008) San Francisco Bay Area, CA - (Marginal)

Butte Co

PM-2.5 (2006) * Chico, CA - (Moderate)

8-Hr Ozone (2008) Chico (Butte County), CA - (Marginal)

Calaveras Co

8-Hr Ozone (2008) Calaveras County, CA - (Marginal)

Contra Costa Co

PM-2.5 (2006) San Francisco Bay Area, CA - (Moderate) 8-Hr Ozone (2008) San Francisco Bay Area, CA - (Marginal)





U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

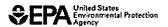
Environmental Justice

Environmental Record Determination

Project is not likely to raise environmental justice issues. Proposed housing development sites are being developed so that they will not be located in areas that have a new, continued or historically disproportionate potential for high and adverse effects on minority or low-income populations; and that do not suffer from disproportionate adverse health and environmental effects relative to the community at large.

Source Documentation

- Environmental Protection Agency Environmental Justice Program



Environmental Justice

Environmental Justice Blog and ListServ

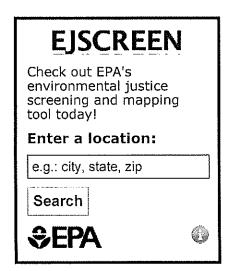
Check out the **Environmental Justice Blog** for stories about advancing EJ across the country. Also, subscribe to the **EJ ListServ** for up-to-date information about upcoming meetings, funding opportunities, events, and other EJ topics.

1 2 3 4

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

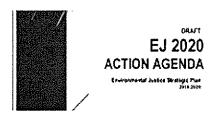
EPA has this goal for all communities and persons across this nation. It will be achieved when everyone enjoys:

the same degree of protection from environmental and health hazards, and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.





Learn about the National Environmental Justice Advisory Council (NEJAC).



Read about EPA's EJ 2020 Action Agenda, EPA's strategic plan for advancing environmental justice.



Learn about Environmental Justice in Your Community.



Find grants and resources, including technical assistance programs, training, and more.

Learn More About

Environmental Justice

Community Voices on Environmental Justice

Federal Interagency Working Group

Environmental Justice for Tribes and Indigenous Peoples

Equitable Development and Environmental Justice

Environmental Justice and National Environmental Policy Act

Environmental Justice and Title VI of the Civil Rights Act of 1964

EPA's Role in International Human Rights, Rights of Indigenous Peoples, and Environmental Justice



Report a Violation

Report possible violations of environmental laws and regulations.

Last updated on August 19, 2016

SOLE SOURCE AQUIFERS



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Sole Source Aquifers

Environmental Record Determination

There are no EPA designated Sole Source Acquifers located in Alaska.

Source Documentation

- US Environmental Protection Agency Sole Source Aquifer Program



URL: https://yosemite.epa.gov/r10/water.nsf/Sole+Source+Aquifers/SSA Last updated on 9/13/2016

Sole Source Aquifer Program

As of December, 1997, EPA has designated 69 sole source aquifers nationwide. Fifteen of these are in Region 10 (which consists of Alaska, Idaho, Oregon, and Washington). There are currently NO sole source aquifers designated in

Recent Progress:

EPA Region 10 signed a new Memorandum of Understanding (PDF) (8 pp, 621K) (MOU) with Federal Highway Administration (FHWA) Washington Division and the Washington State Department of Transportation (WSDOT) on Sept 25, 2014. The MOU expands the list of types of projects which do not have the potential to contaminate a SSA and therefore do not require EPA review. The MOU also includes additional information about the suite of regulations and policies that govern WSDOT and FHWA's protection of water quality.

On this page:

- Designated Aquifers in the Pacific Northwest Background Petition for Designation

- Project Review Authority and Coordination Public Awareness and Participation Resource Characterization

- Limitations of the Program
- Contact Us

Designated Aquifers in the Pacific Northwest

Sole Source Aquifer Name	State	FR Vol/No/Pg	FR Date
Spokane Valley-Rathdrum Prairie Aquifer	WA/ID	43/28/5566	02-09-78
Camano Island Aquifer	WA	47/66/14779	04-06-82
Whidbey Island Aquifer	WA	47/66/14779	04-06-82
Cross Valley Aquifer	WA	52/95/18606	05-18-87
Newberg Area Aquifer	WA	52/191/37215 52/214/42474	10-05-87 11-05-87
North Florence Dunal Aquifer	OR	52/194/37519	10-07-87
Cedar Valley Aquifer	WA	53/191/38779	10-03-88
Lewiston Basin Aquifer	WA/ID	53/191/38782	10-03-88
Eastern Snake River Plain Aquifer	ID/WY	56/194/50634	10-07-91
Central Pierce County Aquifer System	WA	59/1/224	01-03-94
Marrowstone Island Aquifer System	WA	59/105/28752	06-02-94
Vashon-Maury Island Aquifer System	WA	59/127/34468	07-05-94
Guemes Island Aquifer System	WA	62/230/63545	12-01-97
Troutdale Aquifer System	WA	E6-14710	10-05-06
Bainbridge Island Aquifer System	WA	78/07409/19262	03-29-13

Sole Source Aquifer Protection Program Resources

- Commonly Asked
- Questions and Answers Project Review Areas of
- Concern Memorandum of Understanding with other Federal Agencies • Petitioners' Guidance

SSA Maps

Downloadable maps of Region 10 Sole Source Aquifers



Downloadable GIS-Format data of Region 10 Sole Source Aquifers

- Geographic Information System (GIS) Format Map Data for Region 10 Sole Source Aquifers (ArcGIS 10.0 File Geodatabase format, compressed in a .zip file) Metadata for GIS-Format
- Map Data for Region 10 Sole Source Aquifers (zipped XML)

EPA Contact

Susan Eastman (206) 553-6249 eastman.susan@epa.gov

Note: Designation of the Eastern Columbia Plateau Aquifer System has been suspended indefinitely.

Background

The Sole Source Aquifer (SSA) Protection Program is authorized by Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq), which states:

"If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

The Environmental Protection Agency (EPA) defines a sole or principal source aquifer as one which supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. EPA guidelines also stipulate that these areas can have no alternative drinking water source(s) which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. For convenience, all designated sole or principal source aquifers are usually referred to simply as "sole source aquifers."

Petition for Designation

Although the agency has statutory authority to initiate SSA designations, EPA has a longstanding policy of only responding to petitions. Any person may apply for SSA designation. A "person" is any individual, corporation, company, association, partnership, state, municipality, or federal agency. A petitioner is responsible for providing EPA with hydrogeologic and drinking water usage data, and other technical and administrative information required for assessing designation criteria.

In 1987, EPA published the Sole Source Aquifer Designation Petitioner Guidance to assist those interested in preparing and submitting petitions to EPA regional offices. The document provides procedures and criteria for proposing aquifer boundaries, determining whether an aquifer is the sole or

principal source of drinking water, and for evaluating alternative sources of drinking water.

In general, the designation decision process takes a minimum of six months from the time that the petitioner submits a complete petition to EPA. The process may take considerably longer, depending on the technical complexity of the petition, and on the number of petitions that may be undergoing review within the EPA regional office at a particular time.

Project Review Authority and Coordination

If an SSA designation is approved, proposed federal financially-assisted projects which have the potential to contaminate the aquifer are subject to EPA review. Proposed projects that are funded entirely by state, local, or private concerns are not subject to EPA review. Examples of federally funded projects which have been reviewed by EPA under the SSA protection program include:

- highway improvements and new road construction
- public water supply wells and transmission lines wastewater treatment facilities
- construction projects that involve disposal of storm water
- agricultural projects that involve management of animal waste
- projects funded through Community Development Block Grants

EPA has developed Memorandums of Understanding (MOU) with federal funding agencies to establish review responsibilities under the SSA protection program and to list categories of projects which should or should not be referred to EPA for review. MOUs help ensure that projects which pose serious threats to ground water quality "so as to create a significant hazard to public health" are referred to EPA. Region 10 has developed MOUs with a number of federal funding agencies including the Federal Highway Administration, the Department of Housing and Urban Development, and the U.S. Department of Agriculture - Rural Development. We are currently updating and renegotiating these MOUs and, as they are signed, they will be made available We are currently updating and renegotiating these MOUs, all current information can be found on the Groundwater Protection Unit Homepage.

Most projects referred to EPA for review meet all federal, state, and local ground water protection standards and are approved without any additional conditions being imposed. Occasionally, site or project-specific concerns for ground water quality protection lead to specific recommendations or additional pollution prevention requirements as a condition of funding. In rare cases, federal funding has been denied when the applicant has been either unwilling or unable to modify the project.

Whenever feasible, EPA coordinates the review of proposed projects with other offices within EPA and with various federal, state, or local agencies that have a responsibility for ground water quality protection. Relevant information from these sources is given full consideration in the sole source aquifer review process and helps EPA to understand local hydrogeologic conditions and specific project design concerns. Project review coordination also helps ensure that SSA protection measures support or enhance existing ground water protection efforts, rather than duplicate them.

To have a project reviewed by us ensure your project meets two criteria:

- 1. Be in the review area of the SSA. The review area consists of both the aquifer boundary AND the source area of the SSA as delineated in the GIS maps on this website.

 2. The project receives federal funding. The SSA program has no statutory authority to review a project unless it is receiving federal funding.

If your project meets these criteria please submit a completed Region 10 SSA check list (RTF) (2 pp, 69K) by email to Susan Eastman (Eastman.Susan@epa.gov). Projects submitted without a checklist or via hardcopy may have a delayed review time

Public Awareness and Participation

SSA designations help increase public awareness on the nature and value of local ground water resources by demonstrating the link between an aquifer and a community's drinking water supply. Often, the realization that an area's drinking water originates from a vulnerable underground supply can lead to an increased willingness to protect it. The public also has an opportunity to participate in the SSA designation process by providing written comments to EPA or by participating in an EPA-sponsored public hearing prior to a designation decision.

Resource Characterization

Important information on the boundaries, hydrogeologic materials, and water use patterns of an area's aquifer must be documented by a petitioner seeking SSA designation. Following EPA's technical review of a petition, this information is summarized by the Agency in a technical support document that is made available for public review. Following designation, a Federal Register (FR) notice is published to announce and summarize the basis for EPA's decision.

Limitations of the Program

Sole source aquifer designation provides only limited federal protection of ground water resources which serve as drinking water supplies. It is not a comprehensive ground water protection program. Protection of ground water resources can best be achieved through an integrated and coordinated combination of federal, state, and local efforts such as called for under the Comprehensive State Ground Water Protection Program (CSGWPP) approach. For example, local wellhead protection programs designed to protect the recharge areas of public water supply wells should work in concert with contaminant source control and pollution prevention efforts being managed at various levels of government. This coordination ensures that all ground water activities meet the same protection goal without duplication of time, effort, and resources.

Although designated aquifers have been determined to be the "sole or principal" source of drinking water for an area, this does not imply that they are more or less valuable or vulnerable to contamination than other aquifers which have not been designated by EPA. Many valuable and sensitive aquifers have not been designated simply because nobody has petitioned EPA for such status or because they did not qualify for designation due to drinking water consumption patterns over the entire aquifer area. Furthermore, ground water value and vulnerability can vary considerably both between and within designated aguifers. As a result, EPA does not endorse using SSA status as the sole or determining factor in making land use decisions that may Impact ground water quality. Rather, site-specific hydrogeological assessments should be considered along with other factors such as project design, construction practices, and long-term management of the site.

Contact Us

For more information on the Sole Source Aquifer Program in Region 10, contact:

Susan Eastman 206-553-6249

Eastman.Susan@epa.gov Call toll-free from AK, ID, OR, and WA at 1-800-424-4EPA

COASTAL ZONE MANAGEMENT ACT



U.S. Department of Housing and Urban Development Region X – Anchorage Field Office Alaska Office of Native American Programs 3000 C Street, Suite 401 Anchorage, AK 99503-3914 www.hud.gov/local/anc

Memorandum to File

Coastal Zone Management Act of 1972

Environmental Record Determination

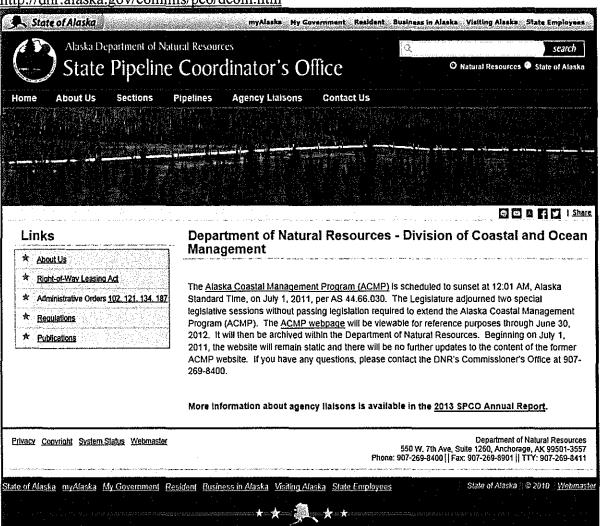
Currently the State of Alaska does not have a Coastal Zone Management Plan.

Source Documentation

- Alaska Dept. of Natural Resources/State Pipeline Coordinators Office

Alaska Coastal Management Program

http://dnr.alaska.gov/commis/pco/dcom.htm



Alaska Coastal Management Program



The federal Coastal Zone Management Act (CZMA) of 1972 created the federal Coastal Zone Management Program (CZMP). The CZMP strives to protect, develop, and restore the natural and cultural resources of coastal areas by balancing competing uses of and impacts to these resources. The Office of Ocean and Coastal Resource Management (OCRM), which is part of National Oceanic Atmospheric Administration (NOAA), implements the CZMP by providing approval, oversight and funding to state programs. One of the primary objectives of the OCRM is to use a comprehensive approach on an ecosystem scale to coastal zone management that works through key partnerships to address the complex management issues facing the U.S. coasts and oceans.

On June 4, 1977 the Alaska Legislature enacted the Alaska Coastal Management Act (ACMA), which established the Alaska Coastal Management Program (ACMP). The ACMP is composed of 33 coastal resource districts which develop and implement their own programs and enforceable policies for the roughly 44,500 miles of Alaska coastline, which has national and international significance for its healthy and diverse ecosystems. The intent of the ACMP is to provide stewardship for Alaska's rich and diverse coastal resources to ensure a healthy and vibrant coast that efficiently sustains long-term economic and environmental productivity. It was also intended to provide a forum for local community involvement in the preservation and development of our coastal areas through the participation of the district programs.



Project proposals that trigger a review under the ACMP must be consistent with both the statewide standards of the ACMP, as set forth in 11 AAC 110, 112 and 114, and the enforceable policies of the coastal district where the project will occur. This requirement gives the state and coastal districts a powerful tool to: ensure conservation and protection of the habitats and wildlife populations of Alaska's coastal environments; influence federal decision making; and affect the design and approval of projects and lands in the coastal zone. However, the power of this tool is dependent on the quality of our State standards and the ability of the districts to implement effective programs and enforceable policies.

On March 12, 2003, at the request of Governor Frank Murkowski, the Alaska State Legislature mandated the reform of the ACMP that included revising statutes, regulations, district coastal management plans, and other ACMP processes. The Murkowski-era language of the state standards, particularly the Habitat Standards found in 11 AAC 112.300, "revised" the standards to such an extent that no conservation or protection of wildlife habitats can occur, minimized local participation by marginalizing district programs, and eliminated the districts' ability to draft enforceable policies and standards. This ultimately has resulted in the institutional and policy failure of the ACMP.

Periodically, the OCRM reviews state's coastal management programs, and in June of 2008, OCRM published it's findings regarding Alaska's Coastal Management Program.

Click here to download OCRM's Evaluation and Findings of Alaska's Coastal Management Program.



On July 1st, 2008, the Alaska Department of Natural Resources (DNR) initiated a "re-evaluation" of the ACMP laws. The DNR will prepare a statutory proposal for consideration during the 2009 Alaska Legislative Session and a subsequent regulatory package for implementing the changes. All Alaskans including conservationists, natives and other stakeholders have a chance to re-enter a partnership to address the complex management issues facing Alaska's coastal zones.

Click here to download the initial proposed changes to the ACMP Habitat Regulations.

The Northern Alaska Environmental Center got involved in the re-evaluation process to ensure that our values of ecosystem and cultural preservation were protected, and to push for meaningful local involvement by coastal communities.

Click here to download NAEC's August 15, 2008 comments.



Click here to download NAEC's December 23, 2008 comments.



It is unclear what is happening with this revision process at the present time. As of September 2009, it appears that DNR is continuing to move forward with revisions to 11 AAC 110 (the administration and implementation regulations) but is not actively working to revise 11 AAC 112, which includes resource and habitat standards. NAEC continues to look for ways to push for reform of these regulations.

PART B: ENVIRONMENTAL PROGRAM FACTORS

Environmental Assessment Checklist

[Environmental Review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Evaluate the significance of the effects of the proposal on the character, features and resources of the project area. Enter relevant base data and verifiable source documentation to support the finding. Then enter the appropriate impact code from the following list to make a determination of impact. Impact Codes:(1) - No impact anticipated; (2) - Potentially beneficial; (3) - Potentially adverse; (4) - Requires mitigation; (5) - Requires project modification. Note names, dates of contact, telephone numbers and page references. Attach additional material as appropriate. Note conditions or mitigation measures required.

Code	Source or	Documentation
Oode	OUGIUG OI	Documentation

Land Development		
Conformance with Comprehensive Plans and Zoning	1	Although a comprehensive plan has not been developed for the Mertarvik site, a Community Layout Plan was developed and approved by the Newtok Planning Council and is considered the guiding document for development (attached).
		No current zoning applies to this project. It has not been determined if this project will result in zoning regulations.
Compatibility and Urban Impact	1	The proposed one-story, single-family units are compatible with the proposed village layout and are typical of village housing units. The project is not sited within an urban environment and will not result in an urban environment.
Slope	1	The project is located on a fairly flat slope, with the site map showing a relatively consistent upgradient trend to the south at an approximately 5% slope. There is no history of slope failure in the project area or physical evidence of slides or slumps in the project area.
	A Company	The project will contain gravel road that will mitigate stormwater flows by allowing sheet flow to percolate to the subsurface. Drainage culverts would be installed as needed to maintain natural drainage patterns. Houses and other structures will be built above the ground surface, either on 'stilts' or piling. No drainage improvements or stormwater infrastructure are currently proposed. Source (Site Visit August 2016)
Erosion	1	The project area does not have any indications of erosion problems. (Cite field visit photos).
Soil Suitability	Tree.	Surface rock in the vicinity of the project site is vascular basalt. The soil in most areas is basalt weathered to sand and gravel. The surface of the unweathered basalt ranged from 7 to more than 31.5 feet below the ground surface. The ground surface has a layer of organics that varies in depth, but is generally 1 to 2 feet thick. There is discontinuous permafrost on the island. The depth to permafrost in most areas is probably about 18 to 24 inches. The permafrost is ice rich and has moisture content (on the basis of weight) of 20 to 30 percent. There is surface evidence that ice wedges are present in the area, although none was observed. There is bedrock between 6' and 25' throughout the site; a rare resource in western Alaska.
		Housing foundations will be site-specific. Buildings will either have adjustable foundations (stilts) or be constructed on piling. Typical road construction/arctic engineering practices will be used for construction of roads to insulate against permafrost degradation.
Hazards and Nuisances including Site Safety	1	Nelson Island is in Seismic zone A, the lowest zone in the state in terms of required design standards.

No natural hazards have been identified at the project site. A hazard mitigation plan for Newtok was updated in 2015 and evaluated hazards at Mertarvik. At 600 feet above sea level, the project site is not subject to flooding or erosion. The project site also shares the following hazard type with Newtok: earthquake, ground failure, severe weather, and tundra fire. The Newtok Village Council supports projects that provide mitigation measures from natural hazards of earthquake, ground failure, severe weather, and tundra fire at the current as well as the new Mertarvik Village site (2015 Newtok HMP).

For safety, residents will likely move back to Newtok during the spring and fall when movement back and forth from Newtok to Mertarvik would be too risky (from 2012 SMP background report) due to freezing and thawing conditions.

Housing will be constructed above ground either on stilts or piling. During the initial phase, cell phone service will be intermittent and slightly unreliable at Mertarvik. In the case of injuries, a Mash Unit (Pioneer Mertarvik Clinic) will be established that will use boats as its primary mode of transportation back to Newtok.

To facilitate emergency landings by planes, a portion of the Quarry Road may serve as an emergency runway.

Energy Consumption

The average modern home in Newtok uses 300 gallons of heating fuel every 1-2 weeks. In light of this, housing in Phase I will be 6-star rated homes.

Heat will be provided to Phase 1 residents through wood stoves with individual generators providing electricity. Energy consumption by residents in Phase II has not been established. The first homes will have their own generators that feed into battery banks and are solar/wind ready as well as ready to plug into a conventional grid.

Current design is focused on self-contained pioneer units that can tie into an electrical grid when a grid is created.

Current plans exceed property and energy-efficiency standards currently established in Alaska. The home is modeled to use approximately 250-300 gallons of heating oil annually. Currently, the average usage in the region is around 800gallons annually.

There are currently three storage containers for heating oil and gasoline (two near the barge landing and another one up near the MEC). A 350kw generator will be used to operate the rock crusher and electricity from it will be provided to residents and other buildings during the initial phase using a 480V line. A #2 diesel tank will be used to store diesel for heavy equipment use and for heating.

After the initial phase, a fuel tank farm and power plant will be constructed.

Noise – Contribution to Community Noise Levels

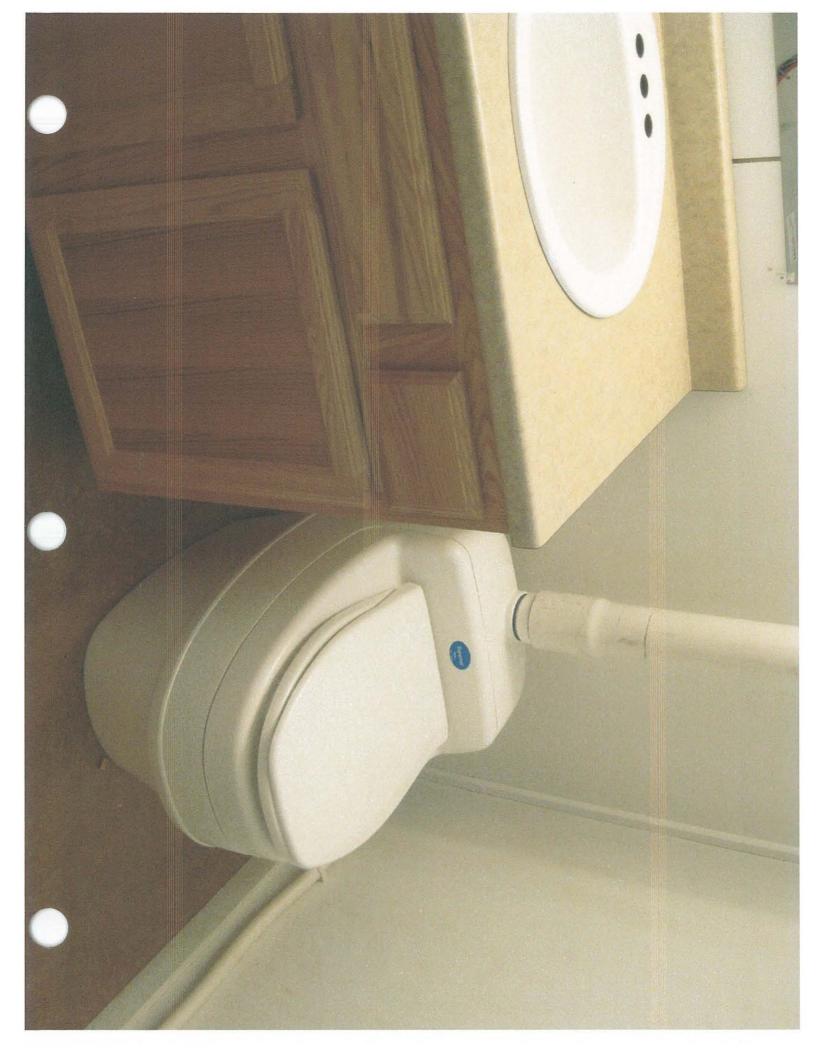
The project construction will produce negligible levels of noise. No noise ordinances currently apply and not anticipated to be developed.

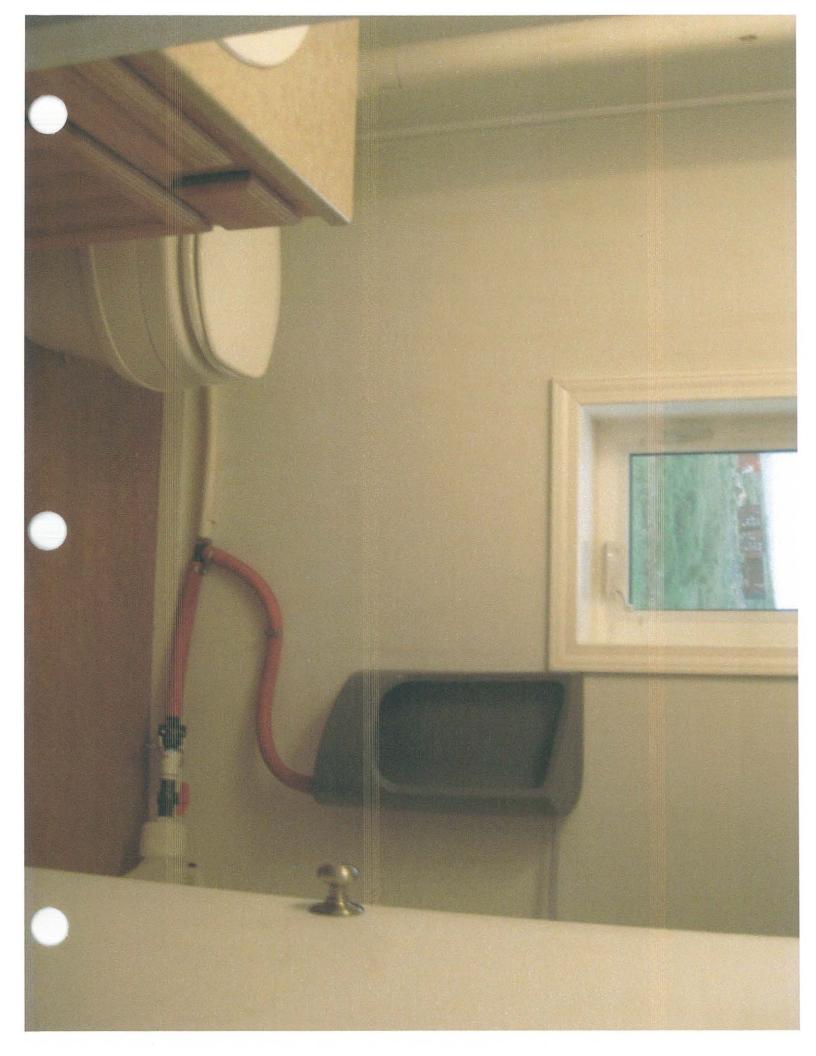
Air Quality Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	1	According to Alaska Administrative Code (AAC) 18 AAC 50.15, all geographic areas in the state are designated by the federal administrator as "attainment," "non-attainment," or "unclassifiable." There is insufficient information in the project area's air quality, and the site is designated as unclassifiable. Although there is a lack of monitoring data in this area, DEC and EPA have identified dust in villages as a potential problem. According to the EPA, road dust consists mainly of coarse particles that become airborne by tire friction that in some cases may be contaminated with man-made and naturally-occurring pollutants. This dust becomes airborne during dry and windy conditions, particularly when the dust is disturbed by four wheelers and other vehicles. Newtok is not on the list of communities reported by the DEC to be highly affected by dust. Impacts to air quality as a result of the project
		are anticipated to be temporary and occur during construction. Although no dust abatement measures are required, a water truck is planned for the site to keep dust level minimal.
Environmental Design Visual Quality – Coherence, Diversity, Compatible Use and Scale	1	The mass and scale of the project is consistent with other village community development projects.
Socioeconomic		ł
Demographic Character Changes	1	No demographic data for the project site exists. The project would not change the demographics of the area. An Elder Housing Model is being developed to accommodate the needs of elderly residents.
Displacement	1	The eventual relocation of all of the residents of Newtok to the new site in Metarvik will result in zero displacement. As additional housing units are constructed, families from Newtok will relocate to Metarvik; activities will be done in accordance with the Uniform Relocation Act to ensure issues are addressed. (AKONAP HUD)
Employment and Income Patterns	1	The school, clinic, village services and commercial fishing provide employment. Subsistence activities and trapping supplement income. In 2009, 17 residents held commercial fishing permits. The project is not anticipated to affect employment or income patterns.
Community Facilities and Serv	ices	
Educational Facilities	1	An Education Action Plan was developed to make sure sufficient educational opportunities for school-age children prior to school construction. Children will be home-schooled and if needed, a temporary teaching facility could be built. After the initial phase, a school and teacher housing will be
Commercial Facilities	1	All goods and services will be obtained in Newtok. After the initial
Health Care	1	phase, a store will be constructed A MASH unit will provide first aid and limited health care services; Health care will be accessed in Newtok. After the initial phase, a clinic will be constructed
Social Services	1	Social services will be accessed in Newtok during the initial phase.
Solid Waste	1	A burn unit will be available to manage solid waste during the initial phase. A 'mini-dump' is being proposed.

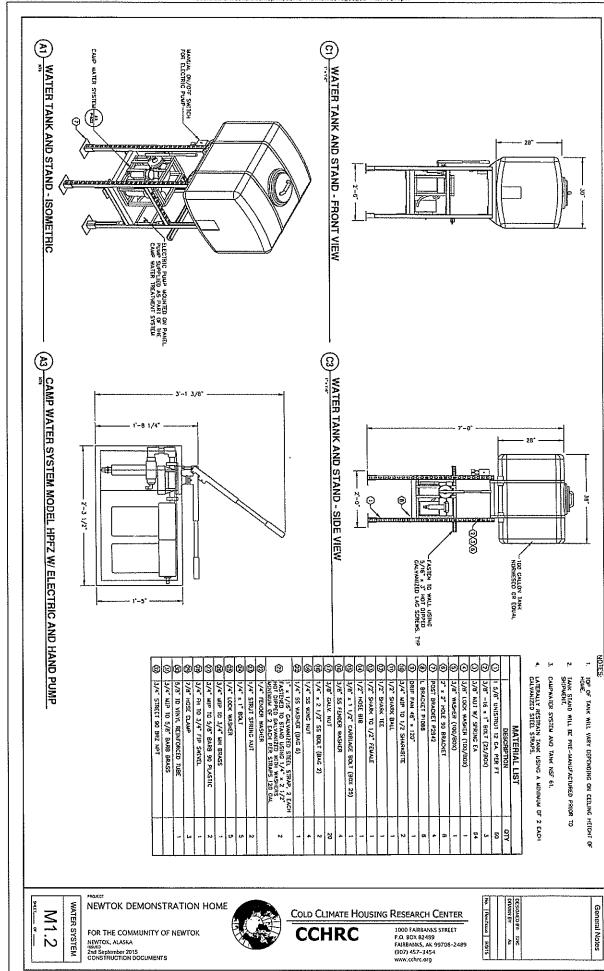
Waste Water	1	The first phase of housing would use the existing septic field that has
		already been constructed at the MEC Site. As of yet, the interface point between the haul-distribution point and this septic system has not been designed. The draft housing plan will focus on a community-wide waste system.
Storm Water	1	No stormwater systems are currently planned; however cross- drainage culverts will be installed as needed to facilitate drainage under roads.
Water Supply	1	Water is currently available through access to a local spring, a well, or through rainwater catchment. Residents will select their source and then point-source water treatment plants will treat water in homes.
		After the initial phase, a washeteria/water plant will be constructed
Public Safety		
- Police	1	During the initial phase, services will be in Newtok. After the initial phase, a public safety building will be constructed
- Fire	1	Fire services will be handled in Newtok
- Emergency Medical	1	During the initial phase emergency services will be available in Newtok or in a nearby community such as Bethel.
Open Space and Recreation	1	Due to the remote location, open space and outdoor recreational facilities are not currently planned.
- Open Space	1	No organized recreational opportunities will exist for the initial phase. After the initial phase, a multi-purpose building and/or community gym will be constructed.
- Recreation	1	No organized recreational opportunities will exist for the initial phase. After the initial phase, a multi-purpose building/or and community gym will be constructed.
- Cultural Facilities	1	The Mertarvik Evacuation Center will serve as a community space and would host a variety of cultural events, such be also be Traditional Eskimo Dance, Community meetings and other activities.
		After the initial phase, a tribal hall, library, and church will be constructed
Transportation	1	A Long Range Transportation Plan (LRTP) developed in accordance with 25 C.F.R. Part 170 for the Newtok Traditional Council will guide transportation-related decisions. All transportation off-site is currently by boat. Travel within the project site is by 4-wheeler or by foot. An airport serving future residents is anticipated but has not yet been designed.
Water Resources	1	Baird Inlet lies approximately ¼ mile to the north and a small drainage with intermittent flow lies east of the access road alignment. No other rivers, creeks or open bodies of water are near the project area. Source: 2008 EA

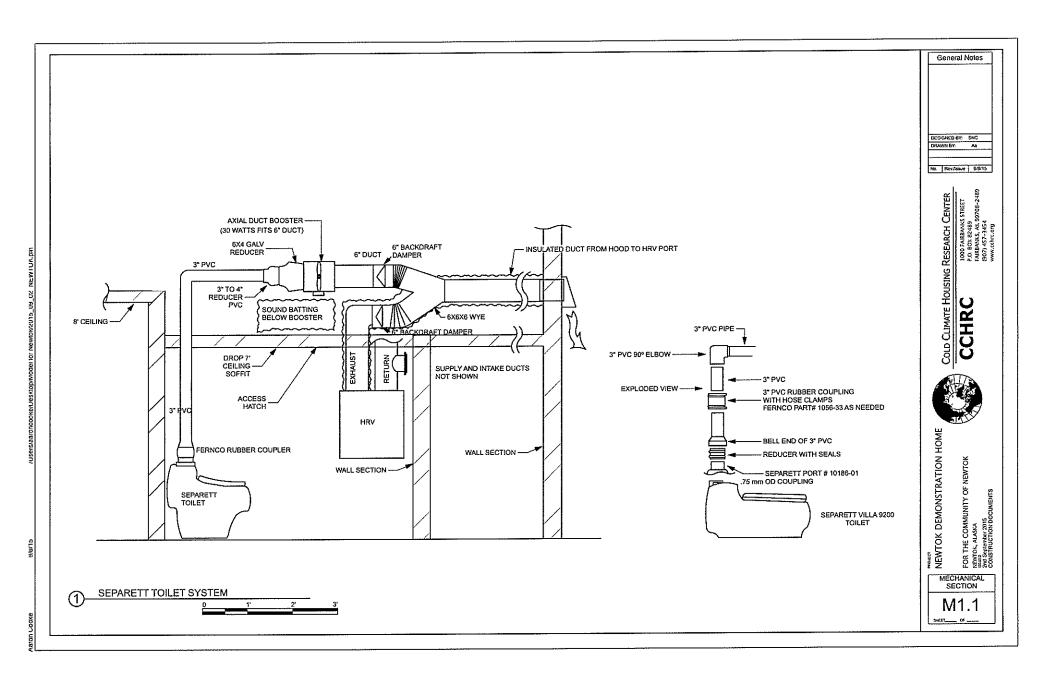
Surface Water	1	The project site is nearly free of surface water. The project lies on high ground with no prominent drainage paths to creeks or ponds. Sources: Site Trip August 2016; Bing Aerial Photos, 2008 EA
Unique Natural Features and Agricultural Lands	1	No agricultural lands are present within the project site. No unique natural features are present. Source: 2008 EA
Vegetation and Wildlife	1	The site is dominated by wetlands with vegetation typical of western Alaska and the lowlands of the Yukon-Kuskokwim Delta. Upgradient of the project site, the vegetation changes to heath tundra, a complex of vegetative associations that vary according to small differences in exposure, drainage, and disturbance. Heath tundra is characterized by a moss and lichen mat on which other plants grow. Sedges and grasses are abundant. In drier areas, woody plants consisting primarily of prostrate or low-growing shrubs are common. In 2005 the Corps of Engineers refined the delineation of wetland and vegetation types around the project site. Wetland vegetation at the project site is composed mostly of palustrine emergent persistent/scrub-shrub evergreen/moss and palustrine emergent persistent/scrub-shrub evergreen/moss and palustrine emergent persistent/scrub-shrub broad-leaved deciduous wetland. Vegetation types are mostly mesic shrub-birch ericaceous and tussock tundra interspersed with low, open willow shrub and blue joint herb shrub complex patches. These wetland and vegetation types are typical and widespread throughout higher ground on Nelson Island and are not unique to the project site. A Section 404 permit will be obtained prior to construction to comply with the Clean Water Act. Mitigation may be required, based on project design and will not be determined until a permit is submitted. It is anticipated that the project will be eligible for general permit 2007-541-M1. Small mammals, including voles, shrews, lemmings, short-tailed weasels, and mink, range across much of Nelson Island and could be present throughout the project area. Fish and Wildlife Service biologists noted an abundance of voles and lemmings during an August 2006 field study of the area (USFWS 2006). Reindeer were introduced to Nelson Island. The Mulchatna herd, which ranges south of the Kuskokwim River, possibly comes closest to Nelson Island. Caribou range to north, east, and southeast of Nelson Island, but their range does not extend to th
		Source: 2008 EA

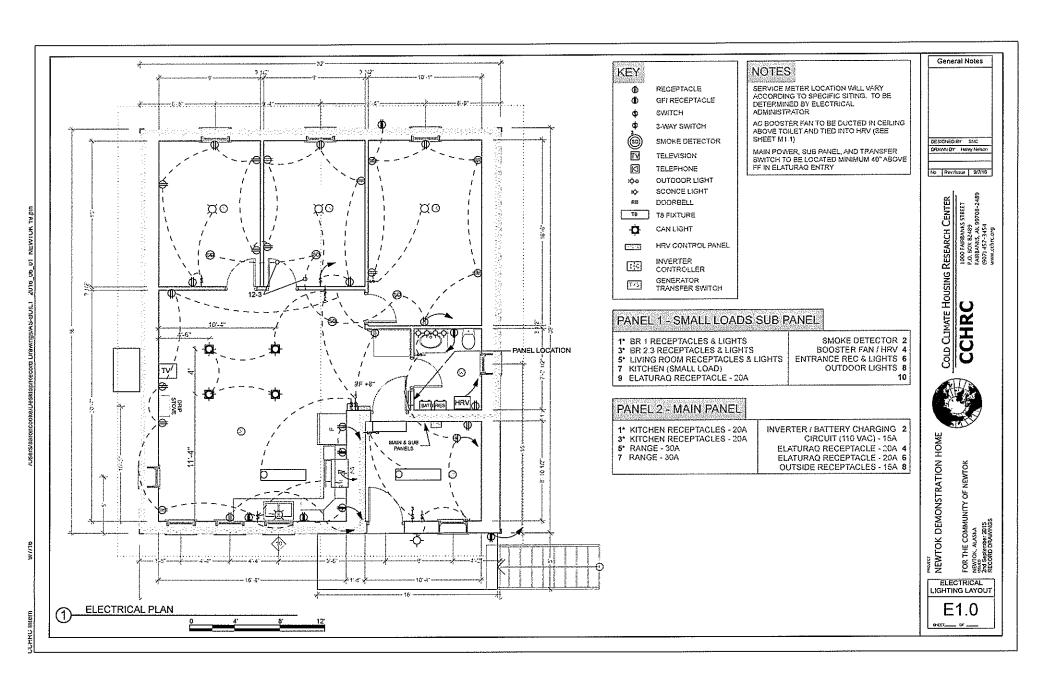
Flood Disaster Protection Act [Flood Insurance] [§58.6(a)]	1	The Federal Emergency Management Agency (FEMA) has not mapped flood hazards for the project site. Although the USACE and State of Alaska Division of Community and Regional Affairs (DCRA) maintain limited flood records and community maps for many areas in Alaska, data related to Mertarvik does not exist pertaining to flood boundaries and hazards. However, due to the distance from the coastline and elevation, the project site is not anticipated to be within a 100-year floodplain Source: FEMA, USACE floodplain websites and DCRA.
Coastal Barrier Resources Act/ Coastal Barrier Improvement Act [§58.6(c)]	1	A review of the U.S. Fish and Wildlife Service website indicated that there are no lands included in the Coastal Barriers Resources Act system located within Alaska. Source: USFWS
Airport Runway Clear Zone or Clear Zone Disclosure [§58.6(d)]	1	No runway yet exists at the site. The FAA will evaluate runway clear zones during final planning and design.
Other Factors	1	The project is unique for two reasons: (1) The construction of houses and public facilities outlined in this project occurs in a community that has been taking shape over the last several years. As a result, the initial population living in Mertarvik will be present prior to final build-out of all facilities. (2) The project is urgent due to the expected loss of more homes each year from flooding/erosion.

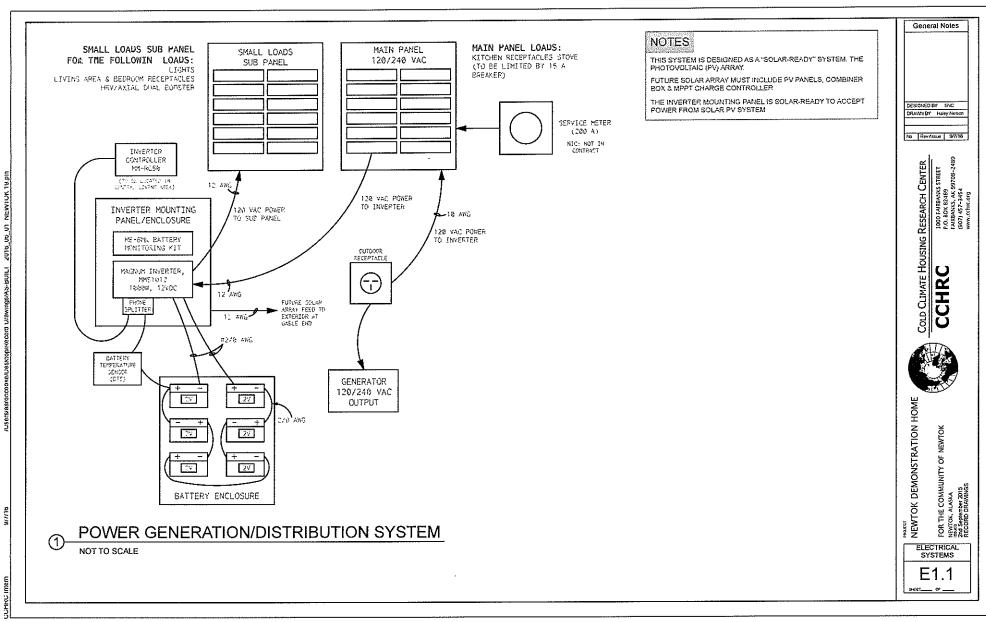


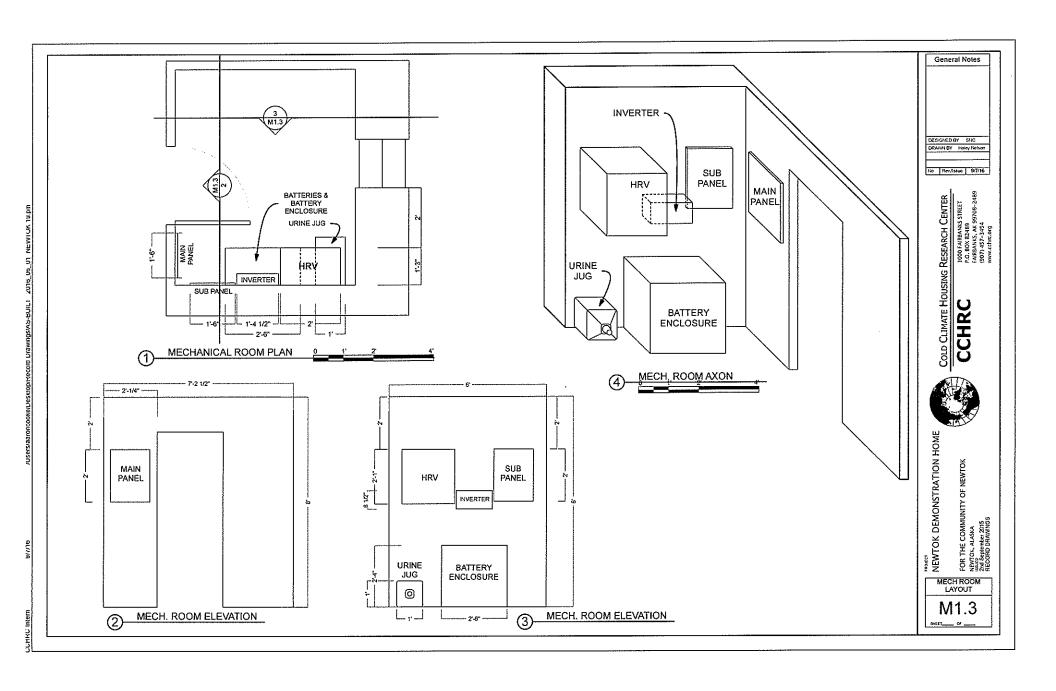




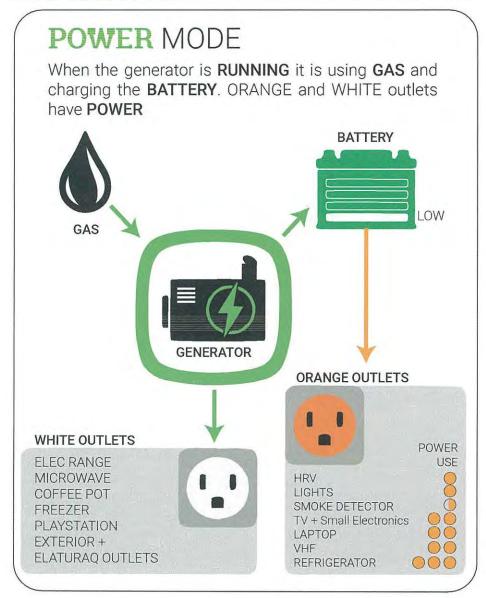


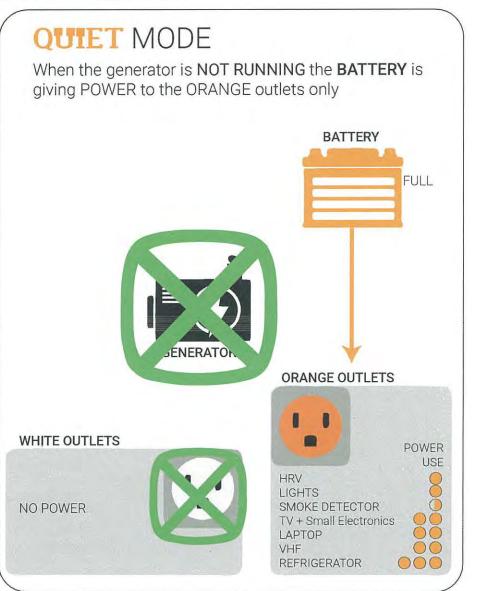






METARVIK HOME POWER SYSTEM 2016

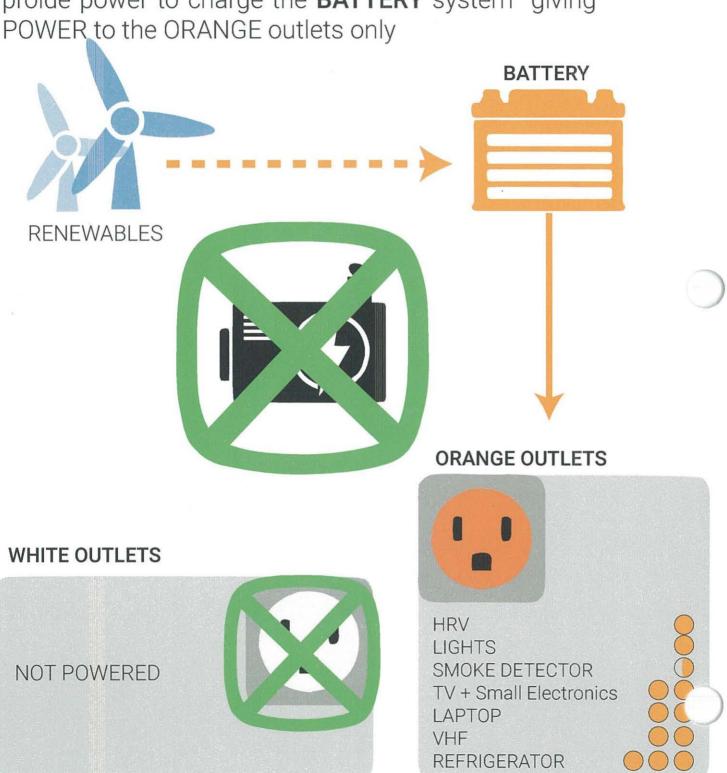




METARVIK HOME POWER SYSTEM. 2016

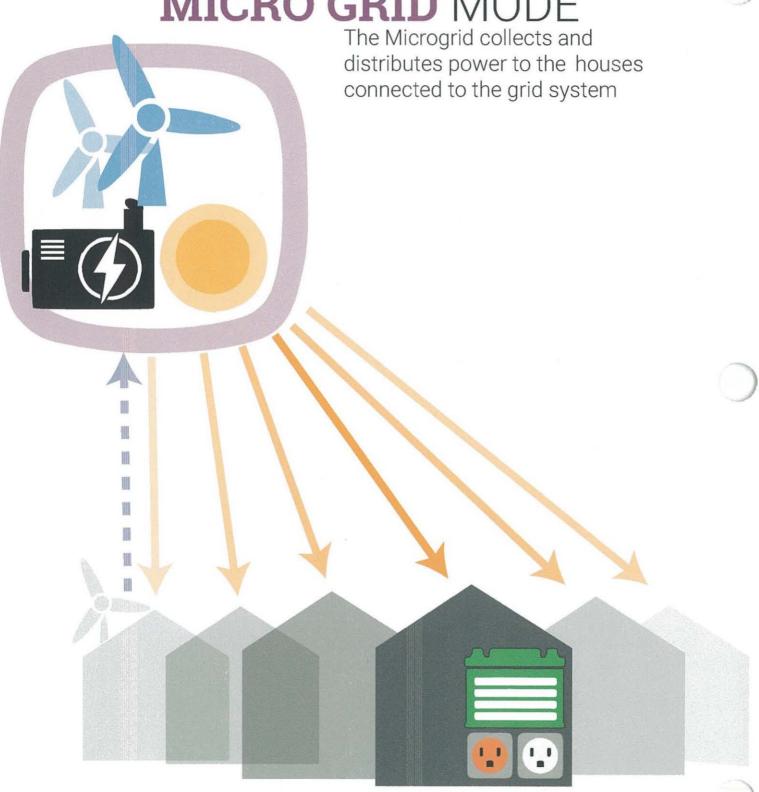
ECO MODE

RENEWABLE sources of energy, like WIND and SOLAR, proide power to charge the **BATTERY** system giving POWER to the ORANGE outlets only



METARVIK HOME POWER SYSTEM. 2016





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ARCHAEOLOGICAL EVALUATION OF CULTURAL RESOURCES AROUND MERTARVIK, ALASKA:

NHPA WI 57105

PROPOSED RELOCATION SITE FOR NEWTOK

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Margan Allyn Grover US Army Corps of Engineers, Alaska District March 2007

ARCHAEOLOGICAL EVALUATION OF CULTURAL RESOURCES AROUND MERTARVIK, ALASKA: PROPOSED RELOCATION SITE FOR NEWTOK

Margan Allyn Grover US Army Corps of Engineers, Alaska District April 2007

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Introduction

Newtok is a community of approximately 325 residents in the Yukon-Kuskokwim Delta, situated between the Newtok and Ninglick rivers (figure 1). In 1954, the Ninglick River was about 4,000 feet south of the community, but by 2006, the river had moved to within 800 feet of the nearest structures. Over the last 50 years, the erosion problem has been addressed unsuccessfully in many ways. Relocating the community has been proposed as the best solution to the problem. The Newtok Traditional Council (the federally recognized tribe) evaluated six relocation sites through polls of residents in 1996, 2001, and 2003, and the preferred location was Mertarvik on Nelson Island (92% for Mertarvik, 3% for other locations, 5% for other solutions, no votes for relocating to one of the other area communities). Congress approved a land exchange between the Newtok Village Corporation and the U.S. Fish and Wildlife Service in 2003, under the Alaskan Native Village and the Interior Department Land Exchange Act of November 17, 2003 (Public Law 108-129, 117 Stat. 1358). The Department of Interior conveyed 10,943 acres at Mertarvik to the Newtok Village Corporation on April 28, 2004.

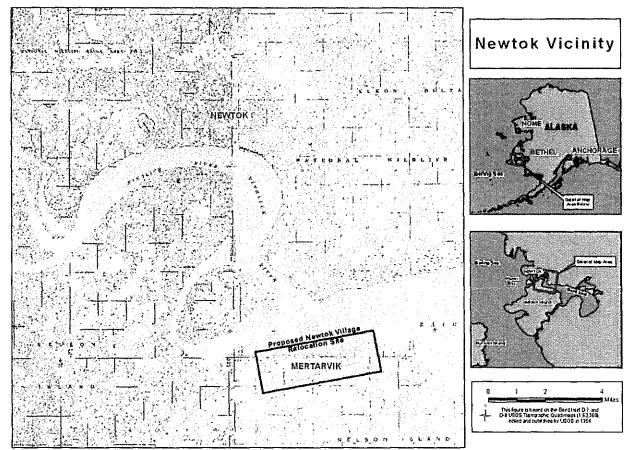


Figure 1. Location and vicinity.

The environment around Newtok is similar to many portions of the lower Yukon-Kuskokwim Delta – a moist low lying plain with little elevation change, a great deal of surface water, and many lakes (figure 2). In contrast, Mertarvik gently slopes to the toe of the Kaluyut Mountains on the north shore of Nelson Island. The underlying basaltic bedrock is volcanic in

origin. There is little standing water in the area, although a small creek flows to the west, and a freshwater spring and several seasonal drainages cross the area (figure 3; USFWS 1988).

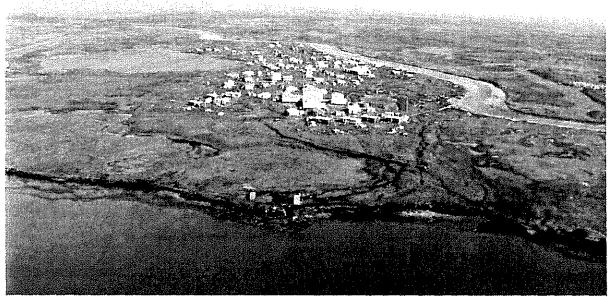


Figure 2. Newtok (2005).

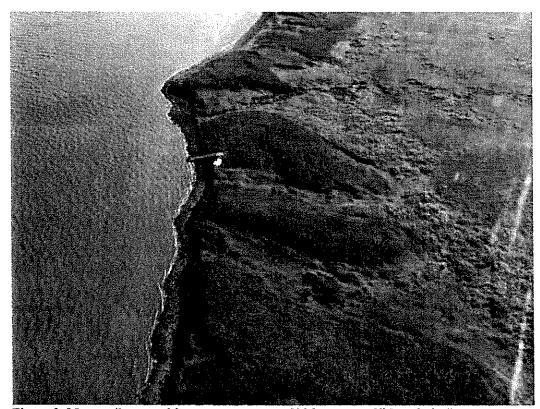


Figure 3. Mertarvik area with temporary ramp (2006, courtesy Village Safe Water).

Project Purpose

As part of the 2003 Energy and Water Development Act, Congress established the U.S. Army Corps of Engineers, Alaska District (Corps), Alaska Villages Erosion Technical Assistance program to obtain information on the costs of continued erosion and relocation of Newtok and six other Alaskan communities. The 2004 Energy and Water Development Act clarified that the 2003 funds were "to be used to provide technical assistance to Alaskan communities at full federal expense...to address the serious impacts of coastal erosion." In subsequent legislation, Congress asked to know about the practicality of and costs associated with relocating Newtok, collocation with another community, and the no-action alternative. In addition, Section 22 of the Water Resources Development Act (WRDA) of 1974 (Public Law 93-251), as amended, provides authority for the U.S. Army Corps of Engineers to assist states, local governments, and other non-federal entities to prepare comprehensive plans for the development, use, and conservation of water and related land resources. The Corps conducted environmental baseline studies including cultural resources studies under this program.

The Corps conducted archaeological surveys in 2002 and 2005 to assist Newtok in planning and evaluating costs of development of Mertarvik and eventual relocation. The surveys were designed to provide Newtok Traditional Council and other entities with basic information on cultural resources in the vicinity of Mertarvik for compliance with Section 106 of the National Historic Preservation Act (36 CFR 800).

Yukon-Kuskokwim Culture History

Dumond (1984) divided the cultural history of southwestern Alaska into the Paleoarctic, Northern Archaic, Arctic Small Tool, Norton, and Thule traditions. The Paleoarctic tradition is marked by blade and core technology. Igiugig (ILI-00002) on the south end of Iliamna Lake and Koggiung (NAK-00020) on the Alaska Peninsula were two occupation sites that aided in defining this tradition. Microblades, cores, and core tablets were recovered along with large blades, transverse burins, and scrapers. The radiocarbon data suggest an occupation date from between 10,000 and 8,000 years before present (BP; Dumond 1984).

This was followed by the Northern Archaic tradition, which was dated to as early as 6,000 years BP. Chipped lanceolate projectile points or knives, heavy, chopper-like semilunar scrapers, and small endscrapers were representative of this tradition, specifically the Brooks River Beachridge phase from the upper Naknek River drainage. Dumond (1984) suggested that procurement strategies focused on land-based resources based on tool types.

The Arctic Small Tool tradition appeared in the Naknek River drainage around 3,800 years BP. The assemblage consisted of microblades, small burins, small bifacially chipped sideblades and endblades, unifacially flaked knives, triangular bifacial harpoon endblades, adze blades with polished bits, and an occasional lance or double-edged knife blade. Village and camp sites excavated indicated that some winter occupations and a considerable number of summer ones focused on salmon and other riverine resources (Dumond 1984).

The Norton tradition is represented by three phases that date between 2,300 and 1,000 years BP. The Smelt Creek phase had plain and impressed fiber tempered pottery, a small

collection of unstemmed small basalt projectile blades, and a large number of stemmed ones. The Brooks River Weir phase was derived from the Smelt Creek phase. Changes were made in the style of endblades, sideblades, and ground slate ulu forms. The pottery changed shape, increased in size, and was more often check-stamped or plain. New styles of projectile points marked the third phase, the Brooks River Falls phase. Sideblades were almost completely replaced by ground slate ulus, and large, double-edged, ground slate knives or lance blades became common. The pottery was almost always plain and very thick (Dumond 1984:100).

The Thule tradition is associated with the late prehistoric Eskimo culture. The Naknek River drainage has three recognizable phases – the Brooks River Camp, Brooks River Bluffs, and Pavik phases. Large barbed and stemmed ground slate lance and knife blades and thick, globular shaped pottery dominate the Brooks River Camp phase. During the Brooks River Bluffs phase, there were fewer large lance blades, the style of projectile inset blades and adze blades changed, and relatively thin pottery appeared. The last phase, the Pavik phase, contained Russian and American trade goods. These replaced most stone implements except ground slate inset blades. Organic tools included harpoon dart heads, occasional plain toggling harpoon heads, dart heads designed to take a stone or metal projectile inset tip, and other arrow and bird dart pieces. Settlements of significant size began to appear on the coast. Populations grew in the interior, but the settlements remained small. Interior and coastal focuses became apparent in the archaeological record during this tradition (Dumond 1984:102).

Vanstone (1984a) further defined these two recent ecological focuses. The maritime peoples in the communities of Bristol Bay, the Yukon Delta, and Nunivak Island focused on sea mammal hunting and seals in particular. Some inland resources were harvested; caribou and salmon were significant resources to the people at the mouths of rivers and some bays (Vanstone 1984a). The inland peoples in riverine communities primarily on the lower Yukon River, the lower and central Kuskokwim River, and the Togiak and Nushagak rivers (Vanstone 1984a) focused on fish supplemented by caribou. Occasionally, they traveled to the coast to hunt sea mammals. The dialectical differences between the inland and coastal groups were small and did not impede the movement of people between the two groups. Inland and coastal people exchanged goods and had established relationships that encouraged this movement (Vanstone 1984a, 1984b).

Some researchers proposed that the maritime adaptation was older. In this scenario, maritime people penetrated the interior by moving up the rivers and their tributaries in the recent past. It has also been posited that a much older inland population related to the Arctic Small Tool tradition farther north may have preceded this penetration and may even have been partly ancestral to the inland people (Vanstone 1984a).

The people of Newtok, Chefornak, and Nelson Island (Tununak, Tooksook Bay, Nightmute) are known as the *Qaluyaarmiut* or the "People of the Dip Net (Newtok Traditional Council 2004:3). People of this region move seasonally to harvest resources where they are available. Movement between settlements at various times of the year was common. The *Qaluyaarmiut* have a shared history of the origins of Nelson Island and their ancestors. It begins that Nelson Island was created when Raven threw dirt on an ice flow to provide an area of land for his wife to have a footing on, so that she would not be swept out to sea. During this time,

"the land was thin" but since then vegetation appeared and debris washed ashore, thickening the land (Fienup Riordan 1980, 1983).

Generally, people in the Yukon-Kuskokwim region were contacted by Russians and other Europeans relatively late. Captain James Cook was the first European to explore Alaska's northwest coast in 1778, when he traveled as far north as Icy Cape. The next expedition into the region did not take place until 1818, when Russian explorer Eremei Rodionov traveled up the Nushagak River, portaged, and then sailed down the Kuskokwim River. There were several other minor expeditions the same year. Between 1818 and 1841, the Russian-American Company built several posts in southwest Alaska and began exploring and trading more regularly in the region. However, little information about southwest Alaska's Yup'ik residents was recorded until Lavrentiy Zagoskin was sent to travel the region's river systems in 1848 to collect ethnographic samples and information on traditional trade routes between Alaska and Siberia (Oswalt 1999). Lieutenant Zagoskin noted that the Qaluyaarmiut (erroneously calling them the Agulmyut) conducted fairly profitable trade activities with Russian trading posts. Beaver, otter, fox, and seal were traded with noted success. Most Russian-American fur trading activities at the time concentrated on the upper Kuskokwim River. Despite this, a small pox epidemic in 1838-1839 seriously reduced the populations of the region (Oswalt 1963). This was the first of many such epidemics.

Edward W. Nelson, an employee of the Smithsonian and weather observer for the U.S. Army Signal Corps at St. Michael from 1877 to 1881, also traveled around the lower Kuskokwim River region and collected ethnographic samples and information. He grouped most of Nelson Island and the lower Yukon-Kuskokwim delta as the *Kaialigamut*, but grouped the residents of western Nelson Island and Nunivak Island as the *Nunivagmut*. While Nelson spent a relatively great deal of time in the lower Kuskokwim area and collected ethnographic information and specimens, his discussion of the region is not specific enough to elicit information about Nelson Island residents at the time (Nelson 1899; Oswalt 1999).

During the Russian occupation of Alaska, few Russian Orthodox priests worked in the lower Kuskokwim region. More missionaries began to work in the region after Alaska was purchased by the United States. The first mission on Nelson Island was built by the Moravian Church in 1898 at Tununak. Missionaries often complained that their work was hampered by the Yup'ik people's insistence on continuing their seasonal movements. Throughout these epidemics and the establishment of boarding schools and missions, Nelson Island residents continued their lifestyle, despite the considerable population movement that ensued (Vanstone 1984b).

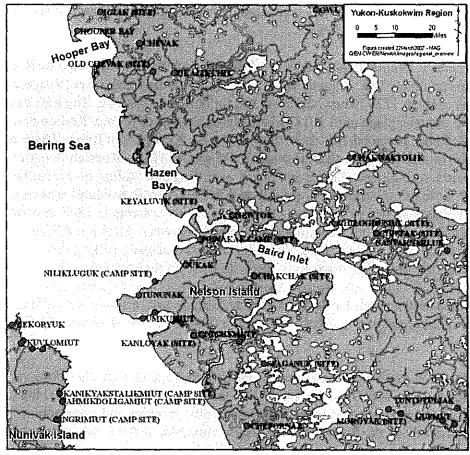


Figure 4. The lower Yukon-Kuskokwim region.

Today, *Qaluyaarmiut* live on Nelson Island in Toksook Bay, Tununak, and Nightmute, Newtok, and Chefornak (to the south). Other *Qaluyaarmiut* areas or camps commonly mentioned are Nunakauyak (another name for Toksook Bay, settled by Nightmuters in 1964), Chakchak, Umkumiut, and Kipnuk (south of Chefornak on the Kuguklik River). Figure 4 illustrates the relationships between some of these communities and camps.

Newtok (Niugtaq, *rustling of grass*) was settled in 1949, when seasonal flooding and erosion at Old Kealavik (Kayalivik or Keyaluvik) became insurmountable. According to the Newtok Traditional Council, the history of Newtok is as follows:

Around 1949 the village was relocated from Old Kealavik three miles away, to its present location... and a school was built in 1958. The existing village site was the farthest point up river the BIA [Bureau of Indian Affairs] barge could access to off-load the school building materials. The residents of Newtok continued a migratory pattern through the 1960s, summering in fish camps on Nelson Island and wintering at the current village site. After the fishing season, Newtok's men often traveled to Bristol Bay to work in the canneries. Thus Newtok remained primarily a winter residence for its people. By the 1970s, however, the snow machine and modern housing projects had replaced dog teams and sod houses in

Newtok; residents began to assimilate elements of American culture and to remain more stationary (2004:3).

Some of this seasonal movement was to settlements or camps on Nelson Island (e.g. Umkumiut), while others traveled north to Hooper Bay. The *Qaluyaarmiut* continue to be subsistence oriented. Herring and their eggs is a critical food staple, but numerous other species of fish are harvested as well. Seal, waterfowl, berries, other vegetation, and bird eggs are also important. Residents travel inland on the network of rivers and lakes to hunt caribou and moose. Distribution of subsistence foods throughout the region serves to reinforce a unified cultural identity.

Newtok incorporated as 2nd class city in 1976 and was dissolved in 1997. The Newtok Traditional Council is responsible for all local government affairs. There are 323 residents in Newtok. In November 2003, the United States Congress authorized an exchange of lands between the U.S. Fish and Wildlife Service and the Newtok Native Corporation. The land acquired through this legislation was to be used for the purpose of relocation and includes Takikchak Creek and Mertarvik.

Known Cultural Resources in Project Area

There are a variety of cultural resource sites around Nelson Island – rock cairns, hunting blinds, fish camps, settlements, clay collection areas, etc. Three sites have been reported near the mouth of Takikchak Creek - XBI-00156, XBI-00157, and XBI-00158. The Bureau of Indian Affairs recorded the sites on an allotment (AA-11435, parcels A, B, and C). According to the BIA reports, XBI-00156, XBI-00157, and XBI-00158 were part of an old winter camp and summer reindeer herding station called *Taqikcaq*. XBI-00156 includes two graves that date to the 1940s. XBI-00157 consists of five depressions and a group of 55-gallon drums, and XBI-00158 includes 13 depressions. The sites have not been evaluated for the National Register of Historic Places. Figure 5 shows the location of these sites as they relate to the 2002 and 2005 archaeological surveys.

There are no cultural resources reported in the Alaska Heritage Resources Survey database in Newtok. However, two frame buildings were reportedly dismantled in Old Kealavik and moved to Newtok in the 1940s. Most residents lived in semi-subterranean sod houses for at least a decade before more frame structures could be built. In addition, the now abandoned BIA school was completed in 1958.

Methods

Two pedestrian surveys of the project area with differing purposes were conducted. Margan Grover (Corps Archaeologist), Greg Carpenter (Corps Geologist), and Charles E. Diters (Regional Archaeologist, U.S. Fish & Wildlife Service) arrived at Mertarvik on September 16, 2002. The purpose of the visit was to survey the proposed relocation site for archaeological deposits and historic remains prior to soil drilling and testing, as well as to prepare for the land transfer between U.S. Fish & Wildlife Service and Newtok Native Corporation. Between August 22 and August 28, 2005, Grover, Marcia Heer (Corps Regulatory Specialist), and Estrella Campellone (Corps Biological Technician) went to Mertarvik to conduct archeological, wetland

and, vegetation surveys. Most of the data collection was conducted in the vicinity of the relocation site, runway 1, runway 4, the proposed barge landing, and the potential borrow site. Due to intense rainstorms and strong winds, work in the field had to conclude on August 28th (a day earlier than planned).

Both the 2002 and 2005 surveys took place at Mertarvik, the new town site for the community of Newtok. Mertarvik is approximately 4 miles southeast of Newtok on the north shore of Nelson Island (Sections 1, 2, 3, 4, 9, and 10, T8N, R87W, USGS Baird Inlet D-7 and Sections 34, 35, and 36, T9N, R87W, USGS Baird Inlet D-7).

A public meeting was held at the end of the 2002 survey and another in February 2006. There have also been several meetings of the Newtok Relocation Working Group – an interagency coalition designed to expedite the relocation effort and eliminate duplication of effort. The archaeological surveys and other environmental studies are the result of this coordination and were aimed at eliminating the need for multiple agency archaeologists to visit Mertarvik.

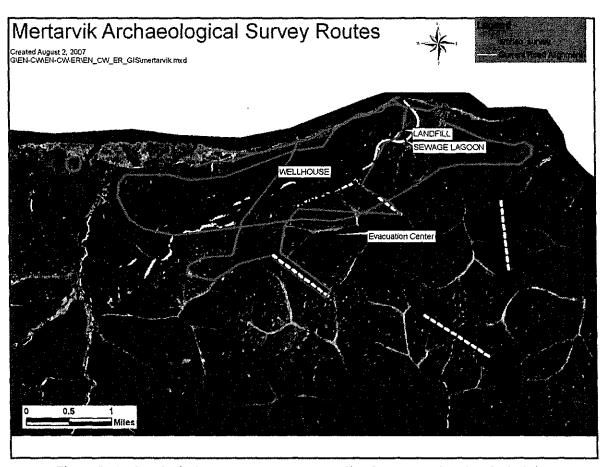


Figure 5. Archaeological survey routes, corresponding features, and archaeological sites.

Results

Mertarvik

During public meetings and conversations with members of the community, we were told that the only archaeological resources in the vicinity of the new town site were along Takikchak Creek. Residents reported there were no remains of reindeer corrals or rock cairns. In addition, community members remembered that the reindeer herding station reported by Bureau of Indian Affairs archaeologists was only a camp. It was pointed out that the community gets water from Mertarvik Spring when there is no water available in Newtok.

In 2002, the team traveled by boat to Takikchak Creek. With the tide up, it was difficult to find the channel into the creek until the tide receded slightly. The boat could not go very far up the creek. We examined the west side of the creek and could see fenced graves (figure 6), but were not able to reach it. Newtok residents informed us that these were not Newtok people. We did not observe the remains of the camp or corral in the areas examined. After looking more closely at a USGS map, it was decided that the sites were probably on the east bank of Takikchak Creek, which could not be reached in the limited time available.

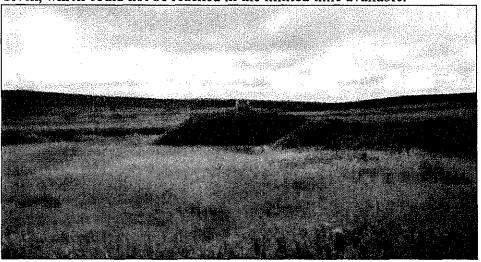


Figure 6. XBI-00156, fenced graves (Sept 2002).

We then traveled by boat to Mertarvik Spring and noted that rocks had been piled around the mouth of the creek to form a pool. The boat operator drank water from the pool, adjusted the rocks, and then began tearing away wood from a beaver dam near the head of the creek. We walked along the length of the proposed relocation site to a potential rock quarry (figure 7). No cultural resources were observed. We had hoped we would be able to walk to the east bank of Takikchak Creek, but the distance was too much for the time we had between tides.



Figure 7. Mertarvik Spring Looking south from beach (June 2005).



Figure 8. Potential gravel source (Sept 2002). Note Takikchak Creek in center right of frame.

In 2005, we examined several proposed runways, the proposed barge landing, and revisited the potential rock quarry. We attempted to reach the east bank of Takikchak Creek, but were traveling on foot and the limited day light hours made it difficult to reach the creek and return to camp safely. Figure 5 illustrates those areas examined for cultural resources and their association with the area of potential effect.

No cultural resources were observed at runways I and 4 or the rock quarry. Small test pits were placed throughout the area of potential effect for the purpose of defining wetlands. These tests were observed and examined by Grover. No cultural material was observed in any tests. At

the rock quarry, exposed bedrock made subsurface testing impossible. Exposed ground-surfaces were examined for archaeological material and features such as rock cairns or hunting blinds. None were observed.

At the barge landing, there were at least six circular pits (XBI-00183 - figures 8 and 9). The pits were in a grassy clearing area between two small drainages, which indicates the area is well drained. They were each about 1 meter in diameter. Their depths varied from 0.25 meters to 1.0 meters. Vegetation had grown into some of the pits, while the dirt walls of others were exposed. In a previous letter, the Corps reported these features as possible herring pits. After consulting with Newtok residents, it was determined that these are likely pits from collecting clay for making pottery.

There were also structural remains along the beach north of XBI-00183 (figure 10). The flattened barrels had circular holes cut in them and there were nail holes along the margins. They appeared to have once served as roofing or possibly siding. The remains were laying on the surface, could have washed onto the bank during a storm, and may have come from a camp to the north or east, as there were no other indications of a structure in the area.

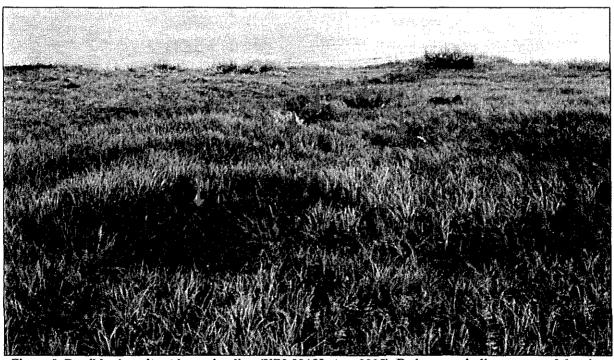


Figure 9. Possible clay pits at barge landing (XBI-00183, Aug 2005). Red arrows indicate some of the pits.



Figure 10. Detail of a possible clay pit at the barge landing (Aug 2005).



Figure 11. The structural remains along the beach at the barge landing (Aug 2005).

Newtok

No formal archaeological survey has been conducted in Newtok to date. However, during trips for Mertarvik surveys and for public meetings, several observations were made about cultural resources at the current town site. Some background on these observations is provided here as reference. For purposes of this report, these resources will not be evaluated for the National Register of Historic Places. The relocation to Mertarvik has the potential to effect historic properties in Newtok because demolition or relocation of some structures will be required, and environmental restoration may be needed for infrastructure such as tank farms, sewage lagoons, and dumps. Residents may choose to maintain structures at Newtok for camps or recreation; however, details of the 'abandonment' of Newtok have not been resolved. For that

reason, the effect of the relocation on cultural resources in Newtok will not be assessed in this report.

When residents moved from Old Kealavik to Newtok, two buildings were reportedly dismantled and then rebuilt at Newtok. Residents indicated that one was the Catholic Church (figure 11) and the other was George Tom's house nearby. The two structures are similar in size, materials, and design. No written resources were referenced to confirm these statements. More research will need to done to confirm which buildings in Newtok were moved from Old Kealavik and when they were built. With this information, their significance to local and regional history may be properly assessed for the National Register of Historic Places.

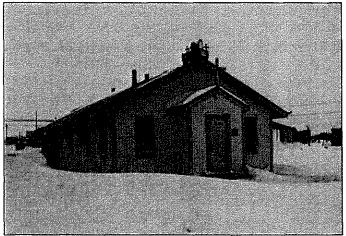


Figure 12. Catholic Church in Newtok (Nov 2006).

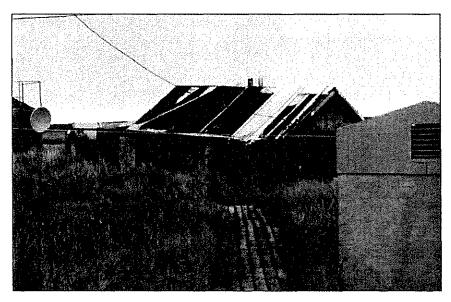


Figure 13. George Tom's House (August 2005).

Construction of the Bureau of Indian Affairs school was completed in 1958. According to accounts of Newtok residents, Old Kealavik was suffering from erosion and flooding. When the Bureau of Indian Affairs sought to establish a school for their community, local leaders and elders decided that this was an opportunity to move to a new location. A site was chosen and the

Bureau of Indian Affairs sent materials on a barge for the school. The current location of Newtok is the farthest the barge could reach up the Ninglick River to the chosen site. A new school was built in 2001 and the old school now stands unused. At this time, the BIA school is not yet 50 years old. As the relocation continues over the next few years, the building will surpass that benchmark and it's eligibility for the National Register of Historic Places will need to be assessed.

Newtok residents state that when they moved from Old Kealavik to Newtok, most families lived in semi-subterranean sod houses. Over time, wood frame homes were built and the sod houses were abandoned. When asked about the locations of these sod houses, informants generally gestured toward the east side of Newtok. An archaeological survey was not conducted in Newtok, but the remains of sod houses are not immediately apparent while walking through Newtok. Interviews aimed at understanding the history of Newtok should be conducted and architectural and archaeological surveys in Newtok should be completed to identify cultural resources eligible for the National Register of Historic Places.

Cultural Resource Evaluations and Recommendations

XBI-00156, XBI-00157, XBI-00158

More research will be needed before the graves at XBI-00156 can be evaluated for the National Register of Historic Places. Under the National Register evaluation process, a cemetery is a collection of graves that may be marked or unmarked, fenced, indicated on maps, or identified through testing. The graves at XBI-00156 are surrounded by a fence and marked with at least one wooden marker. Both Criteria Considerations C and D may apply to XBI-00156. According to National Register Bulletin #15 (How to Apply the National Register Criteria for Evaluation), a grave "of a historical figure is eligible if the person is of outstanding importance and if there is no other appropriate site or building directly associated with his or her productive life." This includes graves being evaluated for information potential (Criteria Consideration C). Similarly, a cemetery "is eligible if it derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events" (Criteria Consideration D). More investigation is required to evaluate the graves for these criteria considerations of National Register of Historic Places.

Two resources along Takikchak Creek - XBI-00157 and XBI-00158 - could not be relocated. XBI-00157 consists of five depressions and a group of 55-gallon drums and XBI-00158 includes 13 depressions. Both sites are associated by Newtok residents as part of a winter camp and summer reindeer herding station called *Taqikcaq*. Few archaeological sites associated with reindeer herding have been investigated by archaeologists in Nelson Island. If the sites can be located and their potential to yield information evaluated, they may eventually be found eligible.

Mertarvik Spring

Mertarvik Spring is an important water source for Newtok residents, who have modified and maintained the spring over time. The community plans on continuing to use the spring after the move to Mertarvik. Other than the rock alignment for pooling water, there were no other cultural resources observed in the vicinity. It is difficult to determine how long the spring has been in existence and more information about the spring's history should be sought from Newtok

and Nelson Island residents. The development plan for Mertarvik includes a buffer around the spring. As part of the National Register of Historic Places, Mertarvik Spring may be evaluated as a site, "the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure" (National Register Bulletin 15 How to Apply the National Register Criteria for Evaluation). It may be sub-categorized as landscape natural feature (National Register Bulletin How to Complete the National Register Registration Form). The spring may also be evaluated as a traditional cultural property, "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history and (b) are important in maintaining the continuing cultural identity of the community" (National Register Bulletin 38 Guidelines for Evaluating and Documenting Traditional Cultural Properties).

The period of significance for Mertarvik Spring has not been determined, although it is likely within the last few hundred years. According to National Register Bulletin 38, there are two fundamental integrity questions – does the site "have an integral relationship to traditional cultural practices or beliefs" and "is the condition of the property such that the relevant relationships survive?" (p.11). Ethnographic or ethnohistorical research will help identify whether the spring can be associated with traditional cultural values and if it has retained integrity.

Based on current information, it is not known whether Mertarvik Spring is associated with events significant to local or regional history (Criteria A). According to Bulletin 15, a property may be eligible under Criteria A for its relationship to traditional cultural values:

Traditional cultural significance is derived from the role a property plays in a community's historically rooted beliefs, customs, and practices. Properties may have significance under Criterion A if they are associated with events, or a series of events, significant to the cultural traditions of a community (p.13).

Particularly if evaluated as a traditional cultural property, this may include events such as "specific moments in history or a series of events reflecting a broad pattern or theme." The time or period of the event may be ambiguous (National Register Bulletin 38, p.12-13)

Based on limited information from Newtok residents, Mertarvik Spring has not been associated with the lives of persons significant in the past (Criteria B). Nor does the spring embody distinctive characteristics of type, period, or method of construction, represent the work of a master, or possess high artistic value (Criteria C). The spring also has not yielded information important in understanding history; however, future ethnographic or ethnohistoric research may find that the site has that potential (Criteria D). It is recommended that Mertarvik be evaluated as a traditional cultural landscape as plans for relocation continue. Newtok residents have expressed a desire to retain control of their cultural heritage and identity, which may prevent outside researchers from addressing this question. It is possible that the community may choose to collect a history of the spring and manage the resource on their own.

Because Newtok residents are dedicated to preserving the quality of the spring, planning has included means to avoid impacts to Mertarvik Spring; therefore, with regard to the spring, there will be **no historic properties affected** by the relocation to Mertarvik.

Gravel Source, Runways, and Proposed Location for Mertarvik

The gravel source or rock quarry is east of the Mertarvik town site. A road may be developed from the community to the gravel source. The general route between Mertarvik and the gravel source was examined in both 2002 and 2005. The area has a low potential for cultural resources and none were observed. There will be **no historic properties affected** by construction of a road and gravel source near Mertarvik.

At the time of the 2005 survey, five runway alignments were proposed. Two were not examined because they were either environmentally unacceptable or were unacceptable to Newtok residents. Runways 1 and 4 were surveyed, and no cultural resources were observed. The areas have low potential to yield cultural resources. There will be **no historic properties affected** by construction of runway 1 or 4 near Mertarvik.

XBI-00183

At the proposed barge landing, there were at least six circular clay pits (XBI-00183) as well as structural remains along the beach. There is no apparent connection between the remains and XBI-00183. Based on vegetation and sedimentation, clay was removed from XBI-00183 within the past few hundred years (no datable material was recovered at the site). Based on current information, the site is not associated with events that made a significant contribution to the broad patterns of history (Criteria A), is not associated with the lives of persons significant in the past (Criteria B), and does not embody distinctive characteristics of type, period, or method of construction, represent the work of a master, or possess high artistic value (Criteria C).

XBI-00183 does have the integrity to yield information important in understanding history (Criteria D). Pottery from Nelson Island has been researched for at least the last half century (VanStone and Lucier 1992; VanStone 1954; Lutz 1970; Oswalt 1956; Dumond 1969; Oswalt 1952; Frink and Harry 2007). Recently, Frink and Harry (2007) collected ethnographic and historic data on pottery production techniques, and then conducted experimental replication of traditional pottery types. Important research questions that may be addressed by information from XBI-00183 include:

- what quality of clay was used for ceramics on Nelson Island,
- what methods were used for collecting clay,
- is this clay source similar to others in the Nelson Island region,
- over what territory was pottery made from this clay brought or traded (using chemical analysis), and
- can this clay be associated with a specific type, technique, design, or people?

The site is in its original location and appears to retain its elements of design. There has been no development along the northern shore of Nelson Island and the area has likely not changed aesthetically in centuries (setting and feeling). XBI-00183 has the original elements deposited when they were being used as a clay source (materials) and clearly exhibits the qualities of a clay source (workmanship). Finally, the physical features of the site convey its historic character (association). XBI-00183 is eligible for the National Register of Historic Places under Criteria D as a late pre-contact clay extraction site. With regard to this property, the relocation to Mertarvik would result in **historic properties adversely affected**. It is

recommended that any development of the barge landing take precautions to avoid this resource and that eventually a more detailed archaeological excavation of XBI-00183 be conducted to recover information.

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APPENDIX A – TRIP REPORT MEMORANDA

ALASKA DISTRICT TRIP REPORT

Alaska Villages Erosion Technical Assistance Newtok, Alaska Draft - 9/27/05

LOCATION OF TDY: Takikchak, Nelson Island, Alaska

Approximately 4 miles south east of Newtok on the north shore of Nelson Island (Sections 1, 2, 3, 4, 9, and 10, T8N, R87W, USGS Baird Inlet D-7 and Sections 34, 35, and 36, T9N, R87W, USGS Baird Inlet D-7).

DATE OF TRAVEL: September 16-19, 2002 and August 22 to August 28, 2005

PURPOSE: Archaeological surveys and Wetland delineation fieldwork.

NARRATIVE

Margan Grover (Environmental Resources Archaeologist), Greg Carpenter (Soils and Geology), and Charles E. Diters (Regional Archaeologist, U.S. Fish & Wildlife Service) arrived at Takikchak on September 16, 2002. The purpose of the visit was to survey the proposed relocation site for archaeological deposits and historic remains in preparation for soil drilling and testing.

During August 22 to August 28, 2005, Grover, Marcia Heer (Regulatory Specialist), and Estrella Campellone (Environmental Resources Biological Technician) went to Takikchak, the proposed Newtok relocation site on Nelson Island, with the purpose to conduct archeological, as well as wetland and vegetation surveys. Due to intense rainstorms and strong winds, work in the field had to conclude on August 28th (a day earlier than planned).

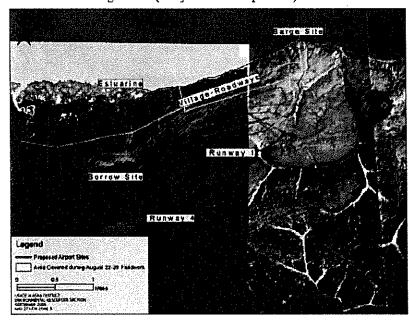


Figure 1: August 2005 survey areas and features.

ARCHAEOLOGICAL SURVEY 2002 and 2005

Most of the data collection was conducted in the vicinity of the relocation site, runway 1, runway 4, the proposed barge landing, and the potential borrow site. The green hatch in figure 1 indicates the approximate areas surveyed.

Known cultural resources

Near mouth of Takikchak Creek (XBI-154, XBI-155, XBI-156) Barge Landing (XBI-183)

Areas examined that have no cultural resources

The proposed townsite
The runways along the hills south of the proposed townsite
The proposed rock/gravel source
(See Figure 5).

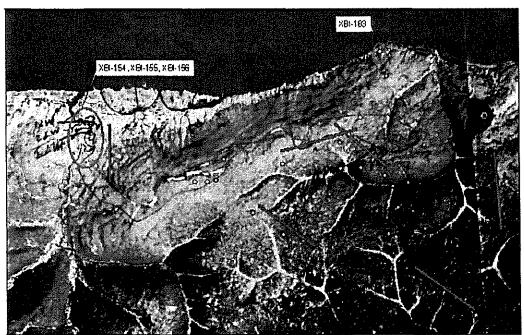


Figure 2. GPS points from archaeological survey, corresponding features, and archaeological sites.

DISCUSSION

The archaeological sites along Takikchak Creek were reported by BIA and are on an allotment (AA-11435, parcels A, B, and C). According to the BIA reports, XBI-00156, XBI-00157, and XBI-00158 were an old winter camp and summer reindeer herding station. XBI-00156 includes two graves that date to the 1940s. XBI-00157 consists of 5 depressions and a group of 55-gallon drums and XBI-00158 includes 13 depressions. During a public meeting and conversations with members of the community, we were told that the only archaeological resources were those along

Takikchak Creek. They reported there were no remains of reindeer corrals or rock cairns. In addition, community members remembered that the reindeer herding station was only a camp. They reported that they fished in the unnamed creek, that moose and bears had been seen occasionally in the area, and that there was a problem with beavers in the unnamed creek. It was pointed out that the community gets water from a fresh-water spring when there is no water available in Newtok.

On September 18, 2002, Murphy John took us in his boat to the unnamed creek. With the tide up, it was difficult to find the channel into the creek. We examined other areas, and then tried to enter the unnamed creek when the tide receded slightly. The boat could not go very far up the creek. We examined the west side of the creek. We could see the fenced grave (figure 3), but were not able to reach it. We did not observe the remains of the camp or corral in the areas examined. After looking more closely at a USGS map, it was decided that the sites were probably on the east bank of Takikchak Creek.



Figure 3. XBI-00156, fenced graves (Sept 2002).

In 2005, we examined several proposed runways, the proposed barge landing, and the proposed rock quarry. We attempted to reach the east bank of Takikchak Creek, but we were traveling on foot and the limited day light hours made it difficult to reach the Creek and return to camp safely. No cultural resources were observed at runways 1 and 4 or the rock quarry.

At the barge landing, I recorded at least six circular pits (XBI-00183) that resembled herring pits (figures 4 and 5). The pits were in a grassy clearing area between two small drainages, which indicates the area is well drained. The were each about 1 meter in diameter. Their depths varied from 0.25 meters to 1.0 meters. Vegetation had grown into some of the pits, while the dirt walls of others were exposed. Along the beach, I observed some structural remains (figure 6). The flattened barrels had circular holes cut in them and there were nail holes along the margins. They appeared to have once served as roofing or possibly siding. The remains were laying on the surface and could have washed up onto the bank during a storm, as there were no other indications of a structure in the area.

Figure 4. Possible herring pits at barge landing (XBI-00183, Aug 2005). Pink flags mark some of the pits.



Figure 5. Detail of a possible herring pit at the barge landing (Aug 2005).

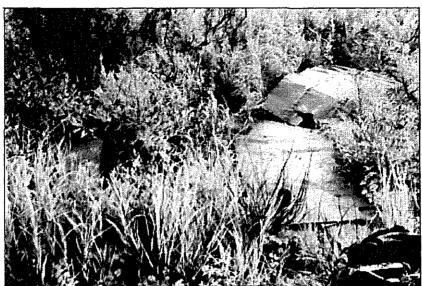


Figure 6. The structural remains along the beach at the barge landing (Aug 2005).

A more detailed report is being prepared, but if you have any questions about cultural resources and fieldwork status, please feel free to contact Margan Grover at 907-753-5670.

ACTION ITEMS:

- The known archaeological sites will need to be fully documented in order to evaluate them for the National Register of Historic Places, as required under Section 106 of the National Historic Preservation Act. Recommend documentation include sub-surface testing, which requires permission from the land-owners.
- Need to assess affects of relocation from Newtok to Takikchak on subsistence practices and land use on residents in Newtok, Tooksook Bay, Tununak, and Nightmute.



AUG 0 8 2007

DEPARTMENT OF THE ARMY

U.S. ARMY ENGINEER DISTRICT, ALASKA P.O. BOX 6898 ELMENDORF AFB, ALASKA 99506-0898

AUG 0 9 2007

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OHA

Environmental Resources Section

Ms. Judith Bittner State Historic Preservation Officer Office of History and Archaeology 550 West 7th Avenue, Suite 1310 Anchorage, AK 99501-3565

Dear Ms. Bittner:

Newtok Traditional Council, with assistance from the U.S. Army Corps of Engineers, Alaska District (Corps), is planning to build an evacuation center and access road at Mertarvik, Alaska (Sections 1, 2, 3, 4, 9, and 10, T8N, R87W, and Sections 34, 35, and 36, T9N, R87W, USGS Baird Inlet D-7; figure 1). Enclosed please find the report Archaeological Evaluation of Cultural Resources Around Mertarvik, Alaska: Proposed Relocation Site for Newtok. The report describes the results of two archaeological surveys (2002 and 2005) conducted by the Corps, evaluates some of the resources for the National Register of Historic Places, and presents recommendations for compliance activities as planning for the relocation from Newtok to Mertarvik progresses. The surveys discussed in the report comprised the area of potential effect for the relocation site, including the current undertaking (evacuation center and access road). The purpose of this letter is to provide you with a copy of the report, to seek your concurrence on a determination of eligibility, and your concurrence on an assessment of effect for the evacuation center and access road.

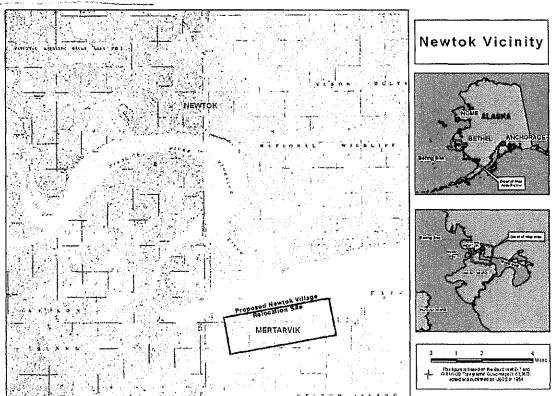


Figure 1. Present town site of Newtok and planned town site for Mertarvik.

Cultural Resources Survey Results

The enclosed report discusses several cultural resources in the vicinity of Mertarvik, the relocation site for the community of Newtok (figure 2). Not all reported sites in the vicinity were examined by archaeologists; however, the immediate vicinity of Mertarvik was surveyed. This includes Mertarvik Spring, two proposed runways, the town site, the proposed rock or gravel source, and the barge landing.

Mertarvik Spring is an important water source for Newtok residents, who have modified and maintained the spring over time. The community plans on continuing to use the spring after the move to Mertarvik. Other than the rock alignment for pooling water, there were no other cultural resources observed in the vicinity. It is difficult to determine how long the spring has been in existence and more information about the spring's history should be sought from Newtok and Nelson Island residents. The development plan for Mertarvik includes a buffer around the spring. The current study did not collect sufficient data to adequately evaluate Mertarvik Spring. For the National Register of Historic Places.

The gravel source or rock quarry is east of the Mertarvik town site. A road may be developed from the community to the gravel source. The general route between Mertarvik and the gravel source was examined in both 2002 and 2005. The area has a low potential for cultural resources and none were observed. At the time of the 2005 survey, five runway alignments were proposed. Two were not examined because they were either environmentally unacceptable or were unacceptable to Newtok residents. Runways 1 and 4 were surveyed, but no cultural resources were observed. The areas have low potential to yield cultural resources.

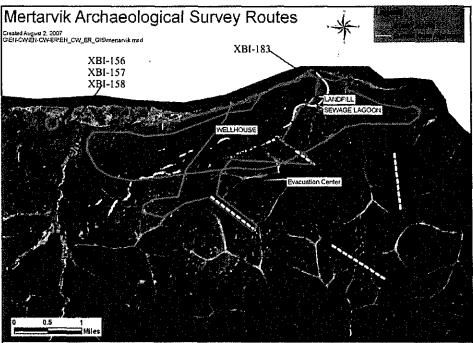


Figure 2. 2002 and 2005 archaeological survey routes.

At the proposed barge landing, there were at least six circular clay pits (XBI-00183) as well as structural remains along the beach. There is no apparent connection between the remains and XBI-00183. The enclosed report provides a detailed assessment of the site for the National Register of Historic Places. In summary, XBI-00183 does have the integrity to yield information important in understanding history (National Register Criteria D) and retains integrity of location, design, setting,

feeling, materials, workmanship, and association. XBI-00183 is eligible for the National Register of Historic Places under Criteria D as a late pre-contact clay extraction site.

Description of the undertaking

Currently, the Newtok and the Corps are designing a road and evacuation center at Mertarvik. Boring locations along the road and evacuation center will be drilled and sampled to a depth of 15 to 30 feet using a self propelled Nodwell-mounted drill rig with low ground-pressure tracks. XBI-00183 is near the proposed road, but will be flagged as an "exclusion zone." No ground disturbing activity will take place in the vicinity of the site. It has not been determined how the Nodwell will be moved from the barge landing area to the uplands.

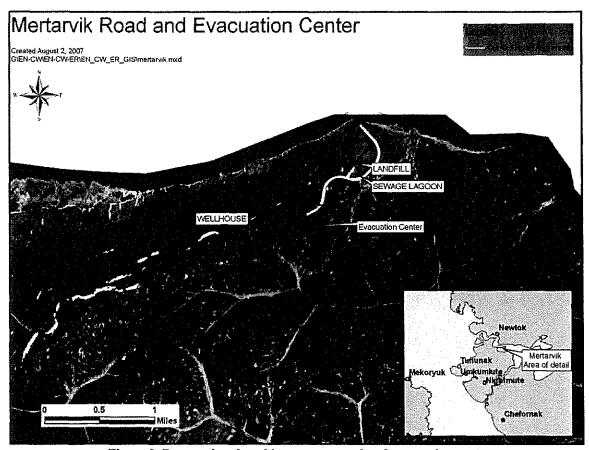


Figure 3. Proposed undertaking - access road and evacuation center.

Determinations of Eligibility and Assessment of Effects

With regard to the effects of a relocation of Newtok to Mertarvik, the Corps is only developing the access road and evacuation center. The undertaking will include landing a barge and equipment at the proposed barge landing site, geotechnical borings along the proposed road and at the proposed evacuation center, and eventual construction of the road and evacuation center. With regard to XBI-00183, the proposed undertaking would result in historic properties adversely affected, provided the area is flagged so ground disturbing activity avoids the site. The proposed road alignment and evacuation center site were surveyed and no cultural material was observed (see enclosed report); therefore, there will be no historic properties affected by landing at the proposed barge landing site, geotechnical borings along the proposed road and at the proposed evacuation center, and construction of the road and evacuation center

(6 horza d volos)

We seek your concurrence on the determination of eligibility and assessments of effect. Please send comments to Ms. Margan Grover at the above address, or via e-mail: margan.a.grover@poa02.usace.army.mil. If you have any questions about the project, please call Ms. Margan Grover at 907-753-5670.

Sincerely,

Sincerely,

Suy R. Mosonnell

Chief, Environmental Resources Section

Moses Carl, President, Newtok Traditional Council

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF PARKS AND OUTDOOR RECREATION
OFFICE OF HISTORY AND ARCHAEOLOGY

SARAH PALIN, GOVERNOR

550 W. 7TH AVENUE, SUITE 1310 ANCHORAGE, ALASKA 99501-3565 PHONE: (907) 269-8721 FAX: (907) 269-8908

August 31, 2007

File No.:

3130-1R COE/Environmental

3330-6 XBI-183

SUBJECT:

Relocation of Newtok to Mertarvik, Alaska

Proposed evacuation center

Guy R. McConnell Chief, Environmental Resources Section U. S. Army Corps of Engineers, Alaska District PO Box 6898 Elmendorf AFB, AK 99506-6898

Dear Mr. McConnell,

The State Historic Preservation Office received on August 9, 2007, your letter and attached report by Margan Allyn Grover titled *Archaeological evaluation of cultural resources around Mertarvik*, *Alaska: Proposed relocation site for Newtok* (March 2007). We have reviewed your submitted materials under Section 106 of the National Historic Preservation Act.

We understand that the current undertaking consists of the construction of an evacuation center, access road and associated barge landing at the future townsite of Metarvik. We concur with your finding that XBI-183 (Clay pits) located near the proposed barge landing, is eligible for the National Register of Historic Places under criterion D. We also concur that no historic properties will be adversely affected by the current undertaking provided that the area containing XBI-183 is flagged and avoided during construction.

As indicated in the archaeological survey report, the current undertaking is part of a larger project to relocate the Newtok community to Metarvik. We encourage the Army Corps of Engineers to coordinate with other agencies involved in the relocation efforts and comprehensively evaluate the long term effects of this project on Newtok and Metarvik.

Please contact Stefanie Ludwig at 269-8720 if you have any questions or if we can be of further assistance.

Sincerely,

Judith E. Bittner

State Historic Preservation Officer

JEB:sll



Environmental Assessment Scoping Summary Newtok Relocation Project – Pioneering Phase Newtok Village Council

May 6, 2016



U.S. Department of Homeland Security FEMA Region X 130 228th Street SW Bothell, WA 98021-9796

Introduction

The Federal Emergency Management Agency (FEMA) has a pending Hazard Mitigation Grant Program (HMGP) funding request from the Newtok Village Council (NVC) through the Alaska Department of Homeland Security and Emergency Management (DHA&EM), which administers HMGP for FEMA. The NVC has applied for funds to relocate 12 residential structures from Newtok to Mertarvik, consistent with its *Strategic Management Plan - Newtok to Mertarvik* (Plan) and specifically the 'Pioneering Phase' therein. Additionally, the NVC has Bureau of Indian Affairs (BIA) Tribal Transportation Program funds available to build some roads in Mertarvik which would also support the pioneering elements. The NVC also anticipates funds from the U.S. Department of Housing and Urban Development's (HUD) Office of Native American Programs Imminent Threat Grant Program that would support additional critical infrastructure for occupancy of the 12 homes once relocated to Mertarvik. The proposed or pending federal actions require review per the National Environmental Policy Act (NEPA) of 1969 and related environmental and historic preservation statutes and executive orders; as implemented by each respective agency's NEPA implementing regulations.

This report includes a summary of formal scoping activities completed for the proposed Newtok Relocation Project per NEPA and consistent with the Council on Environmental Quality's (CEQ) NEPA regulations, 40 Code of Federal Regulations Part 1501.7, *Scoping*. The purpose of 'scoping' is to inform the scope, focus, and content of an Environmental Assessment (EA). FEMA's NEPA scoping informally started in October 2015, after the project was determined programmatically eligible for funding; and included gathering available information about Newtok and Mertarvik, including prior federal environmental review and initiation of coordination with federal and state resource agencies and stakeholders.

The proposed action, for NEPA purposes, includes elements of the NVC's Plan pioneering phase. This includes FEMA-funded relocation of 12 homes from Newtok to Mertarvik and BIA-funded road construction in Mertarvik. HUD funds may be available to provide needed interim utilities to support occupancy of the homes once in Mertarvik. Furthermore, there may be other 'connected actions' funded or planned by non-federal entities that will require outlining in the EA. Early coordination was done with BIA to collaborate on an EA that would satisfy both agency's NEPA requirements, as well as with HUD in anticipation of their funding; with detailed discussion deferred to the outcome scoping and pending other NVC funding actions.

Much of the planning and details associated with this formal scoping effort were FEMA-coordinated because its proposed action, relocating 12 homes, has the most significant public interest and need for feedback. Additionally, during a FEMA site visit to Newtok on November 12, 2015 the NVC requested FEMA participate in a public meeting to explain the EA process to its residents, in the interest of transparency and community decision-making. The scoping effort was fully coordinated in advance with the NVC, DHS&EM), Alaska Department of Commerce, Community and Economic Development (DCCED), and BIA.

Public and Agency Scoping Notices

The notification of scoping efforts and the public comment period, March 25 to April 25, 2016 was done through published ads, web-posting, emails, and mailings as follows:

- Information about scoping was posted on DCCED's Newtok webpage on March 23, 2016: https://www.commerce.alaska.gov/web/dcra/PlanningLandManagement/NewtokPlanningGroup.aspx this included a Notice of Intent to Prepare an EA, scoping information, and comment sheet
- The Notice of Intent to Prepare EA was published in the March 23, 2016 issue of *The Delta Discovery* and in the March 24, 2016 issue of *The Tundra Drums*, which included the public meeting information and link to DCCED website for additional information
- Emails were sent on March 24, 2016 to 78 individuals making up a broad contact list for federal/state/regional/Tribal entities mostly associated with Newtok Planning Group, attached were the Notice of Intent, scoping information, and comment sheet, and an invitation to attend the April 11, 2016 agency meeting (contact list available on request)
- Direct mail was sent on March 24, 2016 to 40 individuals making up a select list (subset of emails) of federal/State/regional entity leadership, including the Notice of Intent, scoping information, and comment sheet (mailing list available on request)

Scoping Meetings

Two meetings were scheduled to provide information about the proposed project and invite comments, as follows.

Newtok Public Meeting:

- Held on April 5, 2016 from 7 to 9pm at the Newtok School gymnasium
- Meeting was well attended with 36 folks signing in and several others joining after meeting started. Participants included several homeowners of the 12 homes proposed to be relocated, NVC members, Newtok Corporation members, and Newtok residents
- Scoping information was made available as well as comment sheets, and posters were affixed
 on walls that had information about the proposed project including conceptual plans or
 community layout of Mertarvik
- Meeting format included a power point guided presentation (available upon request) to briefly explain the grant processes, the NEPA process and specifically scoping, the proposed project, and what feedback was sought
- After introductions by the NVC and Sally Cox, DCCED; presentations were done by Science Kilner, FEMA; Brent Nichols, DHS&EM; Andrea Meeks, CRW; and Romy Cadiente, Newtok Relocation Coordinator
- The Newtok School principal, Grant Kaskatok, translated the presentation in Yup'ik Eskimo
- Notes of the meeting were taken by Ramona VanCleve, FEMA, and others
- Chris Allard, Denali Commission, and Don Antrobus, ANTHC also attended
- Several participants asked questions and provided comments consistent with the intent of scoping, summary below

Anchorage Agency Meeting:

- Held on April 11, 2016 from 1 to 2pm at DCCED office, 550 W 7th Ave, Anchorage, a conference line was made available for folks to call in
- Meeting was well attended with 22 folks present in person and signed in (available on request), and several others joining the conference line
- Participants included NVC members and their attorney, Senator Murkowski's Office, Denali Commission, DCCED, AK DCRA, DHS&EM, Governor's Office, HUD, BIA, ANTHC, VSW, CEQ, CCHRC, TCC, AVCP
- Scoping information was made available as well as comment sheets
- Meeting format included a power point guided presentation, same as provided at public meeting (described above), after an introduction by Sally Cox, DCCED, the presentation was made by Science Kilner and Brent Nichols and Julie Stoneking, BIA, provided information on roads
- Notes of the meeting were taken
- Several participants asked questions and provided comments consistent with the intent of scoping, summary below

Summary of Comments

Written or verbal comments were provided by state agencies, one business, and individuals or households. The comments mainly expressed concerns about alternative details and community/social/public service plans at Mertarvik. When questions were asked about the process or project and answers were known by those presenting, they were provided to participants. The below table summarizes the scoping comments received and they are listed in no particular order.

Commenter	Method	Comment Summary
USACE AK	voice mail	Some prior environmental reviews completed for
District,		Mertarvik
Environmental		planned EA should be comprehensive
Section		
USDA, Rural	email	Supportive of project and combined EA effort
Development,		USDA can provide loans to NVC for future
Palmer AK		development in Mertarvik for full range of housing
		and infrastructure needs
AK Dept. of	email	Recommendations provided for Mertarvik landfill
Environmental		facility
Conservation, Solid		Newtok currently has no permitted landfill facility
Waste Program		so no waste may be disposed of there
	letter via	FEMA should limit the scope of its EA to its
Gazewood &	email	funded action, and not include BIA TTP funded
Weiner Attorneys		roadwork in Mertarvik, which will have separate
at Law		environmental review, information provided about
		BIA NEPA reviews

Commenter	Method	Comment Summary
		 Relocation efforts should be coordinated with past, ongoing and future environmental reviews by other agencies, referred to 2008 USACE EA completed for Mertarvik Evacuation Center Concern over disruptions, extent and timing of environmental review relative to proposed summer 2016 work in Mertarvik Is a EA level of review appropriate for relocations, referred to FEMA's NEPA regulations for Categorical Exclusions Alternatives may not be relevant Encouraged buyout as the preferred option
Individual or Househ	iold	
Purpose and Need	verbal	 What is timing or schedule for relocations, 2016 or 2017, need to move is urgent Ninglick River erosion severe, a lot concern over 4 structures closest to bank Flooding along Newtok River (slough) and lake has been getting worse Continued ground settling, land subsidence, is worsening flooding and erosion risks
Proposed Action	The state of the s	 Ground is very soft, there will need to be enough gravel to move and set up homes so they are stable Will homes be able to be loaded onto a barge Can homes be moved in the winter, over ice road If relocation sites aren't good will funding be lost What are plans for more homes in Mertarvik Concerns over damage to the homes during the move and whether repairs would be made Could the homes be dismantled and reassembled
Alternatives		 Building a flood control/erosion wall or levee won't work Many questions about buy-out alternative and how this would work and impact relocations and substitutions If buyout, demolition debris could be burned onsite instead of transporting to landfill (expensive barging and disposal costs) If buyout, building materials could also be salvaged and reused since building materials are costly to ship in and scarce

Commenter	Method	Comment Summary			
Environmental/Nat		Impacts to fish need considered, salmon and seals			
ural/Cultural		Ground is very soft, wetlands, will need to be			
Resources		enough gravel to move and set up homes			
Social/Community/ Public Services		 What are plans for health care or a medical facility/clinic in Mertarvik for pioneer residents What are plans for transportation in and out of Mertarvik, by air or boat, to support pioneer residents 			
		What are plans for education, will a school be built to support relocated families with children			

Scoping Conclusions

The comments received during this scoping effort will be helpful to finalize the scope of the proposed action for an EA. They also help focus continued coordination and collaboration with federal funding agencies and stakeholders that have connected actions and concurrent NEPA requirements. Implementation details of the proposed action and the buyout alternative will be need to be further explored/evaluated for presentation in a draft EA, and to the NVC to support decision-making. Additionally, given the urgency to take action and anticipated extent of time to further develop supporting infrastructure in Mertarvik, interim mitigation measures will need to be explored at least for the structures most at risk to riverine erosion. Given the interest over community, social, or public services and facilities in Mertarvik, the draft EA will need to articulate the NVC's plans to address these critical elements that will be needed to support permanent occupancy of relocated 'pioneer' residents in Mertarvik.

Next Steps

The following includes tasks and coordination needed to draft the EA.

- Scope of EA federal action, including connected actions, needs finalizing with NVC, BIA and HUD; and other stakeholder as necessary
- Details on roles (lead/cooperating federal agency), responsibilities, EA tasks, documentation, and EA schedule need to be defined initially amongst FEMA, BIA and HUD, and then coordinated with the NVC and others
- Information gaps need to be addressed to draft a meaningful EA, make findings of effect, determine mitigation measures, and further NEPA decision-making, including further public involvement; these includes provision of:
 - Finalized Mertarvik community survey/layout, housing master plan (at least for relocated homes and those that may be built with HUD loans)
 - Preliminary infrastructure design and engineering plans for the pioneering phase (community and quarry roads, utility retrofits for potable water, wastewater management, solid waste management, power and bulk fuel storage)

- Essential community/public/social service plans, including facilities, are needed for Mertarvik that detail how pioneers residents will be supported (education, health care, emergencies, transportation by air or boat, communication, supplies)
- Draft EA and complete necessary additional resource studies and agency consultations
- Complete public involvement to present and make available draft EA findings
- Finalize EA and agencies issue decision documents
- Federal funds released for use and implementation

CCHRC

MERTARVIK

MULTI-PURPOSE BUILDING Retrofit Feasibility Study

The Newtok Village Council PO Box 5596 Newtok, Alaska 99559

January 24, 2016



The Cold Climate Housing Research Center 1000 Fairbanks, AK 99708 907.457.3454 www.cchrc.org [This page intentionally left blank]

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Romy Cadiente
Newtok Village Council
Newtok, Alaska

The Cold Climate Housing Research Center is pleased to have been tasked by the Newtok Village Council to complete a feasibility study on the construction of the Mertarvik Multi-Purpose Building, formerly known as the Mertarvik Evacuation Center (MEC). CCHRC has been deeply committed to aiding the people of Newtok in any way that adds to the larger relocation effort to the new town site at Mertarvik. The MEC project has undergone many changes and challenges since CCHRC and the community last worked on the concept in 2009. We are honored to be invited back to the table to work on finishing this important building.

The following report describes an in-depth analysis of the project up to this point, observations on site, and recommendations for finishing the project in a constructive and meaningful way. As the Council is well aware, both construction costs and energy costs in rural Alaska remain high, even as funding is becoming less available. Leadership of the Council has shown wisdom of their efforts to find a way to complete the building economically, while insuring that the MEC is energy efficient and long lasting. The results should create a useful facility that is not a cost burden to maintain and operate.

As Alaskan Communities are faced with adapting to a changing climate, Newtok will be an inspiration to others burdened with the necessity to relocate their communities. The Council's commitment to finish the MEC will set the stage for following activities to establishment Mertarvik as a viable and healthy village for generations.

All of us at the Cold Climate Housing Research Center wish the Newtok Village Council success in moving forward with the completion of this important structure, and pledge our support in future efforts.

Sincerely,

Jack Hébert

XI) Lat

PROJECT DESCRIPTION

The Mertarvik Evacuation Center

In 2015, CCHRC was asked by the Newtok Village Council (NVC) to provide an assessment of the Mertarvik Evacuation Center (MEC) Project. The MEC project began in 2008, and has passed through various stages of funding, design, construction, and change in that time. A brief timeline of the MEC project is below:

MEC TIMELINE

2008: At the invitation of the Newtok Planning Group and the former Newtok Traditional Council, CCHRC works with the community to create a concept design for a place of refuge at the Mertarvik site that could serve multiple purposes over the course of the relocation from Newtok to Mertarvik. In 2009 CCHRC publishes this concept design in a 30% Design Analysis Report (DAR) for the Tribe.

2010: DOT/PF (Project Manager), PDC Engineering, and Bezek Durst Seiser (BDS), Architects are awarded the contract to take the 30% DAR and produce Construction Documents for the building. The foundation is changed from earth-bermed on bedrock to a raised steel pile foundation. The floorplan, roof structure, and mechanical approach is also changed.

2011: The foundation for the MEC is constructed by Cornerstone Construction. The rest of the building cannot be completed due to budgetary concerns.

2012: DOT/PF and BDS are released from the project and a redesign commences. The redesign is taken up by George Watt Architects of Colorado. Working with Earthcore, a producer of Structurally-Insulated Panels (SIPs), they redesign a shell for the building at roughly 75% design.

2013: Earthcore SIPs are delivered to the site. However, they are the wrong thickness. 6-5/8" instead of the specified 10-1/4". The frame is not constructed. George Watt and Earthcore are released from the project.

May 2015: Summit Construction of Tok, Alaska, submits an Assessment and Construction Feasibility Study of the MEC foundation and design. The report declares the foundation sound, and posits strategies to complete the building. The strategies in the report outline a cost of \$300,000 to finish design and \$601/SF - \$730/SF to finish the building. The Newtok Village Council (NVC) deems this too expensive to be feasible, and begins looking for other strategies.

November 2015: CCHRC is invited by the NVC to travel to Mertarvik and advise the Council on the Summit Report, the MEC Assessment, and the strategies for completing the building.

The NVC requested that CCHRC perform the following tasks:

- 1. Review/assess the Summit Construction Report and familiarize deficiencies in such report identified by the owner.
- 2. Review and assess all plans: the original CCHRC design, DOT/PF MEC design, Earthcore SIPs MEC design.
- 3. Travel to Mertarvik in order to review and assess the existing MEC foundation.
- 4. While at Mertarvik, perform an inspection/ inventory of SIPs at Mertarvik.
- 5. Develop alternative action plans and cost estimates including alternatives within existing budgets and or 150% of existing budget.

EXISTING CONDITIONS

Literature Review:

MEC Plans Assessment and Construction Feasibility Study

As requested by NVC, CCHRC Staff reviewed the following documents:

- 1. Summit Consulting Services, Inc: Mertarvik Evacuation Center Plans Assessment and Construction Feasibility Study
- 2. Alaska DOT/PF Mertarvik Evacuation Center Construction Plans Bid Set
- 3. George Watt Architecture Sheets A2.0, A2.1, and A2.2 for redesigned Mertarvik Evacuation Center
- 4. Mertarvik Evacuation Center Structural Insulated Panels Specifications.

Summit Consulting Services Assessment and Feasibility Study

In May 2015 Summit Consulting completed a thorough and detailed assessment of the MEC. Its report analyzes challenges to the project that led to its eventual discontinuation and proposes two feasible alternatives to remobilizing the project and finishing the building. In the interest of avoiding repetition of work, this report began with a literature review of the Summit Report. NVC requested that CCHRC Staff pay particular attention to the design and costs associated with finishing the building, as Summit's plans were deemed by NVC to be prohibitively expensive.

Key Observations from Literature Review:

- The SIPs were delivered to Mertarvik, and one crate was disassembled and inspected. It appears that the full building envelope was delivered to the site. However, the SIPs were not consistent with the procurement document specifications. They are 6-3/8" thick with 7/16" thick oriented strand board (OSB) sheathing. This is significant because the SIPs were specified to be 10-1/4" thick. Mertarvik is in a very cold region and energy costs are likely to be quite high in the new village. The R-value of the delivered SIP panels is 40% less than specified (R-33 vs. R-55.5) and will result in significantly higher heating costs for the building. It is not in the best interests of the community to build a building that they will not be able to afford to heat. Additionally, SIPs in Alaska should be sheathed in plywood as opposed to OSB, which is significantly more vulnerable to water infiltration, swelling, and rot. The SIPs will need to be protected.
- Although the foundation of the MEC was designed by one party (DOT/BDS/PDC), and the SIP shell was designed by another (Watt/Earthcore), "there appears that there is not a conflict pertaining to the existing foundation and the use of the SIPs as designed. Framing plans utilizing the SIPs were approved by the Fire Marshal for the SIP building but that permit has expired." (Summit, 2)
- Summit was not able to make a site visit to Mertarvik, which is remote and not accessible for part of the year. CCHRC Staff were requested to visit the site to inspect the foundation, SIPs, and other materials. A description of that site visit is included in this report.
- Summit analyzed both designs. The DOT/BDS design called for spray foam insulation, while the Watt Design called for SIPs. Summit recommends spraying polyurethane insulation to the inside of the structure if the DOT/BDS design is selected.
- The Glulam beams incorporated by BDS are custom-made and expensive, and would also require heavy equipment and specialized labor. The plan to use spray foam insulation also requires specialized equipment, however, this equipment would likely already be at the site for ongoing housing projects. The delivery of the spray foam is a logistical challenge. Spray foam barrels cannot be allowed to freeze, so barge delivery would

need to be timed correctly. If flown, the barrels would need to be transported by boat from the Newtok Airstrip

- The SIP structure delivered by Earthcore and Watt Architects is also evaluated in the literature. Summit' recommends that the wall cross section include an interior wall finish, the SIP, 2x4 battens, 1-1/2" XPS insulation board followed by siding.
- Summit modeled the two buildings and found that the original BDS design would use 11% less heating fuel than the Watt design. The SIP design is recorded as being R-38.5 plus R-7.5 for the 1.5" of rigid insulation applied to the outside (Watt plans A2.2.2 and A2.2.3). However, this wall section is cause for concern. If the battens create an air gap between the SIP and the layer of XPS, then the R-value of the XPS would be negated. The order of assembly as drawn on the plans would need to be adjusted in order to provide the desired R-value. Additionally, CCHRC uses an industry-accepted aged R-value of R-6 per inch for this polyurethane foam material. CCHRC calculates that the overall aged R-value of the assembly would be R-33 for the SIP, with no added R-value for the XPS in that arrangement.
- Summit provided two options for roof systems: one with dormers in the loft and one without, that are both less costly and more efficient than the BDS plans. This report evaluates these two options and posits a third option.
- Summit concludes that the George Watt plans are not finalized. "There were minimal structural and no mechanical and electrical disciplines included in the plans. The architectural plans were effectively at the 75% design level... Even though the SIP panels arrived in the summer of 2012 and a construction permit was granted, no construction took place. Subsequent discussions with the Department of Fire and Life Safety resulted in an agreement whereby the completed plans would be provided prior to any construction taking place." (Summit, 9-10)
- Summit interviewed all team members involved in the design and construction of the MEC foundation, analyzed the blow counts, dynamic pile strain tests, and factors of safety. The piles of the MEC were driven to between 20-34' and rest on bedrock. The Summit Report concludes that the existing pile foundation is more than adequate to support the MEC building. "A sacrificial deck was placed over the trusses and I-joists after the foundation was completed. The plywood decking was coated with a black mastic sealant which helps shed water and snow away from the structural members below. The decking is beginning to weather, and CCHRC was asked to inspect the protective decking on the site visit. This is discussed in the Site Visit Section.
- The Summit report concludes that the foundation as constructed is suitable for either the original plan or the revised SIPs plan. Because the foundation rests on bedrock, the difference in loads will not be an issue.
- A crate inventory was performed by David Cramer during the summer of 2013, and Summit concludes from his findings that 570 were delivered to site. However, during the inventory one crate was opened and all 30 SIPs from that crate were left out in the weather. When CCHRC staff visited the site in 2015 these SIPs had deteriorated to the point where they are no longer usable. This leaves 540 SIPs on site. The original design calls for 558 SIPs. "It is clear that the SIPs manufactured and shipped do not match the procurement specifications which indicate a 10-3/4" thickness. We [Summit] have found no indication of when or how this change was implemented or agreed to." (Summit, 16).
- Earthcore SIPs' parent company may still exist, but its Alaska branch Kenai Manufacturing LLC, does not appear to be in business at this time.
- To finish the MEC building, the Summit Report states that \$300,000 is needed for design. For construction, depending on which of the two strategies are selected, costs will run \$601/SF or \$730/SF, and the annual O&M costs will be approximately \$45,000.

CCHRC Conclusions from Literature Review

- Summit's Report is thorough and professional. Its research is currently the most comprehensive review of the challenges facing the completion of the MEC building, and should be considered a primer to future contractors involved in the project.
- The steel pile foundation of the MEC, although it pertains to an earlier design iteration, is structurally sound and robust. The eventual completion of the building should be attainable without significant changes to the foundation as built.

However, the wood floor decking of the MEC is vulnerable to decay, rot, and eventual loss. An inspection of the floor system was deemed necessary. If possible, methods of protecting the decking from further degradation should be considered a first step in the critical path of finishing the project.

- Since the SIPs are already at site, they represent an asset that can be used in the completion of the project. Ordering new materials will be more expensive. However, NVC was not sure if the SIP panels were still usable. If they were found to be in good condition during the site visit, the SIPs still do not have the R-value specified in procurement, and the cost of heating the building may turn the MEC into an untenable financial liability for the new community instead of a resource. If the SIPs are to be incorporated into the completed building, some method of adding R-value to the structure will need to be investigated.
- The Summit Report posits two structural modifications for the MEC that greatly simplify the original design. However, the NVC is concerned about the procurement of heavy equipment necessary for these changes, as much of the heavy equipment used in the construction of the foundation has been demobilized and removed. The current state of heavy equipment at the site was unknown before the site visit. Additionally, the report only addresses gravity loads, not shear/lateral loads. CCHRC will use these strategies posited as a starting point, and will complete a structural strategy for the building.
- The cost of completing the building outlined in the Summit Report is significant, and it will be challenging for NVC to find lump sum funding for this project amidst a long list of other needs for the new community site. Methods to reduce cost will need to be considered, including a staged approach that emphasizes prioritized steps towards completion that can be funded separately.

Site Visit

On October 29, 2015 CCHRC design staff performed a site inspection with the following goals:

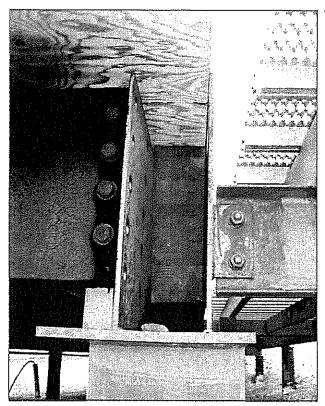
- 1. Assess the condition of the existing floor framing at the Mertarvik Evacuation Center (MEC).
- 2. Assess the condition of the Structural Insulated Panels that were delivered to the site by Earthcore SIPs.
- 3. Document heavy equipment and job site materials present.

Floor Framing

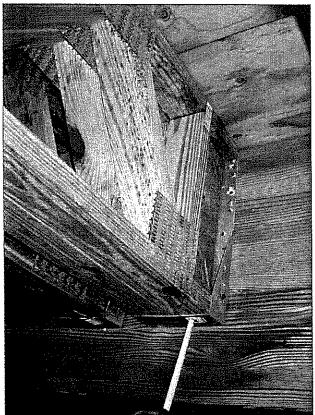
According to the May 2015 study performed by Summit Consulting Services, the MEC foundation and floor system construction was completed in fall 2011. It appears that at that time a sacrificial layer of ¾" CDX plywood sheathing was applied over the completed beam and joist framing to protect them from the elements. A liquid coat of black waterproofing sealant of unknown type was then applied over this floor sheathing to provide additional weather protection to the joists and beams underneath.

The protective decking runs past the structure of the foundation on two sides (the east and west, long dimension) and ends flush with the perimeter Glulam beams on the other two sides (the north and south, short dimension). The decking was unable to be constructed to run past these edges due to the presence of metal porch material. However, the Glulam beams and the steel under the decking do not appear to be degrading. The steel is not exhibiting undo corrosion, and the Glulam beams to not appear to be damaged by water infiltration.

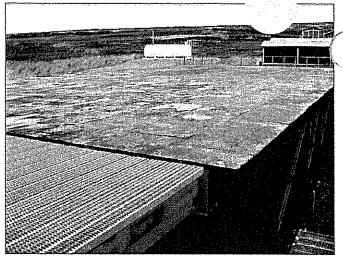
It appears that after 4 years of exposure to the elements, this temporary waterproofing strategy has begun to fail. Currently, the seams at most sheets are allowing rain and snowmelt to wick into the framing underneath. During rainy periods, water is ponding on the floor, and CCHRC Staff observed water running through many of the joints in the sheathing. Wetting has occurred along the tops of the joists and beams, and those areas are starting to show signs of long-term moisture-related discoloration. This ongoing water intrusion is of serious concern, and over a relatively short time it will lead to rot that affects the structural integrity of the floor framing. Therefore, before anything else is done in the development of the building, it is imperative that the existing foundation, beams, and floor joists be protected from the elements as soon as possible. If this is not done, by the time funding has been allocated to finish construction of the building, the floor joists will no longer be usable.



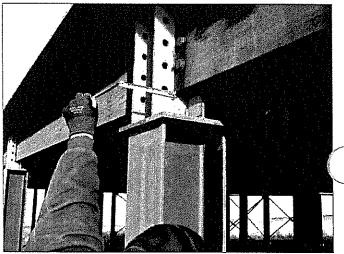
Above: The decking overhangs the long side of the structure, protecting the Glulam beam. On the short side, it ends flush.



Above: Water has begun to infiltrate the temporary decking above the structure. Water can be seen wetting structural members from above.



Above: The sacrificial decking meant to protect the floor is beginning to degrade and let water down in to the structural members



Above: The perimeter Glulam beams and steel columns appear to be in good condition.



Above: Discoloration of structural joist members by water infiltration through the decking.

Earthcore Structural Insulated Panels

According to the calculations in the Summit Report, 570 SIPs were to be shipped to the site. When one crate was opened, and its content extrapolated to the remaining unopened crates, this number was determined to be confirmed. 558 SIPs are necessary to construct the George Watt Design, which would have left twelve extra SIPs in case any were damaged. The SIPs were shipped as blanks, and the design intent was that windows and other openings would be cut on site. However, when the crate was opened to inspect the SIPs in 2012, the 30 SIPs contained in that crate we left to weather and decay. At the time of CCHRC's site visit in 2015, they had degraded to the point that they are no longer usable. According to Summit's calculations, there are now 540 SIPs on site. This would be 18 short of completing the building as designed by George Watt Architects, assuming zero waste and no errors or damaged SIPs once the rest of the crates are opened.

The CCHRC team and NVC conferred and decided that opening all of the remaining crates without a place to store them and protect them from the weather could potentially damage more materials, especially since there is currently no funding or schedule for completing the building. Instead, CCHRC Staff pried one panel of one crate open enough to pull away the Tyvek weather coating inside, inspecting the quality of the OSB SIP, in order to ascertain if any damage or degradation had occurred to the SIPs within the crates themselves. CCHRC Staff observed that the crated SIPs appear to be unaffected by weather since the delivery, and are likely still usable at this time.

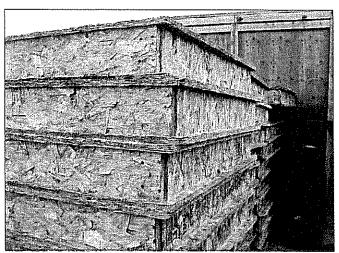
Heavy Equipment

At one time, a drill rig, excavator, and crane were present on site and used by various contractors to construct the well, septic, and foundation of the MEC, as well as other facilities at the Mertarvik site. However, all those pieces of heavy equipment have been demobilized and barged out. There are currently two pieces of heavy equipment remaining at the Mertarvik site. A Volvo Michigan L190 Loader is located adjacent to the cargo container yard. This loader is not likely to be useful to the process of finishing construction of the MEC, as there is no dirt work to be done and the foundation has been completed. The loader is damaged, with a flat tire and what appears to be a rear axle out of alignment. A Gradall 534D9-45W Squirt Boom is also present at the Mertarvik site. The squirt boom has a 66" carriage, 36' vertical reach and 9000lbs capacity fully extended. This piece of equipment has keys held by NVC and would be very useful for the completion of the shell structure of the MEC. It would also be necessary in order to move materials from the barge landing to the MEC. At the time of CCHRC's site visit, the squirt boom was not operational. But the local foreman stated that it required only a new battery to be operational.

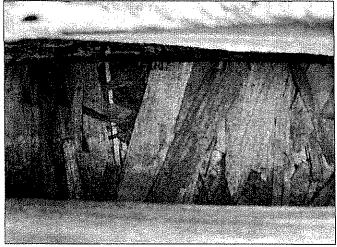
In addition to the heavy equipment, two job connexes are situated at the site, filled with various tools and files associated with the MEC foundation construction. An inventory of available tools would be helpful, and the connexes could be cleaned up and used for future jobs. Consequently, future contractors will not need to add the mobilization cost of shipping one out to site. Additionally, four small outbuildings are located adjacent to the MEC foundation. They have overhead garage doors and would be beneficial as materials storage during construction.



Above: The crated SIP panels are staged on Durabase mats adjacent to the existing MEC foundation.



Above: The SIPs uncrated on a prior site visit were left out in the elements and are no longer usable.



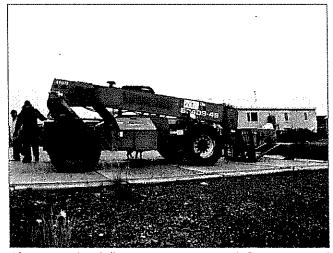
Above: the SIPs still within their protective crating appear to be as yet undamaged by the elements and should still be usable.



Above: A Volvo L190 Loader was left at the Mertarvik Site but is currently damaged.



Above: A Volvo L190 Loader was left at the Mertarvik Site but is currently damaged.



Above: A Gradall Squirt Boom was left at site and would be useful for continued construction. Keys are present and its battery must be replaced, but was otherwise reported to be in good condition by the local residents

Implications for Retrofit Feasibility

Status of Foundation

The MEC pile foundation is sound. The steel is built to a standard that could accommodate either of the two designs initially pursued, as well as both options posited by Summit Construction. However, the decking is under threat from moisture and exposure to the elements. It is possible that raising funding for the building's completion will take long enough that by the time it arrives, the decking will no longer be usable.

Status of the SIPs

The Structurally Insulated Panels were not constructed to specification and their overall R-value may create a financial liability to the community due to heating costs. Additionally, there are currently 18 SIPs short (assuming zero wastage) of the number necessary to complete the George Watt Design. Although the SIPs that are still crated appear to be in good condition, there are concerns over quality control in the fabrication process. Based on anecdotal conversations with materials suppliers familiar with this particular product line in the state, other panels from this supplier (Earthcore) have been known to warp or contain voids in the insulation. However, they are already at site. Any way that they can be used would mean less materials to be purchased and shipped to complete the building. A method of using the on-site SIPs that adds value to the overall project should be pursued.

Status of Heavy Equipment

The status of heavy equipment is unknown and can add significant cost and logistical constraints to the project. Any construction method that limits the need for heavy equipment should be considered.

State of Funding

The stop-and-start process of design, redesign, mobilization and demobilization of this building thus far has shown that acquiring bulk funding for a project of this size will be a significant challenge. Additionally, the staging of the completion of the building should address its place within the overall staging of relocation. Three homes were constructed too early at Newtok and never occupied, and these unheated homes were rendered uninhabitable due to mold damage before members of the community were able to relocate. For this reason, it is imperative that funding be staged according to sensible stages of construction, in the event that bulk, single-source funding be unobtainable. Additionally, staging the completion of the building will need to consider its place within the overall relocation master plan.

RECOMMENDATIONS

Summary

Prior analyses of the project by others concluded that in order to finish the building, between \$5million and \$5.4million would need to be raised for construction, plus another \$300,000 for design (Summit Report: p.24). This is a difficult amount of money to raise at one time, especially with so many other projects that will need to take place concurrently in the greater relocation effort. Additionally, the original use for the building, as an evacuation center, may no longer be prudent. Instead, a **multi-purpose** space should be emphasized, one that can provide various functions during the relocation effort. In order for the existing foundation and construction materials to contribute to a usable building for the community, a new approach to staging and funding should be pursued that emphasizes three separate stages of completion, to be described in detail in the following section of the report. These three stages are:

- 1. Protect the foundation
- 2. Complete the shell
- 3. Complete the building

Protecting the existing foundation must commence **immediately**, so that no further degradation can occur and no completed work needs to be redone. Acquiring funding and permitting for this stage will be much more attainable than a bulk allocation for a completed building. CCHRC recommends completing this stage concurrently with the upcoming housing construction season, as a local crew can complete the floor protection work without mobilizing a separate contractor.

Completing the shell should occur as its own stage, unless a bulk allocation is available for the completion of the entire building. Completing the shell will further protect the foundation from the elements, can be completed without specialized equipment, and can go through an expedited code review and permitting process. Additionally, the shell can be constructed in such a manner (such as leaving out the interior gypsum sheathing) that it will not be subject to mold and degradation should it be used seasonally or uninhabited for a period after construction. This is a concern, as the planning of the overall relocation may or may not provide for immediate funds to heat and ventilate the shell upon its completion. Additionally, this stage will minimize and streamline design time. The shell can be used as valuable covered storage space for materials involved in future construction projects pertaining to the greater relocation. It can also serve as a protective structure for a temporary, pioneer watering point that utilizes the existing well. The shell structure may be heated with a temporary furnace for periods where it is necessary to the relocation process.

Once the foundation is protected and the shell has been constructed, the completion of the final building can be properly staged with the overall relocation effort. The design hours, program review, and permitting can occur after or during the shell's construction, streamlining the overall building process. In addition to a staged approach to funding and construction, CCHRC recommends a shell structure design that is not overly dependent on heavy equipment, as this has been a logistical issue in the historical process of completing the building. An attempt to modify and supplement Summit Consulting's approach to structural completion with this emphasis is outlined in the next section of this report.

STAGE 1: PROTECT FOUNDATION

Stage 1: Protect the Foundation

This narrative describes possible strategies to preserve the existing foundation and provides a recommendation to better protect the floor until that date when construction can resume.

CCHRC investigated the following options to protect the floor until construction resumes:

1) Liquid Rubberized Asphalt

The least expensive approach would be to apply another layer of liquid rubberized asphalt coating, effectively maintaining the same strategy as was used initially. However, the flooring is already saturated with water and getting the waterproofing to bond to wet plywood is unlikely. More plywood would also need to be ordered. As demonstrated by the first coating, under the best of circumstances with dry plywood, this approach was a quick fix that did not stand the test of time. Although the exact brand is unknown, materials of this type are generally designed to act as a patch to existing roofs or as foundation damp proofing. They are not designed to withstand ponding water when applied to a large flat surface covered in plywood sheathing.

2) 60mil EPDM

EPDM rubber roofing is a good choice for flat wood sheathed surfaces and is commonly used in commercial roofing. Tradesmen are familiar with the product and its application is fairly straightforward. However, it is costly, heavy, and only comes in 20-foot-wide rolls. CCHRC asked for an initial quote from a local distributor and it came to ~\$2000 per roll with a total of 4 rolls required to cover the floor. This does not include shipping. Aside from cost, the biggest technical issue would be the overlapping joints of the rolls, which would have to be sealed water tight. This process requires ideal conditions, wherein a crew would need to apply 110 foot runs of volatile seaming glue. This would complicate the installation and further drive up the cost.

3) One-Piece Geomembrane

Geomembranes are often used in containment applications such as oilfield services and mining. They are durable, low temperature-rated, comparatively light, and can be made to size. Alaska Tent & Tarp in Fairbanks quoted a price of \$5000 for an approximate $60' \times 110'$ membrane to cover the MEC floor. In addition to being made to order, this geomembrane is significantly lighter than EPDM. The data sheet for the specified membrane is included in this section.

It is our recommendation that the floor be covered with Geomembrane before summer 2016. The return of summer temperatures will accelerate the growth of wood fungus. Once the membrane is in place, then the floor can start to dry from underneath. Given the typically wet climate of Nelson Island, it is unknown how long it will take for this to occur. However, it is CCHRC's conclusion that this strategy is the best hope for saving the structure while the community attempts to raise sufficient funds to finish the construction of the building.

Logistics and Process

The membrane will arrive in one roll that weighs about 750lbs. Ideally, the membrane could be transported from the boat landing to the site using the blue boom forklift that is currently parked nearby. Once the membrane

has been placed on the floor, it will require a crew of 6 people roughly 1-2 days to spread it out and secure it. Currently, the floor sheathing is secured with 16d duplex nails. As these nails stand proud of the subfloor, they will wear through the membrane. Before the membrane is installed, the duplex nails will need to be pulled and the floor plywood will need to be secured with flush-driven regular 10d nails or screws.

An accurate floor measurement will need to be made before ordering the membrane. The membrane should be made large enough such that it hangs over all edges by a foot. Overhanging the membrane will protect the floor and provide secure attachment for 2x4 wind cleats around the perimeter. In addition to wind cleats around the perimeter, enough 2x4 lumber should be on hand to run 6 evenly spaced rows down the length of the floor. Fastening 6 rows of 2x4's in the field will help provide wind uplift resistance to the membrane across the area of the floor. All 2x4's should be fastened with 4" minimum length pan/flat head structural screws. Example brands would include Spax and Headlok:

http://www.spax.us/en/power-lags.html#.Vk-7xWTnv6Y

http://www.fastenmaster.com/products/headlok-heavy-duty-flathead-fastener.html

It is recommended that a separate crew not be specially mobilized for this work, as that will add expense. Instead, CCHRC recommends that the crew already tasked with building housing in the village complete this work concurrently with that project. This saves on mobilization costs, per diem, and demobilization. CCHRC predicts the foundation could be protected by a crew of six over the course of two days, for \$9,158.8.

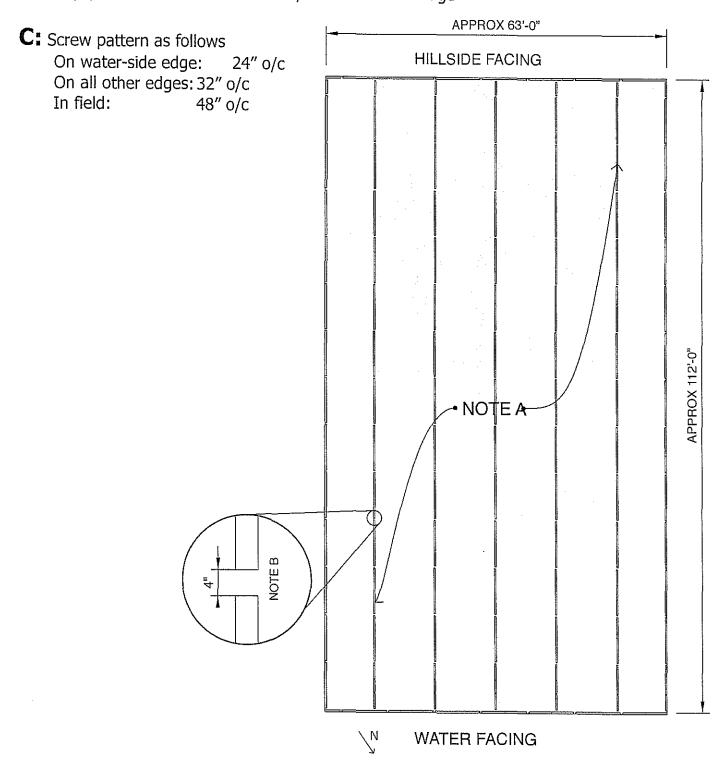
	rvik Evacuation Center limate Housing Research Center December 2015	
Platform	Protective S'eat'ing; Material List	
QTY	NOTE	COST (EST.)
180ea	2x4x8' (3.79 ea)	\$682.20
500ea	4" HeadLOK SPAX or equiv* structural screws	
5lbs	2" ceramic coated deck screw	\$30.00
10ea	tips for each of the 2 types of screw	\$30.00
1ea	Alaska Tent & Tarp Geomembrane 115'x64'	\$5500.00
	Total Materials cost	(EST.): \$6°4°.°0

Above: A materials list for protecting the foundation, with pricing at time of publication

Platform Protective Sheathing; Installation Notes

A: 7x rows of 2x4x8' cleats at approx. 10' OC, and 2 shorter rows to cap ends

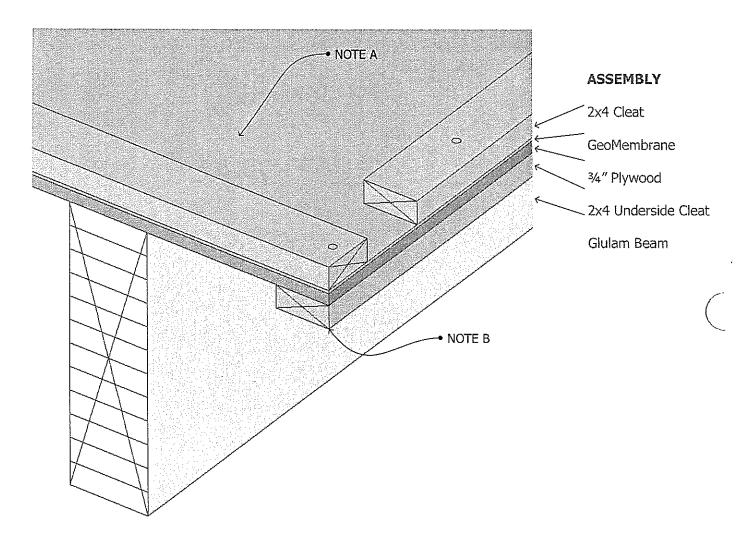
B: 4" gap between all 2x4 x 8' cleats, to allow for drainage



Platform Protective Sheathing; Detail Notes

A: 8218 GeoMembrane laid on top of 3/4" plywood

B: Underside cleat, on long edges, to be attached before membrane



Platform Protective Sheathing; Material List

1ea Alaska Tent & Tarp Geomembrane 115'x64'

8218 LOW TEMPERATURE USE



GEOMEMBRANE SPECIFICATIONS

Seaman Corporation

8248	Standard	Metric
Base Fabric Type Base Fabric Weight (nominal) Coating Type	Polyester .3.0 oz/yd² Flexible PVC	Polyester 102 g/m² Hexible PVC
Finished Coated Weight ASTM D751	18.0 oz/yd ³ +2/-1 oz/yd ³	610 g/m³ - +70/-35 g/m³
Tongue Tear ASTM-D751	8" x 10" sample @ 12 in/min 100/100 lbs	20,3 cm x 25.4 cm sample @30.5 cm/min 445/445 N
Grab Tensile ASTM D751	230/200 lbf	.1024/890.N
Strip Tensile ASTM D751 Procedure B	200/140 lb _V iri	178/125 daN/5 cm
Adhesion ASTM D751 Dielectric Weld	10 1b/m	9 daN/5 cm
Hydrostatic Resistance ASTM D751 Procedure A	200 psi 🛒 🕮	1.38 MPa
Low Temperature ASTM D2136 1/8" mandrel, 4 hr	Pass -67°F	Pass -55°C
Flame Resistance FTMS 191A Method 5910	Sample not consumed within 2 minutes	Sample not consumed within 2 minutes





HeadLOK is a heavy duty structural wood screw that is ideal for many wood applications including deck framing, stair stringers, attaching rigid foam (SIPs), fences, kitchen cabinets and more. The HeadLOK flat head fastener requires no predrilling and offers higher design shear than 3/8" iag screws. The SpiderDriveTM System contains 8 points of contact, maximizing bit fit and reducing stripping. HeadLOK zips right in and creates a great finished look.

- 3/8" lag screw replacement.
- No predriffing
- Flat head provides great finished look
- . Sharp gimlet point for fast installation into wood and OSB
- Aggressive thread for holding and withdrawal strength
- Free SpiderDrive[™] bit in every package

For HeadLOK technical information and drawings, see the Technical Docs section below. For technical documentation of all our structural wood screws, see our Technical Resources page.









STAGE 2: SHELL CONSTRUCTION

Structural Assembly

CCHRC worked with Borjesson Engineering to design a structural system for the building that minimizes materials and shipping costs. The design uses readily available components, and can be constructed strictly with manpower and portable lifting equipment in the event that heavy equipment cannot be mobilized with the available funds. The CCHRC option (Option 3) consists of a post and beam system whereby the roof loads are carried by the exterior walls, and at mid-span and ridge by exposed built-up beams supported by two rows of posts. This approach does require more labor than options 1 and 2 posited by Summit, but it eliminates any large heavy members that would require heavy equipment to set into place.

There are not enough structural insulated panels (SIPs) on site to insulate all exposed parts of the MEC to include the walls, floor, and roof. Even if enough panels were on hand to insulate the structure in it's entirety, the insulative value of one layer of panels would be inadequate. The resulting heating costs would present a financial liability for the Tribe rather than an advantage. Given these circumstances, the existing SIPs will be used in two layers to adequately insulate the roof. Any remaining panels will be used to build the utility room suspended under the floor that houses the mechanical systems. The wall system shall be framed separately. This approach will create the warmest building and still utilize all the materials already delivered to the Mertarvik Site. In addition to this narrative, see Appendix B for drawings and details.

Roof System

This roof design consists of a vented cathedral ceiling with the rafters exposed from below and covered from above with the 4x8 SIPs that are already on site. The rafters are spaced 4' on center to provide support and and attachment for both layers of panels, regardless of orientation. Before the panels can be installed, a thick 10 mil reinforced polyethylene sheeting vapor retarder is to be placed over the rafters. The contractor must verify that the perm rating of the vapor retarder is .06 or less, and that it is rated to withstand several weeks of exposure to sunlight during construction. To attain adequate insulation performance, the roof will use two layers of the 6 3/8" SIPs found on site. The two overlapping layers are installed perpendicular to one another to minimize the number of locations where the seams between the panels line up and extend through both layers. All seams between adjoining panels are to be sealed during installation. The evacuation center is situated in a highly exposed location in a cold maritime climate. As a result, the building exterior will be exposed to periods of severe winds and wind-driven rain. The SIP panels currently on site are manufactured using 7/16" oriented strand board (OSB) sheathing on both faces. History has shown that OSB-faced SIP panels are notoriously vulnerable to moisture damage. Consequently, it is absolutely critical that the roof panels are protected from the weather during construction, and that the roof system is both securely weather proofed and ventilated in order to better survive future moisture intrusion. In designing the roof, CCHRC has followed the current best practices for maritime climates in Alaska (City of Juneau code amended policy on structural on structural panel insulated roofs See Appendix A). The exposed surface of the top layer of SIPs is covered with a breathable waterproofing membrane as the panels are installed. This membrane will help protect panels during construction, and also shield the panels from any moisture that migrates into the roof assembly during the life of the structure. 2x4 sleepers laid at 2' on center, in line with the roof and on top of the membrane covering the SIPS, provide a continuous 1 1/2" vented air space from the eaves to the ridge. Both the soffits at the eaves and ridge cap are vented in such a manner as to prevent wind-driven rain from infiltrating the roof assembly at these junctures. A layer of 5%" CDX plywood sheathing is nailed over the sleepers, followed by a self healing waterproofing membrane and metal roofing. This assembly will provide an R-66 Roof.

Interior Roof System

The exposed rafters in the roof are supported from below using post and beam construction held together with steel brackets and bolted connections. The posts and related bracing will utilize sawn douglas fir timber while the carrying beams that support the rafters are assembled in place over the posts using several layers of laminated veneer lumber (LVL). Two runs of built-up LVL carrying beams are spaced equally across the width of the building, dividing it into thirds, and thereby supporting the rafters at mid span on each side of the roof. The two runs of beams are continuous for the length of the building. The supporting posts are knee-braced where they meet the carrying beams, and each beam run contains 5 evenly spaced posts. The two runs of posts are connected in pairs by a cross beam. In turn, the cross beams carry a short ridge post at mid span, which supports a ridge beam at the peak. The posts are situated directly on top of the existing Glulam foundation beams, which rest on the H-pile structural foundation that is driven into bedrock.

Wall System

As there are insufficient SIPs on site to adequately form the shell of the building, the exterior walls will be framed with 2x6 studs 16" on center and sheathed on the exterior with 1/2" CDX plywood. In order to meet structural engineering requirements, the window arrangements in the gable end walls are such that these walls can still provide adequate resistance to wind loads. The sheathing on all exterior walls will have specified nailing patterns, along with blocking to provide support at all panel edges. To unify the various framing elements, the plywood sheathing must extend above the walls to secure the rim board at the rafter terminations, and below the wall to completely lap over the faces of the supporting Glulam beams. The exterior walls will be insulated using the REMOTE wall system. The REMOTE wall system has been vetted in both Alaska's arctic climates and maritime climates and has proven itself suitable for construction in all regions of Alaska. Instead of relying, on interior vapor retarder behind the drywall, the REMOTE wall system locates an air and/or vapor retardel ("exterior membrane") over the sheathing. The bulk of the wall insulation is provided by two 3" layers of rigid foam board which are applied directly over the exterior membrane. The foam is held in place by vertical 2x4 furring strips using structural screws which pass through the foam board and directly into the studs. Metal siding is then applied over the furring strips. This system has significant advantages in cold maritime climates, all of which contribute to long term building durability. The air spaces between the furring strips are screened but left open at the top and bottom. This provides a vented rain screen behind the metal siding whereby the bulk of any wind-driven rain climates that infiltrates beyond the siding is stopped in the air space. As the space is open, water can drain downwards and air can circulate freely providing a drying path for any moisture, should it accumulate in the exterior of the wall assembly. The 6" of exterior insulation keeps the framing warm enough that it is at a much reduced risk of attracting condensation. Should a wetting event occur within the framing cavities, the absence of the vapor retarder provides an inward drying path. This assembly will provide a total R-value of R-39. To facilitate ease of construction, CCHRC has developed an in depth manual that covers the materials, concepts, and details entailed by the the REMOTE system. This manual is available for download in PDF format from the CCHRC website: http://www.cchrc.org/sites/default/files/docs/REMOTE_Manual.pdf

Floor System

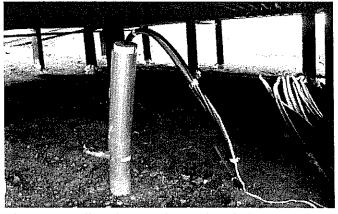
Indications are that the MEC floor framing, to include carrying beams and joists, was completed in fall of 2011. At that time, a sacrificial layer of ¾" CDX plywood was nailed over the exposed framing and this plywood layer was covered with what appears to be a thin layer of black roll-applied rubberized asphalt waterproofing. In fall of 2015, CCHRC inspected the floor assembly and it is clear that the temporary weatherproofing has failed and in many areas ponding water on top of the floor is wicking between the seams in the sheathing and wicking into the top flanges of the joists. Although the joists still appear to be sound, many are showing the visible effects of prolonged wetting and an accurate structural assessment will not be possible until the floor sheathing is removed and the top flanges of the joists can be better examined. It is imperative that the floor system be

protected from direct exposure to the elements and further damage. See Stage 1: Protecting the Foundation (pgs 17-18) for CCHRC's recommendations for protecting the floor. Whether the floor is protected with an additional waterproofing membrane or not, it will continue to remain exposed to weather to varying degrees until the building shell is completed. Given the expense associated with replacing damaged floor framing, time is of the essence in regards to completing the MEC enclosure.

Assuming at time of construction that the sacrificial layer 34 plywood floor sheathing is still sound, then CCHRC advises leaving it in place. This sheathing will provide a working surface during construction and continue to protect the floor until the roof is in place. Once the roof is completed, and both floor joists and beams have sufficiently dried to a wood moisture content of 20% or less, insulating can begin. Given the height of the floor, the sloping ground, and obstacles presented by the pilings, it would be most cost-effective if the bulk of the insulating work could be completed from above. To this end, the underside of the floor should receive a well-sealed air and weather barrier, such as Tyvek Commercial wrap followed by a protective layer of 1/2" CDX plywood. With the underside of the floor protected and supported, blown-in fiberglass can be installed into the joist bays from above. Blown in dense pack fiberglass is a good choice for this floor system as it is more tolerant of moisture than other products and will fill in voids around the bulky 2x4 parallel chord joists that comprise most of the floor assembly. The existing flooring can be either drilled or removed as needed to install the insulation at the manufacturer-specified density. Once the insulation is in place, the floor can be covered with a fresh layer of 34" T&G plywood. The plywood should be sealed with caulking at the panel edges to ensure such that it becomes an effective barrier. This floor assembly (16" of blown-in fiberglass) will yield total R-value of R60+.

Mechanical Room

The mechanical room as originally designed by BDS and George Watt takes up significant floorspace in the building and creates staging concerns. The Tribe would like to see the MEC incorporate a watering point for the pioneers in the new community even before the MEC would be completed, and infrastructure is already in place for that approach (see figures below). One solution would be to build the mechanical room for the structure under the floor system. This was the original intent of the 30% Design Analysis Report published in 2009. Given that the pilings are tall, a 14'x20 bay near the sewer and water inflow/outflow service connections can be dedicated to the mech room. The mech room will be 8' tall inside and connected directly to the main floor above. The purpose of the underfloor mechanical room is to keep the bulk of the mechanical systems centralized in a heated and readily serviceable enclosure that is independently accessible. The mechanical room should also be oriented such that it encompasses the water supply and waste lines from above. The mech room floor will be framed inside one of the pile bays by attaching LVL ledger boards between the pilings in the 20' dimension and then hanging joists between the ledger boards. The floor will be sheathed in 34" T&G plywood and the walls will be framed with 2x6 studs and 1/2" CDX plywood sheathing. Any remaining SIP panels can be used insulate the exterior walls and floor of the mech room.



Above: A well and septic have already been installed adjacent to the MEC foundation.



SHELL MATERIALS LIST

CCHRC NEWTOK MERT	ARVIK I	EMER	RGENCY SHELTER (MEC) MATER	RIALS LIST
2	II ATIONI			
UNDERFLOOR FRAMING & INSU FLOOR AREA APPROX 112'X60' = 672	and the second of			
5 UNIT DESCRIPTION	QUANTITY	HMITS	SPECIFICATIONS	NOTES
6 KNAUF JET STREAM BLOWN IN INSULATION/DENSE PACK	650	EA	INSULATION - FIRST FLOOR KNAUF JET STREAM ULTRA BLOWN IN FIBERGLASS INSULATION IS RATED TO YIELD APPROXIMATELY R. 70 WHEN INSTALLED IN A 16" DEEP JOIST CAVITY AT 1.8LBS/CU FT. COMPARABLE PRODUCTS FROM OTHER MANUFACTURERS MAY HAVE DIFFERENT DENSITIES AND YIELDS AND THE QUANTITIES WILL NEED TO BE ADJUSTED ACCORDING TO MANUFACTURER SPECIFICATIONS. REF. http://www.knaufinsulation.us/en/content/jet-stream-ultra-blowing-wool-insulation-attic-and-cavity-wall-card	
7 9'X125' TYVEK DRAIN WRAP	7	ĒΑ	UNDERFLOOR AIR BARRIER	
8 5/8" 4X8 CDX PLYWOOD	230	EA	UNDERFLOOR SHEATHING	6720 sqtt/32= 210 sheets - round to 230
9 9 UNDERFLOOR UTILITY ROOM B 1 FLOOR AREA APPROX 112'X60' = 672	ETWEEN			0120 344032-210 31666-10010 10 200 1
2 UNIT DESCRIPTION	QUANTITY	UNITS	SPECIFICATIONS	NOTES
3 2x6x16 DF	50	EA	STUDS & PLATES 16" OC	68if wall/15" OC framing = 56 studs@8' = 28ea 2x6x16' PLUS 136if plates/16' = 9ea 2x6x16' Total = 39 2x6x16' Round to 50ea 2x6x16
4 2x4x20 DF	35	ËA	EXTERIOR WALL FURRING	56 studs = 56ea 2x4x10' furring strips. = 28 ea 2x4x16' round to 35 ea
s 2x10x20' PRESSURE TREATED	5	EA	WALL FURRING AT CORNERS. TREATED GROUND CONTACT RATED	4 exterior corners @ 10' tall x 2ea per corner = 8ea 2x10x10' PT plus 2 extra = 10ea 2x10x10' = 5ea 2x10x20' PT
6 1/2" 4X8 CDX PLYWOOD	25	EA	WALL SHEATHING	68lf wall x 9' height (incl joist depth) = 612sqft/32=20 sheets round to 25
7 3/4" 4X8 T&G SUBFLOOR	12	EA	SUBFLOOR	14X20 floor = 280sqft/32 = 9 sheets. Round to 12
8 5/8" 4X8 CDX PLYWOOD	12	ĒΑ	UNDERFLOOR SHEATHING	14X20 floor = 280sqft/32 = 9 sheets. Round to 12
9 16" X 16' I Joists	15	EA	FLOOR JOISTS 16" OC BCI SERIES 60 2.0 OR EQUIVALENT	FLOOR JOISTS 20if /16" OC = 15ea 11 7/8 I joists
8 16" X 1 3/4" x 24' LVL	4	EA	LEDGER BEAMS FOR JOISTS	Approx 22'span Doubled up and resting on welded ledge @ H Piles. 4 ea rounded to 24' long
1 16" X 1 3/4" X 18' LVL	2	EA	JOISTS UNDER SIDE WALLS	Approx 14'span Doubled up and resting on welded ledge @ H Piles. 4 ea rounded to 18' long
12 16" I JOIST HANGERS	į 30 -'	EΑ	JOIST HANGERS TO FIT JOISTS SPECIFIED IN THIS SECTION	National and the same of the
NAUF JET STREAM BLOWN IN INSULATION/DENSE PACK	35	EA	FLOOR INSULATION KNAUF JET STREAM ULTRA BLOWN IN FIBERGLASS INSULATION IS RATED TO YIELD APPROXIMATELY R.70 WHEN INSTALLED IN A 16" DEEP JOIST CAVITY AT 1.8LBS/CU FT. COMPARABLE PRODUCTS FROM OTHER MANUFACTURERS MAY HAVE DIFFERENT DENSITIES AND YIELDS AND THE QUANTITIES WILL NEED TO BE ADJUSTED ACCORDING TO MANUFACTURER SPECIFICATIONS. REF: http://www.knaufinsulation.us/en/content/jet-stream-ultra-blowing-wool-insulation-attic-and-cavity-wail-camb	To achieve 16" Depth the specs for 7 1/4" dense pack were added to the specs for 9 1/4 dense pack. For 100 sqft at 1.81bs/cult coverage; (7 1/4" = 34 bags) FUUS (9 1/4" = 43.4 bags) = 77.4bags/1000sqft. 77.4bags x. 28f floor area multiplier = 25bags. Round up to 35 bags. NOTE. IF THE CEILING OF THE MECH ROOM IS TO E UNINSULATED, THEN THIS INSULATION COUNT CAN BE REMOVED AS THE CEILING INSULATION ABOVE CAN BE USED IN THE MECH ROOM FLOOR BELOW INSTEAD.
4 4X8X3" R -TECH 25 PSI FOAM BOARD	50	EA .	FOAM BOARD EXTERIOR WALLS	612 sqftx2 layers = 1224sqft/32= 39 sheets. Round to 5
15 10" HEADLOK PANEL FASTENER	500	EΑ	FURRING SCREWS NOTE: SCREW POINTS AND THREADS MUST BE THE TYPE THAT PERMITS EASY INSTALL INTO WOOD. REF: http://www.omgroofing.com/browse-by-fastener-name/headlok.html?language=en& SKU - FMHLGM010-250	Screw depth 1 1/2" furring + 6" foam + 5/8 sheathing + 1/4 min framing penetration = 9 3/8" = 10" Screw. Screw spacing is 2"0C vertical = 9 screws per 16" wall x 258 studs = 4128pcs PLUS 230pcs gable ends = 4358 round to 5500
PROPANEL 2 OR EQUIVALENT PANEL 26 GAUGE	700	SQFT	METAL SIDING EXTERIOR WALLS	p ment i i ini saarusta kitalandarinin danka i ini danka i i i
7 9'X125' TYVEK DRAIN WRAP 8 R-13 FIBERGLASS BATTS UNFACED	1 544	EA SQFT	UNDERFLOOR AIR BARRIER FIBERGLASS BATTS EXTERIOR WALLS SIZED TO FIT	68lf wall x 8' tall = 544sqft
29 3'-0" EXTERIOR DOOR			16" OC WOOD FRAMING EXTERIOR DOOR FOR REFERENCE ONLY, DO NOT	
0	Anamari	· Mague	TALLY. THIS DOOR INCLUDED IN DOOR SECTION	
1 EXTERIOR WALL FRAMING 2 NOTES: FLOOR AREA APPROX 112'X BEAMS AND RAFTER TAILS = APPRO EXTERIOR WALL	(60' = 344LF OX 16' X 344	EXTER	RIOR WALL EXTERIOR WALL SURFACE AREA CA LL = 5504SQ FT. PLUS 8'X30 GABLE END RECTA	ALC: EAVE WALL HEIGHT INCLUDING FLOOI NGLES (X2 EA) = 480SQFT = 6000SQFT
3 UNIT DESCRIPTION	QUANTITY	INITE	SPECIFICATIONS	NOTES
34 2X6X16' DF	, 408	EA	STUD STOCK TO BE CUT TO LENGTH AS STUDS	344If exterior wall/16 OC framing = 259 studs PLUS 150 extra for misc framing (trimmers, cripples, sills, etc.) = 408ea 2x6x16*
35 2X6X20' DF	150	EA	PLATE AND STUD STOCK	344lf plates x 3 courses = 1032lf/20' = 52ea plates PLU 148ea extra for longer great room gable end studs and misc framing = 200ea 2x6x20'
36 2x4x16' DF	300	EÃ	EXTERIOR WALL FURRING	Ref 2x6x16' stud count for calcs
	-		- · - · · ·	

38	2x10x20' PRESSURE TREATED	10	EA	WALL FURRING AT CORNERS. GROUND CONTACT RATED	4 exterior corners @ 20' long x 2ea per corner = 8ea 2x10x20' Treated wood plus 2 extra
39	1/2" 4'x8" CDX PLYWOOD	237	EA	EXTERIOR WALL SHEATHING	Height: 1'-5' tall GLB + 13' eave wall height + 1'-6" to cover rafters = 15' round up to 16', 344ff wall perimeter x 16' tall = 5504sqt/32 = 172 sheets PLUS Gable end rectangles = 3" rise x 30 feet = 90" round up to 8'x30' rectangles 240 sqt (x 2 sides) = 480sqt/32 = 15 sheets Total 167 sheets PLUS 50 extra = 237sheets
40	4X8X 3" R-TECH 15PS1	220	EΑ	INNER LAYER OF FOAM	6000 sqft exterior wall/32 = 188 sheets + 32extra = 220sheets
41	4X8X3" R-TECH 25PSI	220	EΑ	OUTER LAYER OF FOAM	6000 sqft exterior wall/32 = 188 sheets + 32extra = 220sheets
42	9X125' TYVEK DRAIN WRAP	7	EA	AIR AND WEATHER BARRIER NOTE: TYVEK DRAIN WRAP WEATHER BARRIER MUST BE USED AS PART OF THE ENGINEERED DESIGN FOR THIS WALL SYSTEM. APPLIED TO EXISTING WALL SHEATHING BEFORE INSTALLING EXTERIOR FOAM BOARD INSULATION. THIS HOUSE WRAP PROVIDES A DRAINAGE PLANE BEHIND THE EXTERIOR FOAM BOARD INSULATION	6000 sqft exterior wall/1125sqft/roll 6 rolls PLUS 1 extra - 7 rolls
43	10" HEADLOK PANEL FASTENER	5500	EA	FURRING SCREWS NOTE: SCREW POINTS AND THREADS MUST BE THE TYPE THAT PERMITS EASY INSTALL INTO WOOD. REP: http://www.omgroofing.com/browse-by-fastener-name/headlok.html?language=en& SKU - FMHLGM010-250	Screw depth based on: 1 1/2" furring + 6" foam + 5/8 sheathing + 1 1/4 min framing penetration = 9 3/8" = 10" Screw. Secring is 2"CC extical = 9 screws per 16' wall x 258 studs = 4128pcs PLUS 230pcs gable ends = 4358 round to 5500
44	1x8 AZEK FRONTIER TRIM (WOOD GRAIN 1 SIDE)	250	LF	JAMB SIDES AND TOPS	13 windows x 11lf/window = 143if PLUS 4 windows x 15lf/window ≃60if = Total 203if. Round to 250if
45	1x10 AZEK FRONTIER TRIM (WOOD GRAIN 1	75	LF	JAMB SILLS	17 windows x3lf/window = 51lf round to 75lf
46	SIDE) R-13 FIBERGLASS BATTS UNFACED	5500	SQFT	WALL CAVITY INSULATION SIZED TO FIT 16" OC WOOD FRAMING	6000 sqft - (1-6" x 344lf floor beam thickness = 516sqft) = 5484sqft - (1' Ivl rafter thickness x 344lf = 344sqft) = 5140sqft Round to 5500sqft
47	And the second s			and the second of the second o	
	WALL METAL			stien Kyntry sik inder Killi	
	UNIT DESCRIPTION	QUANTITY		SPECIFICATIONS FOR SIDING EXTERIOR WALLS	NOTES
	PROPANEL 2 OR EQUIVALENT PANEL 26 GAUGE X* HEX DRIVE #9 x 1* WOOD SCREW, or EQUIV. ROOFING FIELD SCREW TYPE	6500	SQFT	130MPH WIND AREA. ESTIMATED QUANTITY, TYPE, AND SIZE TO BE VERRIED BY SUPPLIER (Sleve Lusk?)	
	WINEOPRENE SEALING WASHER W HEX DRIVE W-14 x W STITCH SCREW OR EQUIV.			130MPH WIND AREA. ESTIMATED QUANTITY, TYPE. AND SIZE TO BE VERIFIED BY SUPPLIER (Sleve Lusk?)	
53	OUTSIDE CORNER FLASHING	48	lf	AND 012E TO BE VENIFIED BY GOPPLIER (Steve Losky)	16if x 4 corners =48if
54	J CHANNEL	1500	lf	n - , Marrian Air ann an An Analasachana an ann an Analasacha an	344if floor x 2 runs (top⊥) = 688if PLUS 325if to wrap windows = 1013if PLUS 68if to wrap doors = 1081if Round to 1500if
55					
56 57	EXTERIOR DOORS				
	EXTERIOR DOORS: PREHUNG INSULATED 30":60" STEEL-NFRC RATING R-6 MINIMUM WITH WOOD BUCKJAMB EXTENSION FOR WALL THICKNESS, WITH BRICKMOLD BALL BEARING CORROSION RESISTANT HINGES	QUANTITY 5	UNITS EA	SPECIFICATIONS INSWING WITH 14 1/4" JAMB EXTENSIONS.	NOTES 1 1/2 furing + 6" foam +5/8" sheathing + 5 1/2" stud + 5/8" drywall = 14 1/4" Note; the 5th door is to be used for the underfloor utility room.
59	BEARING CORROSION RESISTANT HINGES EXTERIOR DOOR THRESHOLD/SILL EXTENSION.	5 :	EA	3003 BRIGHT TREAD PLATE ALUMINUM OR EQUIV CUT 38" WIDE & BENT 90 DEGREES WITH TOP (SILL) FACE AT 10" AND PERPENDICULAR (SIDING) FACE AT 4"3/32 THICKNESS REF:	, w.,
60	COMMERCIAL GRADE CORROSION RESISTANT GRADE DOOR HARDWARE.	Accept 1 AMP 1111		http://www.alascop.com/pdf/ai/mill_al.pdf TO INCLUDE LOCKSETS, STRIKES, DEADBOLTS, AND WEATHERSTRIP	
61 62	WINDOWS				
63	TRIPLE PANE NORTHERM, ALL WINE 8" INTERIOR PVC JAMB EXTENSION EXTERIOR RECEIVING CHANNEL	OOWS TO F	RECEIVE RY PRE	E EXTERIOR AZEK JAMB EXTENSION AND INTER ASSEMBLED WITH CASING. WINDOW REQUIRES	IOR FACTORY BUILT PVC JAMB EXTENSION. 3 %" INTERIOR RECEIVING CHANNEL AND 5/8'
64	UNIT DESCRIPTION	QUANTITY	UNITS	SPECIFICATIONS:	NOTES
65	WINDOW TYPE: OPERABLE CASEMENT/EGRESS (RO: 36"W X 48"H), HINGE: RIGHT HAND OUTSWING (RHOS), WIDTH OF INTERIOR JAMB EXTENSION IS 8	13	EA		9 ea for gable ends & 4 ea for eave walls office areas.
55	WNDOW TYPE: FIXED CASEMENT (RO: 35"W X 72"H), WIDTH OF INTERIOR JAMB EXTENSION IS 8"	5	EA		upper gabie walls
67 68	INTERIOR PARTION FRAMING	& FLOOR	SHEAT	THING	
69	and the second s			ZZANINE DECK APPROX 60'X56' = 3360SQ FT	
70 71	UNIT DESCRIPTION	QUANTITY		SPECIFICATIONS	NOTES
71	3/4" T&G PLYWOOD	365	EA EA	SUBFLOOR: MAIN FLOOR & LOFT STAIR TREADS	SUBFLOOR 6720sqft main floor plus 3360sqft = 10080sc / 32sqft = 315 sheets PLUS 50 extra = 365 sheets STAIR TREADS 15 treads/stair x 2 stairs = 30 treads
		J		Control of Section 2	PLUS 2 extra = 32 treads @ 3'-6" long. 1 sheet = 8 trea = 4 sheets PLUS 1 extra = 5 sheets
~~	PL400 LOCKTITE SUBFLOOR ADHESIVE	156	EA	SUBFLOOR ADHESIVE: LOW VOC RATED FOR WET AND	the state of the s

74 14" x 20" I JOIST	150	EA	LOFT FLOOR JOISTS BCI 60 2.0 Series Four star live load deflection limited to L/980 Maximum span is 18*-10*	Sized to span approx 18'-8" between columns. Floor width is 60' /16" OC = 44 joists, excluding rims, to be platform framed for 1 floor bay (x3 floor bays) = 138ea I Joists Plus 12 extra = 150 ljoists.
75 14" x 20" VERSA LAM RIM BOARD	12	EA	LOFT FLOOR RIM BOARD 1 5/16" VERSA-LAM 1.4 1800	56lf eave walls (x2) = 112 lf PLUS 60lf Gable end = 172lf PLUS 40lf shear wall rim = 212lf round to 220 PLUS 1 extra = 240lf
76 14" X 1 3/4" X 20' LVL	32	EA	BUILT UP HEADERS IN LOFT FLOOR	For hanging I-Joists between floor bays. LVL headers to be hung off post brackets and resting on exterior walls, 4plys per header (x7 headers including cross ties) = 28ea LVL PLUS 2ea Shear Wall Ledgers = 30ea, Round to 32ea @ 20' long or 16 ea @40' long.
77 117/8" x 13/4 X 40° LVL	6	EA	STAIR STRINGERS	9-6" rise between floors w/ 7 1/4" x 11" stairs = 7 7/6"/12 stair plich. Stringer diagonal length = approx 18" Round to 20. 3 stringers per stair x 2 stairs = 6 LVL PLUS 2 extra = 6 LVL @ 20" or 4 LVL @ 4"
78 14" top flange joist hangers.	276	EΑ	JOIST HANGERS To fit 14" BCI 60 2.0 Series	Gable end bay = 44 hangers PLUS 88 hangers middle bay PLUS 88 hangers shear wall bay = 190 hangers PLUS 30 extra = 220 hangers lote; To nieat structural requirements, shear wall is to support losts via platform framing NOT by hanging joists from a ledger nailed to the shear wall
79 50/bs 8D 11/2 HDG JOIST HANGER NAILS			HANGER NAILS	
88 2x4x16 DF	350	EA	INTERIOR WALL FRAMING	500lf partition wall on first floor / 16" OC Framing = 375 8" studs/ 2 =188 2x4x16 =PLUS 1000lf plates/16" = 63 2x4x16 = 261 2x4x16 PLUS 99 extra = 350 2x4x16
81 2X6X16' DF	100	EA	SHEAR WALL STUDS	60lf/16" OC = 45ea 2x6x16' PLUS 55 ea misc partition wall framing
82 1/2" 4'x8" CDX PLYWOOD	60	EΑ	SHEAR WALL SHEATHING	From bottom of floor beam to top of rafter: 20'x20' = 400sqft (x2sides) = 800sqft (x2 walls) = 1600sqft/32 = 50 sheets + 10 extra = 60 sheets.
83 / 84 POST & BEAM FRAMING		- 137 272		AND THE CONSTRUCTION OF THE
85 UNIT DESCRIPTION	QUANTITY	UNITS	SPECIFICATONS	NOTES:
86 11 7/8" X 1 3/4" X 40' LVL	6	EΑ	BUILT UP RIDGE BEAM.	6 sections @ 18'-8" = 3 sections at 38' (x2 plies) = 6ea 40' LVL
87 .117/8" X 1 3/4" X 40' LVL	24	EA		6 sections @ 18'-8" = 3 sections at 38' (x4 plies per
88 11 7/8" X 1 3/4" X 40' LVL	3	EA	BUILT UP CARRYING BEAMS FOR RAFTERS. RAFTER TAIL RIM BOARD	beam) = 12ea 40' LVL (x2 beams) = 24ea 40' LVL 112 if of rim board to catch rafter tails round to 120if
89 11 7/8" X 1 3/4" x 40' LVL	6	EA	EXTRA	Extra
99 11 7/8" X 1 3/4" X 40' LVL	10	EA	CROSS TIES	20' span (x4 plies per tie) (x5 ties) = 20ea @20' or 10 ea @40'
91 11 7/8" X 1 3/4" x 32' LVL	125	EA	RAFTERS	32' long. 112If /4' OC spacing = 29 rafters (x2sides)= 58 rafters PLUS 2 additional to triple over shear wall = 60 rafters (x 2plies) = 120 rafters Plus 5 extra = 125 rafters
92 .16" x 1 3/4" X 20' LVL 93 8X6X16' DF TIMBER # 2 OR BETTER	6 30	EA EA	SHEAR WALL FLOOR BEAMS. POSTS.	20' span (x3 plies per beam) (x 2 beams) = 6ea@20' 10ea@ 16' PLUS 20ea knee braces at 5' = 10ea@ 16' PLUS 5 ea king posts at 4' = 2ea@ 16' PLUS 8 extra = 30ea@ 16'
94 VARIETY OF BEAM BRACKETS 95 BOLTS, NUTS, WASHERS 96 SEISMIC ANCHORS & HARDWARE			TO BE SOURCED & PRICED BY CCHRC TO BE SOURCED & PRICED BY CCHRC TO BE SOURCED & PRICED BY CCHRC	
97 98 ROOF SYSTEM	ŊĨĸſĸĸ			
99 4X8 SIP PANEL COUNT CALC: (Roof	1 side 3/12 ¡	oitch: 32	x114' = 3648sqft) x (2 sides =7296sqft) x (2 layers)	= 14592 sqft/32 = 456 panels
168 UNIT DESCRIPTION			SPECIFICATONS	NOTES
191 STRAND REINFORCED POLYETHYLENE SHEETING	3 .	ROLLS	CEILING VAPOR RETARDER DURA-SKRIM 10MIL 100'X4' OR EQUIV. MUST MEET VAPOR PERM OF .06 OR LESS	0'
192 TREMCO ACCOUSTICAL SEALANT	500	TUBES	REF:http://ravenerd.com/products/product-data-sheets TREMCO VB SEALANT 1 QUART (LARGE SIZE TUBES) REF: http://www.tremcosealants.com/products/acoustical-	TO SEAL VAPOR RETARDER LAPS: 56 rafter bays @ (4'x 30')(x2) = 240lf/bay x 56 bays = 13440lf/27lf coverage per cartridge = 500 lubes
103 9" HEADLOK PANEL FASTENER	3750	EA	curtainwall-sealant.aspx STRUCTURAL SCREWS FIRST LAYER SIPS NOTE: SCREW POINTS AND THREADS MUST BE THE TYPE THAT PERMITS EASY INSTALL, INTO WOOD, REF: http://www.omgroding.com/browse-by-fastener-	15 screws per panel x 250 panels = 3750pcs
104 16" HEADLOK PANEL FASTENER	3750	ĒĀ	name/headlok.html?language=en& SKU - FMHLGM009- 250 STRUCTURAL SCREWS SECOND LAYER SIPS NOTE: SCREW POINTS AND THREADS MUST BE THE TYPE THAT PERMITS EASY INSTALL INTO WOOD, REF: http://www.omgroofing.com/browse-by-fastener- name/headlok.html?language=en& SKU - FMHLGM016-	15 screws per panel x 250 panels = 3750pcs
195 4° HEADLOK PANEL FASTENER	2500	EA	ROOF VENT FURRING SCREWS NOTE: SCREW POINTS AND THREADS MUST BE THE TYPE THAT PERMITS EASY INSTALL INTO WOOD.	To attach 2x4 roof vent strips
186 11" HEADLOK PANEL FASTENER	2500	ËA	ROOF VENT FURRING SCREWS NOTE: SCREW POINTS AND THREADS MUST BE THE TYPE THAT PERMITS EASY INSTALL INTO WOOD.	To allach 2x4 roof vent strips
107 WATERPROOF VAPOR PERMEABLE SELF ADHERING ROOFING UNDERLAYMENT	22	ROLLS	WEATHERPROCEING MEMBRANE OVER SIPS	TO BE INSTALLED OVER THE OSB SIP PANELS AS A VAPOR PERMEABLE (10 PERMS) MEMBRANE TO PROTECT THE PANELS FROM EXPOSURE TO MEMBRANE DURING INSTALLATION AND TO PROVIDE A SECONDARY BREATHABLE WATERPROOF PROTECTIVE LAYER FOR THE OSB AFTER THE ROOF IS COMPLETED, NOTE: TEMPERATURE SENSITIVE 2X4 FURRING STRIPS TO BE FASTENED THROUGH THIS UNDERLAYMENT. 7296sqft, round up to 8000sqft/480sqft/roil = 17 roils Round to 22

108	CONTACT ADHESIVE FOR ROOFING UNDERLAYMENT	50	GALLONS	WATER BASE PRIMER CARLISLE CCW 702-WB PRIMER. 2005QFT/GAL COVERAGE OVER OSB. REF: https://www.carlislecow.com/?page=view&mode=media&contentID=2765&frompage=search&children=true&fromcategory=26&frommediatype=iterature&fromcotype=4	NOTE: TEMPERATURE SENSITIVE: 8000 sqft of roof/ 200sqft/gal = 40 gallons. Round to 50 gals
109	LAP SEALANT	25	TUBES	LAP SEALANT CARLISLE SURE-SEAL LAP SEALANT 22LF COVERAGE PER TUBE REF: https://www.carlisleccw.com/?page=view&mode=media&contentD=2748frompage=search&fromcategory=60&frommediatype=literature&fromdoctype=4	To seal cut edges, reverse laps, etc. on the Fire resist 700 VP
	WATERPROOF VAPOR IMPERMEABLE SELF- ADHERING ROOFING UNDERLAYMENT	50	ROLLS	WEATHERPROOFING MEMBRANE OVER ROOF PLYWOOD CARUSLE WP 300 HT SELF ADHERING ROOFING UNDERLAYMENT 3X66 POLL REF: http://www.carlislewipproducts.com/_docs/WIP%20300HT%2 OSell%20Sheet.pdf	PRIMARY WEATHER BARRIER ABOVE THE VENTED SPACE, BETWEEN THE METAL ROOFING AND 5/8 CC ROOF SHEATHING, NOTE: TEMPERATURE SENSITIV MAY NOT REQUIRE PRIMER - SEE MFG SPECIFICATIONS, 8000sqfv198sqf/roii = 40 roils. Rour to 50 roils
111	2X6X16' DF	750	EA	LUMBER TO WRAP EACH 4X8 SIP PANEL PERIMETER	Use to wrap 4x8 SIP panel blanks on all 4 sides. 24lf/panel x 456 panels = 10944lf/16' = 684ea 2x8x16' plus 66 extra = 750ea
112	2x4x16 DF	320	EA	ROOF VENTING FURRING STRIPS	1 side @ 2' OC = 114lf/2 = 58 runs (x2 sides) = 116 runs @ 34' long 1 run requires 2 ea 2x4x16' Total = (116runs x 2pcs) = 232 2x4x16' FUS Eave and ridge runs = (114x4) = 455lf/16= 29ea 2x4x16' Tot 261 2x4x16' Plus 59 extra = 320aa 2x4x16'
					261 2x4x16' Plus 59 extra = 320aa 2x4x16'
113	5/8" CDX PLYWOOD SHEATHING	250	EA.	ROOF SHEATHING	261 2x4x16' Plus 59 extra = 320aa 2x4x16' 7296sqft roof area/ 32 = 228 sheets, Round to 250pcs
114		250	EA	ROOF SHEATHING	
114	POOE METALS SALES SALES		EA		7296sqft roof area/ 32 = 228 sheets. Round to 250pcs
114	ROOF METAL				7296sqft roof area/ 32 = 228 sheets. Round to 250pcs
114 115 116	ROOF METAL		UNITS		7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES
114 115 116 117	ROOF METAL UNIT DESCRIPTION	TOTAL	UNITS	SPECIFICATONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS. ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE -32" FEET LONG	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES
114 115 116 117	ROOF METAL UNIT DESCRIPTION STANDING SEAM METAL ROOFING FASTENERS FOR METAL ROOFING	TOTAL 8000	UNITS SQ FT	SPECIFICATONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS, ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE ~32" FEET LONG FROM EAVE TO RIDGE. 130 MPH WIND FASTENING. QUANTITY AND SIZE TBD BY SUPPLIER (Steve Lusk?)	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES NOTE: Roof metal to be fastened into 5/8* CDX plywood sheathing.
114 115 116 117	ROOF METAL UNIT DESCRIPTION STANDING SEAM METAL ROOFING FASTENERS FOR METAL ROOFING	TOTAL 8000	UNITS SQ FT	SPECIFICATONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS, ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE ~32" FEET LONG FROM EAVE TO RIDGE. 130 MPH WIND FASTENING. QUANTITY AND SIZE TBD BY SUPPLIER (Steve Lusk?)	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES NOTE: Roof metal to be fastened into 5/8° CDX plywood sheathing.
114 115 116 117 118 119	ROOF METAL UNIT DESCRIPTION STANDING SEAM METAL ROOFING FASTENERS FOR METAL ROOFING EAVE FASCIA	TOTAL 8000	UNITS SQ FT	SPECIFICATIONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS. ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE ~32" FEET LONG FROM EAVE TO RIDGE. 130 MPH WIND FASTENING. QUANTITY AND SIZE TBD BY SUPPLIER (Steve Lusk?)	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES NOTE: Roof metal to be fastened into 5/8° CDX plywood sheathing.
114 115 116 117 118 119 120 121 122	ROOF METAL UNIT DESCRIPTION STANDING SEAM METAL ROOFING FASTENERS FOR METAL ROOFING EAVE FASCIA GABLE FASCIA	TOTAL 8000 228 128 114	UNITS SQ FT LF LF	SPECIFICATONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS, ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE ~32" FEET LONG FROM EAVE TO RIDGE. 130 MPH WIND FASTENING. QUANTITY AND SIZE TBD BY SUPPLIER (Steve Lusk?)	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES NOTE: Roof metal to be fastened into 5/8° CDX plywood sheathing.
114 115 116 117 118 119 120 121 122	ROOF METAL UNIT DESCRIPTION STANDING SEAM METAL ROOFING FASTENERS FOR METAL ROOFING EAVE FASCIA GABLE FASCIA VENTED RIDGE CAP COMMERCIAL GRADE METAL GUTTERS	TOTAL 8000 228 128 114	UNITS SQ FT LF LF	SPECIFICATIONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS. ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE ~32" FEET LONG FROM EAVE TO RIDGE. 130 MPH WIND FASTENING. QUANTITY AND SIZE TBD BY SUPPLIER (Steve Lusk?) TO COVER A 2X8 VERTICAL FASCIA BOARD TO COVER A 2X8 VERTICAL FASCIA BOARD	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES NOTE: Roof metal to be fastened into 5/8° CDX plywood sheathing.
114 115 116 117 118 119 120 121 122	ROOF METAL UNIT DESCRIPTION STANDING SEAM METAL ROOFING FASTENERS FOR METAL ROOFING EAVE FASCIA GABLE FASCIA VENTED RIDGE CAP COMMERCIAL GRADE METAL GUTTERS AND RELATED HARDWARE	TOTAL 8000 228 128 114	UNITS SQ FT LF LF	SPECIFICATIONS METAL SALES "IMAGE 2" OR ASC "SKYLINE" MUST BE ABLE TO WITHSTAND 130MPH WIND GUSTS. ROOF SIDES ARE APPROX 32" FEET LONG X 114 WIDE. CONSEQUENTLY PANELS WILL BE ~32" FEET LONG FROM EAVE TO RIDGE. 130 MPH WIND FASTENING. QUANTITY AND SIZE TBD BY SUPPLIER (Steve Lusk?) TO COVER A 2X8 VERTICAL FASCIA BOARD TO COVER A 2X8 VERTICAL FASCIA BOARD	7296sqft roof area/ 32 = 228 sheets. Round to 250pcs NOTES NOTE: Roof metal to be fastened into 5/8" CDX plywood sheatning.

Notes on the Materials List

This materials list is based off the plans created by CCHRC and Borjesson Engineering. It is not an exhaustive list, and should be considered at 85% completion. Contractors bidding on the completion of the shell will need to factor in materials that are not on this list, including but not limited to: fasteners, flashings, and details pertaining to the heating equipment. Contractors will note that internal sheathing (GWB) has not been included, in case the building shell is left unheated before occupation. Mold will grow inside the structure if this is the case. GWB should not be included in the materials package unless the building will be continuously heated upon construction completion of Stage 2.

SHELL MATERIALS/LABOR COST

Shell Completion

CCHRC worked with Spenard Builder Supply's Rural Sales Office to cost out the materials and shipping for the completion of the shell. SBS is an Alaska-based company with wide experience in rural Alaska construction projects. The following materials cost estimate is dated January 13th, 2016. Costs are subject to change over time, and may be different depending on when the project is completed. This cost estimate is not an official bid, but a method of predicting costs for fundraising efforts to complete the building. Project managers are encouraged to use best-practice formulas for adding inflation and other costs to the estimate as more time passes after the publication of this report.

> SBS - LOIS DRIVE 4412 LOIS DR. ANCHORAGE, AK (907)563-3141

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99517 ****** * ESTIMATE ************

NI IMBER-7552509 DATE: 1/06/2016

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ACCOUNT:

20-00050020-000 SOLD TO: CASH SPECIAL ORDER-LOIS DR

10:14 AM SHIP TO: 450-1742 ILYA BENESCH

CCHRC

METARVIK EVACUATION BLDG

ELLING TORE	20 SHI	PPING DRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	NO. 7552	509-00	
USTOMER .O.			TERMS	CASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DESC	RIPTION			UNIT PRICE	EXTENDE PRICE
				*** UNDERFLOO	D FDAMF/TWG	TIT. ***			
650		EA	IMKJSU	JET-STREAM UL			650EA	38.694	25,151.10
7		EA	33509125	9'X125' TYVEK WHITE	***DRAIN W	RAP***	7EA	194.86	1,364.02
230		EA	CDX58	5/8" (19/32)			230EA	21.928	5,043.44
= 0			2		R BETWEEN P		OVE	660.00	F34 46
50		EA	2HF20616		FIR DRIED #		.8MBF	668.00	534.40
35		EA	2HF20420	ł	FIR DRIED #	Z&BTR	.467MBF	600.00	280.14
5		EA	AWW21020	2X10 20FT KD			.167MBF	1142.00	190.37
25		EA	CDX12	1/2" (15/32)	CDX bramood	(66)	25EA	17.86	446.50
12	1	EA	UND34	3/4"(23/32)T&	G P&TS UL P	LYWOOD	12EA	29.52	354.24
12		EA	CDX58	5/8" (19/32)	CDX PLYWOOD	ı	12EA	21.928	263.14
8		EA	BCI1632	BCI 60 16X32F	T JOIST		8EA	136.91	1,095.28
		** **	<u>,</u>		NET SALE	TAX SALE	TAX %	TAX	TOTAL
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4412 LOIS DR. ANCHORAGE, AK

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ACCOUNT: 20-00050020-000

SOLD TO: CASH SPECIAL ORDER-LOIS DR

SHIP TO: 450-1742 ILYA BENESCH

CCHRC

METARVIK EVACUATION BLDG

ELLING TORE	20 SHI	PPING PRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	NO. 7552	509-00	
USTOMER LO.			TERMS	CASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DES	CRIPTION			UNIT PRICE	EXTENDED PRICE
132		LF	BCI16V	1-3/4 X 16" V SHIP: 0530 2/18' 4/24			132LF	8.51	1,123.32
30		EA	SIMMIT3516	MIT3516 TJI/3	5X16 T/F HA	NGER	30EA	9.833	294.99
35		EA	IMKJSU	JET-STREAM UI SHIP: 0060	TRA BLOW IN	INSUL	35EA	38.694	1,354.29
50		EA	3299	3" 4X8 25PSI	R-TECH		50EA	49.765	2,488.25
1		EA	ROFRSRG10	10" HD ROOF S SHIP: 0170	CREW 500CT	OLYMPI	1EA	363.99	363.99
700		EA	3399	26GA NORCLAD - PER SQFT -			700EA	1.328	929.60
1		EA	33509125	9'X125' TYVER	***DRAIN W	RAP***	1EA	194.86	194.86
5		EA	IFK1315VAK	B65VAK R13 3. SHIP: 0060	5X15 116.25	SF UNF	5EA	57.20	286.00
				•				1	
					NET SALE	TAX SALE	TAX %	TAX	TOTAL
									CONTINUED

SELLING STÖRE	20 SHI	PPING DRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	NO. 7552	509-00	
CUSTOMER P.O.			TERMS	CASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DESCF	RIPTION			UNIT PRICE	EXTENDED PRICE
				*** EXT WALL	FRAMING *	**			
408		EΑ	2HF20616	2X6 16FT HEM F	IR DRIED #:	2&BTR 6	.528MBF	668.00	4,360.70
150		EA	2HF20620	2X6 20FT HEM F	IR DRIED #.	2&BTR	3MBF	616.00	1,848.00
300		EA	2HF20416	2X4 16FT HEM F:	IR DRIED #	2&BTR 3	.202MBF	652.00	2,087.44
10		EA	AWW21020	2X10 20FT KD S	4S AWWF		.333MBF	1142.00	380.74
237		EA	CDX12	1/2" (15/32) C	OX PLYWOOD	(66)	237EA	17.86	4,232.82
220		EA	3299	3" 4X8 15PSI R	-TECH		220EA	45.90	10,098.00
220		EA	3299	3" 4X8 25PSI R	-TECH		220EA	49.765	10,948.30
7		EA	33509125	9'X125' TYVEK WHITE	***DRAIN W	RAP***	7EA	194.86	1,364.02
11		EA	ROFRSRG10	10" HD ROOF SC	REW 500CT	OLYMPI	11EA	363.99	4,003.89
25	ĺ	EA	08909372	AZ10810 1X8X10	' AZEK TRI	MBOARD	25EA	48.42	1,210.50
4		EA	08911018	AZ11018 1X10X1 SHIP: 0030	8' AZEK TR	IM BOA	4EA	111.45	445.80
47		EA	IFK1315VAK	B65VAK R13 3.5	X15 116.25	SF UNF	47EA	57.20	2,688.40
	•			SHIP: 0060	NET SALE	TAX SALE	TAX %	TAX	TOTAL
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A.V **Spenard Builders Supply**

SBS - LOIS DRIVE 4412 LOIS DR. ANCHORAGE, AK

99517 (907)563-3141 ******** * ESTIMATE

NUMBER: 7552509 DATE: 1/06/2016

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ACCOUNT: 20-00050020-000 SOLD TO: CASH SPECIAL ORDER-LOIS DR

SHIP TO: 450-1742 ILYA BENESCH

CCHRC

METARVIK EVACUATION BLDG

SELLING STORE	20 SH	PPING DRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	NO. 7552	509-00	
CUSTOMER P.O.			TERMS (Cash					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DESCRIPTION				UNIT PRICE	EXTENDED PRICE
6500		EA	3399	*** WALL METAL ** 26GA NORCLAD PANEL			6500EA	1.328	8,632.00
27		BG	RMSSCR1P	% #10 9X1" SCREW PA		.20#BG	27BG	25.55	689.85
9		BG	RMSSCR34P	%12X3/4" STITCH SCR 108 PER LB/250 PER			9BG	38.78	349.02
5		EA	SPC07320595038	O OC-2 OUTSIDE CORNER	FLAS	HING	5EA	18.79	93.95
150		EA	SPC07320595036	0 C-1 29GA C-METAL FL	ASHIN	G	150EA	11.14	1,671.00
5		EA	DTG0755250900:	*** EXTERIOR DOORS 5 3-0 9-1/4 IS FG TEX **FLUSH** **ADD-ON DRILL FOR **14-1/4 JAMB PRIME **BRICKMOLD PRIMED	DEAD		5EA	419.97	2,099.85
······································				NET	SALE	TAX SALE	TAX %	TAX	TOTAL
									CONTINUED

USTOMER			TERMS	CASH	·				
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DESC	CRIPTION			UNIT PRICE	EXTENDED PRICE
_			2200	**4X4 HINGE 5 **MILL FINISH	ADJ Z-SILL				1-6-6-6
5 5		EA	3399 17323028	10"X4" 24GA D QCL250 PNN EN QCL250PNN 626 SHIP: 0023	TRY LEVER 6	26	5EA 5EA	31.22 92.69	156.10 463.45
5		EA	17362623	QDB180 K2 DEA QDB180CR 626 SHIP: 0023			5EA	63.93	319.65
				*** WINDOWS	***		1000		
13		EA	1399	3/0X4/0 TRPL			13EA	651.12	8,464.56
5 6		EA EA	1399 1399	3/0X6/0 TRPL CRATING FOR A			5EA 6EA	450.88 105.00	2,254.40 630.00
				*** INT PARTI	ON FRAMING	***			
					NET SALE	TAX SALE	TAX %	TAX	TOTAL
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Spenard Builders Supply SBS - LOIS DRIVE 4412 LOTS DR. 99517

ANCHORAGE, AK

(907)563-3141 ************* * ESTIMATE *

NUMBER: 7552509 DATE: 1/06/2016

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SOLD TO: CASH SPECIAL ORDER-LOIS DR

ACCOUNT: 20-00050020-000

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SHIP TO: 450-1742 ILYA BENESCH

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METARVIK EVACUATION BLDG

ELLING TORE	20 SHI	PPING ORE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	_{NO.} 7552	509-00	
USTOMER			TERMS	CASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DES	CRIPTION			UNIT PRICE	EXTENDED PRICE
365		EA	UND34	3/4"(23/32)T&	G P&TS UL P	LYWOOD	365EA	29.52	10,774.80
5		EA	UND241	1-1/8" 2-4-1	T&G PLYWOOD		5EA	47.76	238.80
156		EA	6771158	PL400 2802 H/	D SUBFLOOR .	ADHESI	156EA	5.837	910.57
3000		LF	BCT14	BCI 60 14"XR/	L JOIST		3000LF	3.665	10,995.00
				SHIP: 0027 150/20'					
12		EA	BCI117820VRL	1-5/16"X11-7/	8" 20FT VER	SA RIM	12EA	76.30	915.60
640		LF	BCI14V	1-3/4 X 14" V SHIP: 0530 32/20'			640LF	6.88	4,403.20
240		LF	BCI1178V	1-3/4X11-7/8' SHIP: 0530 6/40'	VERSALAM		240LF	5.42	1,300.80
276		EA	SIMMIT3514	MIT3514 TJI/3	5X14 T/F HA	NGER	276EA	7.977	2,201.65
1		вх	NLS112HDJH	%1-1/2" HOT I	OIP GALV JST	HNG N	1BX	135.89	135.89
350		EA	2HF20416	2X4 16FT HEM	FIR DRIED #	2&BTR 3	.735MBF	652.00	2,435.35
	I	1	1		NET SALE	TAX SALE	TAX %	TAX	TOTAL
									CONTINUED

SELLING STORE	20 SHI	PPING DRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	_{NO.} 7552	509-00	
CUSTOMER P.O.			TERMS	CASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DESC	CRIPTION			UNIT PRICE	EXTENDED PRICE
100		EA	2HF20616	2X6 16FT HEM	FIR DRIED #	2&BTR	1.6MBF	668.00	1,068.80
60		EA	CDX12	1/2" (15/32)	CDX bramood	(66)	60EA	17.86	1,071.60
5960		LF	BCI1178V	*** POST & BE 1-3/4X11-7/8" SHIP: 0530 49/40'		***	5960LF	5.42	32,303.20
120		LF	BCI16V	1-3/4 X 16" V SHIP: 0530 6/20'	ERSALAM		120LF	8.51	1,021.20
30		EA	2GF80816	8X8 16FT GREE *** ROOF SYS		. FIR	2.56MBF	1934.00	4,950.73
3		EA	IPR40100CL	40'X100' REIN	FORCED POLY	•	3EA	254.55	763.65
500		EA	164040	TREMCO ACOUST	ICAL SEALAN	T	500EA	8.734	4,367.00
8		EA	ROFRSRG10	10" HD ROOF S	CREW 500CT	OLYMPI	8EA	363.99	2,911.92
	1	1		SHIP: 0170	NET SALE	TAX SALE	TAX %	TAX	TOTAL
									CONTINUED

SBS - LOIS DRIVE 4412 LOIS DR. ANCHORAGE, AK (907)563-3141

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NUMBER: 7552509 DATE: 1/06/2016

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SHIP TO: 450-1742 ILYA BENESCH

CCHRC

METARVIK EVACUATION BLDG

ELLING TORE	20 SHI	PPING PRE	20 SALES PERSON 1	632 STEVE LUSI	ς	OUR ORDER	_{NO.} 7552	509-00	
USTOMER			TERMS CA	SH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DES	SCRIPTION			UNIT PRICE	EXTENDED PRICE
15		вх	ROF16S	16" OLYMPIC I CRH16 250 PEI SHIP: 0060	ROOF SCREW		15BX	350.45	5,256.75
10		вх	ROF4SIP	%4" HEADLOK I 250 CT BOX SHIP: 0110	FASTENER		10BX	117.32	1,173.20
10		вх	ROF11S	11" OLYMPIC I #CRH11 / 500 SHIP: 0060			10BX	356.89	3,568.90
22		RL	SPC075525090602	CCW 705VP 4'	K100' UNDERL	AYMENT	22RL	364.28	8,014.16
10		EA	SPC075525090603	CCW 702WB PR	IMER - 5 GAL		10EA	263.11	2,631.10
25		EA	CCMFW800XF	LM-800XL 2909 COVERAGE RATE 30' PER 290Z	e @ 3/4" FIL TUBE	L =	25EA	15.71	392.75
				FAST DRYING -	- COLD APPLI	EU			
				SHIP: 0060	NET SALE	TAX SALE	TAX %	TAX	TOTAL
									CONTINUED

SELLING STORE	20 SHI	PPING DRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER	_{NO.} 7552	509-00	·
CUSTOMER P.O.			TERMS C	ASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DESC	RIPTION			UNIT PRICE	EXTENDED PRICE
50		EA	CCWWIP300HT	WIP-300HT BLK SHIP: 0060	36"X67" 20	0sf	50EA	115.40	5,770.00
750		EA	2HF20616	2X6 16FT HEM	FIR DRIED #	2&BTR	12MBF	668.00	8,016.00
320		EA	2HF20416	2X4 16FT HEM	FIR DRIED #	2&BTR 3	.415MBF	652.00	2,226.61
250		EA	CDX58	5/8" (19/32)	CDX PLYWOOD		250EA	22.72	5,680.00
				*** ROOF MET	AL ***				
8000		SF	SPC07552509067	0 26GA SUPER SP	AN ROOFING		8000SF	1.69	13,520.00
85	}	BG	SPC07299126002	0 #14X1 WOODGRI	P SCREW - P.	AINTED	85BG	12.96	1,101.60
30		BG	SPC07552509069	0 LS14X7/8 STIT	CH SCREW		30BG	11.49	344.70
37		EA	SPC07327891048	O SPECIAL FACIA	FLASHING 1	0'-6"	37EA	16.52	611.24
13		EA	SPC07299126005	O G4 GABLE FLAS	HING - PAIN	TED	13EA	22.82	296.66
24		EA	SPC07299126006	O ER2 EAVE FLAS	HING - PAIN	TED	24EA	19.32	463.68
12		EA	SPC07552509072	5 24GA HIGH WIN	D RIDGE VEN	T	12EA	181.19	2,174.28
2		EA	SPC07299126010	0 EXPORT CRATIN	G-TRIMS/FLA	SHINGS	2EA	49.34	98.68
64		LF	SPC07299126011	0 EXPORT CRATE	-ROOFING PE	R L/F	64LF	8.58	549.12
			<u> </u>		NET SALE	TAX SALE	TAX %	TAX	TOTAL
									CONTINUED

Spenard Builders Supply

SBS - LOIS DRIVE 4412 LOIS DR. ANCHORAGE, AK

ANCHORAGE, AK 9951/ (907)563-3141 ***************

NUMBER: 7552509

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DATE: 1/06/2016 PAGE: 10

SOLD TO: CASH SPECIAL ORDER-LOIS DR

SHIP TO: 450-1742 ILYA BENESCH

CCHRC

METARVIK EVACUATION BLDG

SELLING STORE	20 SHI	PPING PRE	20 SALES PERSON	1632 STEVE LUSK		OUR ORDER I	_{NO.} 7552	509-00	
CUSTOMER P.O.			TERMS C	ASH					
QUANTITY ORDERED	QUANTITY SHIPPED	U/M	ITEM	DES	CRIPTION			UNIT PRICE	EXTENDED PRICE
228		LF	SPC07552509076	0 22GA H/D GUTT	ER W/DOWN SPO	TUC	228LF	10.49	2,391.72
150		EA	SPC07552509073	0 26GA SB-2 SNO	W BREAK 10'		150EA	24.36	3,654.00
1		EA	CFC07552509078	O FREIGHT TO ME	TARVIK LANDII	NG	lEA 4	5724.55	145,724.55
								A CONTRACTOR OF THE CONTRACTOR	
Expires	5/1	3/20	16						
		1.,	ł	# 283181	NET SALE	TAX SALE	TAX %	TAX	TOTAL
					407679.83 40	7679.83	.00	.00	407,679.83



Griffard Steel, Inc.

Fairbanks, AK 99707 Phone: 907-479-2972 Fax: 907-479-0635

Quote

Date	Quote #
1/17/2016	16-009

Name / Address Cold Climate Housing Research - CCHRC PO BOX 82489 FAIRBANKS, AK 99708

		Rep	Project
Description	Qty	U/M	Total
FABRICATE - Type "A" Bracket - Shipping weight 950 lbs FABRICATE - Type "B" Bracket - Shipping weight 1,550 lbs FABRICATE - Type "C" Bracket - Shipping weight 950 lbs FABRICATE - Type "D" Bracket - Shipping weight 1,250 lbs Prime Paint Only FOB GSI Shop	10 20 10		4,350.00 7,000.00 5,800.00 5,600.00
Quote is based on current steel prices and may have to be reviewed at time	of award T	otal	\$22,750.00

January 22, 2016



Mr. Jack Hebert Cold Climate Housing Research Center 1000 Fairbanks Street Fairbanks, AK 99709

Re: Metarvik Evacuation Center - Building Shell Construction

Budget Estimate of Labor Hours

Dear Mr. Hebert:

GHEMM Company is pleased to be of assistance to CCHRC in developing a labor cost estimate for construction of the captioned Metarvik Evacuation Center building shell in Newtok, Alaska. After meeting with you and other members of your staff, we have performed an estimate of labor hours needed to complete this project and offer the following for your consideration.

GHEMM anticipates the project will take three (3) months of on-site construction to complete. We would expect to utilize an eight (8) man crew consisting of one superintendent, one site laborer, one equipment operator/mechanic and five carpenters. Our total estimate of labor hours is 10,480. This is based upon a 7-12 work schedule and includes travel time out and back from Fairbanks.

GHEMM's estimate of costs for this project is \$1,380,000 and breaks down as follows:

Field Labor	\$1	,020,000
Home Office Labor, Support	\$	30,000
Miscellaneous Materials	\$	100,000
Tools, Equipment, Freight	\$	155,000
Bonds and Insurance	\$	15,000
Contingency	\$	60,000

We are happy to answer any questions or provide additional information about this estimate. We wish you the best of success with this project.

Sincerely,

GHEMM Company, Inc.

President

T BOX 20507 FAIRBANKS ALASKA 99707 T 907.452.5191 F 907.451.7797 E BREMM@EHEMM.COM

SUMMARY OF PROJECT COSTS

The Summit Report calculates the cost of finishing the modified version of the George R Watt Plan at somewhere between \$5 million and \$5.5 million (Summit, pg 24), with operations and maintenance costs averaging around 45k annually. The difficulty of acquiring such bulk sum funding led CCHRC to investigate a staged strategy that focuses on:

- 1) Protecting what has already been constructed,
- 2) Utilizing the SIPs without compromising R-value or creating high operations costs, and
- 3) Creating a usable shell that can aid the overall relocation process. However, there is no 'silver bullet' that will lessen these costs drastically. CCHRC's inquiry has produced the following totals:

STAGE 1: PROTECT THE FOUNDATION:

Materials\$6,542.20Shipping\$2,616.88Labor\$9,340.80

TOTAL \$18,499.88

STAGE 2: COMPLETE THE SHELL

(SBS) Materials \$261,955.28

(SBS) Shipping \$145,724.55

(GHEMM) Labor/Materials/Tools/CM \$1,380,000.00

TOTAL \$1,787,679.83

This estimate is dated January 22nd, 2016. CCHRC understands that it is uncertain when construction will begin again. NVC is advised to **add a yearly inflation rate of 4%** for each year after the date of this estimate in their funding budget. If more than nine months passes between the publication of this report and the start of the project, a review of the plans and applicable codes will be necessary.

The Summit Report notes that the level of detail in the George Watt plans only allow for a 'Framing Only' permit from the Fire Marshall. The shell completion stage outlined in this report would satisfy the framing only permit. Although no additional studies or engineering analysis would be required on the foundation, the Summit report calls for an additional \$300,000 in design fees to be budgeted toward completion of the building. Researching or validating this proposed design fee is outside the scope of this report. It is CCHRC's recommendation that funds be pursued immediately for stages 1 and 2 of the building completion. During the design process for final permitting, a better idea of completion costs can be estimated without the contingencies and unknowns that may drive up estimates.

MERTARVIK MULTI-PURPOSE BUILDING Retrofit Feasibility Study APPENDIX

Appendix A: SIP Roof Best Practices



Structural Insulated Panel (SIP) Roof Policy

JUNEAU PERMIT CENTER, 4TH FLOOR MARINE VIEW CENTER, (907) 586-0770

Policy On Structural Insulated Panel Roofs

Structural Insulated Panels (SIP) are premanufactured construction materials used in place of standard "stick-built" construction techniques for walls and roofs of buildings. Recent reports from engineers and observation by building inspectors indicate that these panels, when used as roofing materials, have exhibited a very high failure rate in Juneau.

These costly and potentially dangerous failures are generally appearing in the top layer of the panels which have rotted and sometimes deteriorated to an oatmeal consistency as well as in the rotting of the wooden joint materials.

The top and bottom layers of structural insulated panels usually consist of oriented strand board (OSB) which is similar to plywood but with smaller pieces of wood veneer heated and pressed into sheets with resin adhesives. In the panels, bonded between the OSB layers is a layer of foam insulation. The edges of the panels usually contain wooden splines that slip together to join the panels.

The most significant factors contributing to the panel failures in Juneau are the cool temperatures along with the elevated relative humidity in Juneau as compared to other locations. The extra moisture inside and outside our buildings makes the proper installation of the panels more critical in our environment. The specific reasons for the failures appear to be:

- 1) Lack of continuous vapor retarders (usually plastic sheathing often called "visqeen") on the warm side of the panels thus allowing moisture from the interior of the building into panel voids and joints,
- 2) Failure of sealants in the panel joints to adhere to the wood and foam (wet surfaces) and thus failure to stop moisture from travelling through the joints to the top layer of OSB
- 3) Lack of ventilation at the top layer of the panels to dispel the moisture.

In order to avoid future problems with Structural Insulated Panels used as roofs, the City and Borough of Juneau Building Division has adopted the following requirements on the reverse side of this sheet for the use and repair of structural insulated panels in roofs.

REQUIREMENTS FOR INSTALLATION AND REPAIR OF STRUCTURAL INSULATED PANEL ROOFS

Installation or repair of Structural Insulated Panels used in roofs in the City and Borough of Juneau shall meet the following requirements:

- 1. Vapor Retarder. The installation or repair of Structural Insulated Panels in roofs shall include a properly installed and sealed vapor retarder on the warm side of the SIP. The vapor retarder shall be rated at no more than one tenth (0.10) perm by a recognized testing agency.
- 2. Roof Ventilation. Structural Insulated Panels used as roofs shall have a "cold roof" installed over the panels that provides not less than 1½ inches of air space above the top skin of the panel. Such air space shall be continuous from top to bottom and open to the atmosphere at the top and bottom. Other designs will be reviewed and may be approved on a case by case basis.
- 3. **Sealants**. All voids and interfaces in SIPs, including at joints, shall be completely filled with approved adhesive sealant. Such sealant shall be firmly bonded to the panel materials.
- 4. **Special Inspection**. Structural Insulated Panels shall be repaired or installed under an approved Special Inspection Program as defined in the building code. The Special Inspection shall cover the following areas:
 - A. Proper installation and sealing of the vapor retarder including continuous installation across support elements.
 - B. All material surfaces that receive sealants and adhesives shall be dry or meet the manufacturer's specifications.
 - C. All sealants and adhesives shall be applied within the temperature ranges specified by the sealant or adhesive manufacturer.
 - D. All surfaces to be adhered or sealed shall be in contact with the sealant within the reaction time of the sealant. Surface skinning of the sealant shall not be allowed before the panels are in their final position.
 - E. All voids in the panel structure, including voids in connections, shall be completely filled with adhesive sealant.
 - F. All penetrations of the vapor retarder shall be properly sealed upon completion of the work requiring the penetration.
 - G. All connections to the structure shall be completed in accordance with the manufacturer's instructions and the approved plans for the structure.

THE METARVIK EVACUATION CENTER

DRAWING INDEX:

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G-2 GENERAL NOTES

STRUCTURAL

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S-2 FRAMING PLANS

S-3 SECTION & ROOF DETAIL

S-4 SECTIONS

S-5 TIMBER FRAME CONNECTION DETAILS

S-6 BRACKET DETAILS A & B

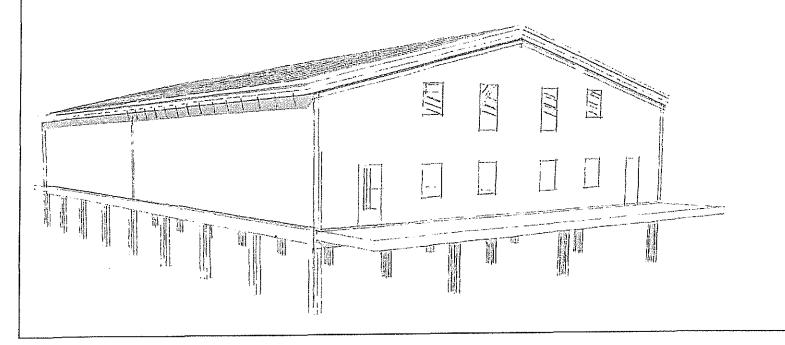
S-7 BRACKET DETAILS C & D S-8 BRACKET DETAILS E & F

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ARCHITECTURAL

A-1 REMOTE WALL FRAMING & SECTION





METARVIK EVACUATION CENTER	BUILDING SHELL STRUCTURAL DESIGN	CCHRC

DATE: January 20, 2016

TITLE SHEET

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GENERAL NOTES

PROJECT DESCRIPTION:

EXISTING FOUNDATION IS STEEL HIPILE ARRAY ON A ROUGHLY 14-0" x 20'-0" GRID. THE EXISTING FIRST LEVEL FLOOR STRUCTURE IS A COMBINATION OF OPEN WEB WOOD JOISTS AND GLULAM BEAMS.

THIS DRAWING SET DETAILS THE INTENDED SHELL FOR THE STRUCTURE

CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF EXISTING FOUNDATION COMPONENTS PRIOR TO FABRICATING/ ORDERING MATERIALS FOR CONSTRUCTION

ALL DESIGN ELEMENTS NOT SPECIFICALLY SHOWN IN THE CONTRACT DOCUMENTS SHALL BE IN ACCORDANCE WITH THE IBC 2006 AND IBC 2006 REFERENCED STANDARDS

PRIOR TO FABRICATION AND CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND DIMENSIONS ASSOCIATED WITH THE WORK. ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE CONTRACT DRAWNOS AND/OR SPECIFICATIONS SHALL BE SROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTING OFFICER PRIOR TO PROCEEDING WITH THE RELATED WORK.

THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN LIVE LOADS.

TYPICAL DETAILS AS SHOWN ON THE DRAWINGS APPLY TO SIMILAR SITUATIONS OCCURRING ON THE PROJECT WHETHER OR NOT THEY ARE IDENTIFIED IN EACH LOCATION. COORDINATE WITH THE CONTRACTING OFFICER OF APPLICABILITY OF TYPICAL DETAIL.

STRUCTURAL DESIGN DATA

LIVE LOADS:

BUILDING OCCUPANCY CATEGORY	١V
ASSEMBLY AREAS	100 PSF
STAIRS, CORRIDORS, RESTROOMS	100 PSF
MECHANICAL/ELECTRICAL ROOMS*	125 PSF
LOFT	40 PSF

*(UNLESS INDIVIDUAL MECHANICAL EQUIPMENT GOVERNS)

SNOW LOADS:

P _D = 40 PSF	P ₁ = 30 PS
C ₀ = .7	C _t = 12
į = 1.2	P _s = 30th/S

WIND LOADS, IN ACCORDANCE WITH 2005 IBC BASIC

BASE WIND SPEED	V = 130MPH
WIND IMPORTANCE	1 = 1,15
ENCLOSURE CATEGORY	ENCLOSED
WIND EXPOSURE CATEGORY	EXPOSURE D
INTERNAL PRESSURE COEFFICIENT	GC _{Pt} = .18

SEISMIC LOADS.

SEISMIC LOADS: IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2006 IBC LATERAL FORCES ARE TRANSFERRED TO THE SHEAR WALL BY FLEXIBLE DIAGRAM. RESULTING WALL FORCES ARE CALCULATED BY THE TRIBUTARY AREA METHOD.

SEISMIC IMPORTANCE FACTORS

1 = 1.5	Sig = 0.150
S ₁ = 0.700	SITE CLASS ≏ E
S _{DS} = 0.0250	S _{D1} = 0.163
SMIC DESIGN CATEGORY:	Ð

BASIC LATERAL FORCE-RESISTING SYSTEM: DIAPHRAGMISHEAR WALL

DIESIGN BASE SHEAR: 30.0 kip SEISMIC RESPONSE COEFFICIENT: C_S = 0.10

ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE PROCEDURE

ARCHITECTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS:

ALL COMPONENTS SHALL BE ANCHORED TO THE BUILDING STRUCTURE. ANCHORAGE SHALL BE DESIGNED FOR ALL DESIGN CASES, INCLUDING SEISMIC, BY THE CONTRACTOR'S ENGINEER AND SUBMITTED TO THE DEPARTMENT FOR APPROVAL. DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A REGISTERED ENGINEER IN THE STATE OF ALASKA.

STRUCTURAL TIMBER NOTES:

ALL MATERIAL AND WORKMANSHIP SHALL BE IM ACCORDANCE WITH THE LATEST EDITION OF THE TIMBER CONSTRUCTION STANDARDS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION THE NATIONAL DESIGN SPECIFICATION FOR STRESS-GRADE LUMBER AND ITS FASTENINGS OF THE NATIONAL FOREST PRODUCTS ASSOCIATION, AND CHAPTER 23 OF THE IBC 2008.

MATERIALS

A. DIMENSIONAL LUMBER

SPECIES GRADE	DOUGLAS FIR NUMBER 2 1,700,000 PSI
MODULUS OF ELASTICITY	1,700,000 F51

MINIMUM WORKING STRESSES (SPECIFY USE CONDITION):

EXTREME FIBER IN BENDING TENSION PARALLEL TO GRAIN COMPRESSION PARALLEL TO GRAIN COMPRESSION PERBANACIT AS TO GRAIN	F _b = 900 PS(F _t =575 PS) F _c =1,350 PS(F =625 PS)
COMPRESSION PERPENDICULAR TO GRAIN	F _c ≈825 PSI
HORIZONTAL SHEAR	F _y = 180 PSI

B. LAMINATEO VENEER CUMBER (LVL)

SPECIES	DF-L
GRADE	2.0-2800
MODULUS OF ELASTICITY	2,000,000 PSI
EXTREME FIBER IN BENDING	F _b = 2800 PSI
TENSION PARALLEL TO GRAIN	F, =1950 PSI
COMPRESSION PARALLEL TO GRAIN	F _c =3,000 PSI
COMPRESSION PERPENDICULAR TO GRAIN	F _c =750 PSI
HORIZONTAL SHEAR	F _v = 285 PSI

C. PLYYYOOD:

FLOOR PLYWOOD SHALL BE APA RATED STUD-I-FLOOR EXPOSURE 1, SPAN RATED 24 OC, FOR PLYWOOD THICKNESS, SEE PLANS.

WALL PLYWOOD SHALL BE SPAN RATED 16/32 FOR PLYWOOD THICKNESS, SEE PLANS.

INSTALL ALL PLYWOOD WITH THE LONG DIMENSION OF THE PANEL ACROSS SUPPORTS. UNLESS NOTED OTHERWISE, WITH THE PANEL OVER TWO OR MORE SPANS. ALLOW 1/8 INCH SPACING AT PANEL ENDS AND X INCH AT PANEL EDGES, UNLESS OTHERWISE RECOMMENDED BY THE PANEL MANUFACTURER. PLYWOOD SHALL BE USED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE AMERICAN PLYWOOD ASSOCIATION.

ALL PLYWOOD FLOOR PANELS SHALL BE GLUE-NAILED TO FLOOR FRAMING, NAIL SPACING PER PLANS. USE ONLY ADHESINES CONFORMING TO APA SPECIFICATION AFG-01, APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IF NON VENEER PANELS WITH SEALED SURFACES AND EDGES ARE TO BE USED, USE ONLY SOLVENT-BASED GLUES, CHECK WITH PANEL MANUFACTURER.

THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL TIMBER MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR REVIEW OF THE ENGINEER

NO WOOD TREATMENTS OR PRESERVATIVES SHALL BE USED WITHOUT PRIOR REVIEW OF THE ENGINEER.

ALL NAILS SHALL BE HIDG COMMON WIRE NAILS. NAILING SHALL CONFORM TO TABLE 2304.9 % OF THE 2006 BC. STANDARD WASHERS SHALL BE HOT DIP GALVANIZED (HOG) UNDER ALL BOLT HEADS AND NUTS CONTACTING WOOD.

ALL BOLTS, USED IN TIMBER AND BRACKET CONNECTIONS SHALL BE MINIMUM GRADE 5, HDG.

THE USE OF STAPLES SHALL NOT BE PERMITTED IN ANY FRAMING OR SHEATHING CONNECTIONS

IF PNEUMATIC NAILERS ARE TO BE USED THE CONTRACTOR MUST SUBMIT A SCHEDULE OF FASTENERS AS DESIRED AS A SUBSTITUTION TO THE DEPARTMENT FOR APPROVAL



METARVIK EVACUATION CENTER BUILDING SHELL STRUCTURAL DESIGN

DATE: January 20, 2016

GENERAL NOTES

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