

APPENDIX C

GEOTECHNICAL

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**APPENDIX C-a
ADOT&PF, ROCK QUARRY
RECONNAISSANCE, MERTARVIK
TOWNSITE, NOV 2011**

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**Central Region Materials
Department of Transportation and Public Facilities**

Memorandum State of Alaska

TO: Harvey Smith, P.E.
Statewide Coastal Engineer

DATE: November 10, 2011

FILE NO: Mertarvik Waterfront Development
#80861

FROM: Craig Boeckman, CPG *CB*
Regional Geologist Central Region Mtls

TELEPHONE NO: 269-6200

FAX NO: 269-6201

SUBJECT: Field Trip Report- Observations of IRT Work - Rock Quarry Development and Access

I visited Mertarvik on August 15-16, 2011 with Kim Mahoney, PE Sr Project Manager with ADOT&PF Statewide Public Facilities, Sam Lamont SWPP specialist with ADOT&PF Northern Region Materials, and Jennifer Keese an Engineering Geologist I with ADOT&PF Central Region Materials.

We visited the site to observe the work performed that summer by the ANG 202nd Red Horse Team (202nd Red Horse Team). The 202nd Red Horse Team had brought in dozers and an excavator to begin development of the rock quarry on "Hill 460" and they also performed work at the MEC. They had contracted the services of a driller/blaster to shoot the rock at Hill 460. Their driller/blaster was Advanced Blasting Services from Wasilla Alaska.

By the time we arrived on site the 202nd Red Horse Team and their contractor had already left the site. Apparently no information will be provided from 202nd Red Horse Team as to the type of shot or estimated quantities. Therefore I obtained some rudimentary information from Advanced Blasting as to what their procedures were and possible quantities generated (see e-mail attached).

No shot rock was placed on the proposed quarry access road. The rock quarry access road is currently rutted (see Photo Log). Geomats were placed on some of the trail up to the quarry. The quarry itself was shot but none of the material was moved away from the back-wall of the shot. There was no way to evaluate the type of rock at the back of the shot to evaluate the potential for large stone. Apparently the driller/blaster had shot enough area to generate about 100,000 cubic yards of loosened material. (see attached e-mail from the driller/blaster). However it is difficult to be certain of the size of the material shot without it having been moved. Based on observation of the visible shot rock it appears that about 70% is less than 1 ft in size. Perhaps about 10% is greater than 2 ft sized material.

The material is largely tabular due to a series of prominent joint faces with about 2-4 inch spacing (see Photo Log). However some of the rock is rounded perhaps due to the material in the flow solidifying and beginning to roll within the overall mass. The back-wall of the shot that was able to be observed is fractured and the joint spacing along with rounded material can be observed (see Photo Log). The driller said that at about 40 ft (in some of the holes drilled at higher elevation) the rock became very soft, red in color, with occasional water. Apparently they drilled through this layer into some other type material but it is uncertain if it was another basalt flow. The red "rock" was about 4 ft thick. It is very soft and leaves a red streak.

The rock samples collected from the quarry during our site visit were as follows:

GS-1 – Rounded basalt in the shot material

GS-2 – Tabular shaped basalt in the shot material

GS-3 – Red marker layer adjacent to the quarry (original ground?)

The rounded basalt rock had elevated sulfate soundness results (see table below). The jointed basalt rock had very high degradation values and low sulfate values. The table below gives a summary of rock sample results collected from this site.

Summary of rock sample results from "Hill 460".

Sample ID	Sample Date	Sample Type	LA Abrasion (% Loss)	Degradation	Sulfate Soundness (% Loss)	Specific Gravity (SSD)
HS-1	Nov 2008	Hand Sample	33	54	1 (course)	--
HS-2	Nov 2008	Hand Sample	29	67	1 (course)	--
HS-3	Nov 2008	Hand Sample	26	38	1 (course)	--
HS-4	Nov 2008	Hand Sample	15	17	4 (course)	--
TH10-19	Aug 2010	Rock Core from ~4-13 ft	--	37	6 (course)	2.77
TH10-19	Aug 2010	Rock Core from 15.2 to 25.2 ft	--	52	6 (course)	2.83
GS-1	Aug 2011	Shot Rock	--	44	24	2.788
GS-2	Aug 2011	Shot Rock	29	77	2	2.847
GS-3	Aug 2011	Surface	--	--	--	--

Source: R&M Consultants, "Geotechnical Report Mertarvik Airport Location Study.." May 6, 2009

R&M Consultants, "Geotechnical Report- Draft- Mertarvik Airport Location Study.." Dec 3, 2010

Sample GS-1 to GS-3 were collected by ADOT&PF at the rock quarry in August 2011.

GS-3 was crushed (easily) and analyzed for plastic limits. The rock did not display plastic behavior in the sample we collected (see sample results attached). However the material breaks down very easily. Petrographic analysis was run on the three samples. GS-3 was identified as an oolitic iron mudstone.

Attachments:

Laboratory Results

Photo Log

Maps of "worked" areas

Advanced Blasting Drill and Shoot Summary

Boeckman, Craig T (DOT)

From: Julia Saunders [julia@advancedblastingak.com]
Sent: Wednesday, November 09, 2011 5:31 PM
To: Boeckman, Craig T (DOT)
Subject: Fwd: Re: mertarvik done

----- Original Message -----

Subject: Re: mertarvik done
Date: Sun, 07 Aug 2011 17:34:00 -0800
From: Julia Saunders <julia@advancedblastingak.com>
Reply-To: julia@advancedblastingak.com
To: Boeckman, Craig T (DOT) <craig.boeckman@alaska.gov>

Hi Craig,

I have noted answers in Red - per Mikel - hope this info is helpful. Hoping to get photo rounded up and burned to disc this week - where should i mail it? Thanks!

On 8/4/2011 9:01 PM, Boeckman, Craig T (DOT) wrote:
Thanks Julia

Questions are:

How many days did you drill and shoot? **10 days double shifting**

How much shot? **106,070yd3**

How deep did you drill into rock? **To establish the pit floor in shot 1, they drilled 16ft avg for bench 1 and then at the top of the quarry they drilled 48ft avg to establish bench 2. Did it get easier to drill at a certain depth? Drilling to establish the pit floor was consistant, drilling to establish the top bench was consistant to a depth of 40ft. At 40ft, a very bright red softer material was encounted in everyhole. Penetration rates increased in the red material and water was occasionally encountered**

What was the powder factor? **1.2 lb/yd3** How much powder used? **129,085 lb**

How much stemming and burden? **18ft burden, the majority of the holes were loaded to within 2ft of the collar to minimise oversize**

How much overburden? **Overburden was consistant across the formation at approx. 4ft consisting of a thin layer of organics over a mixture of hard clay and what appeared to be ash combined with loose cobbly rocks 1ft and smaller. Perfroast was encountered in some regions at a depth of 2.5ft**

What pattern was used? **18ft x 18ft avg. Bit sizes ranging from 5" - 6 3/4"**

What kind of material was made? **6"minus, fragmentation was very consistant**

Any large rock generated? **Some isolated zones near the back corners of both shots generated material in the 2-3ft range indicating that this source would produce slope protection if the blasting program was modified to target it's production.**

How did the rock look in the back wall? **Visual inspection of the backwall was possible as the material broke vertical and approx. 15ft of high wall was exposed. Although the material drilled consistantly, visual inspection of the backwall indicates it is actually large boulders bedded in a softer material rather than a solid rock mass.**

Wide fracture spacing or fractured rock? **At the powder factor used, the material broke very fine. At considerable lower powder factors large material up to 3ft could easily be produced.**

Was there gaps in the rock like Chefnak (flows)? **yes, to a far lesser extent. The formation drilled loaded and shot considerably better.**

How'd the IRT operate with your crew? **A ahna representative was on site for the duration and handled projection coordination with the customer. We received very good mechanical support, fuel delivery, stripping and access maintaince from the military crew. We were impressed by there eagerness to learn and there talent with the overburden stripping.**

How is placement of the material going on the access road? **Material was not placed on the access road due to the tight timeframe**

How did the access road look? Roughly 1/2 of the access road was matted and performed very well, the remaining portion held up to low ground pressure vehicle better than we had expected.
Did they cut into permafrost making the road? No they did not, the portion that was unmatted was left in its natural state because the vegetative mats provided support for small vehicle traffic.

Might have more later.
All photos would be great.
Thanks
Craig

From: Julia Saunders [<mailto:julia@advancedblastingak.com>]
Sent: Thu 8/4/2011 11:29 AM
To: Boeckman, Craig T (DOT)
Subject: mertarvik done

Hi Craig,
Mertarvik is complete. All went well. The crew will be back tomorrow. I will try and get some photo roundup up from them with a bit of a write up for you and over first part of next week. Feel free to email specific questions so I can quiz the guys accordingly! Thanks,

--
Julia Saunders
Advanced Blasting Services
1830 E. Parks Hwy, Ste A113
610, Wasilla, AK 99654
Tel: (907) 357-2900
Fax: (907) 357-2930
Email: julia@advancedblastingak.com
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State of Alaska
Department of Transportation & Public Facilities
Central Materials Lab
5750 East Tudor Road
Anchorage, AK 99507
Phone (907) 269-6200 FAX (907) 269-6201
Laboratory Report

Name: Mertarvik Waterfront Development Study

Sample: Rock

Sampled From: Quarry, Depth Surface

Source: Material Site Hill 460

Location:

Examined For: Degradation, Sulfate Soundness and SpG

Project No.: 80861

Item/Specification No.:

Quantity Represented:

Submitted By: C. Boeckman

Preconstruction

Laboratory No.: 2011A-2908

Field No.: GS2

Date Sampled: 08/15/2011

Date Received: 08/24/2011

Date Completed: 09/13/2011

Date Reported: 09/13/2011

Sieve Analysis		Lab	Specs				
				% Organic			
				% Natural Moisture			
				pH of Soil			
				% Sticks & Roots			
				Dry Unit Weight, pcf			
				% Lightweight Particles			
				Uncompacted Voids of FA			
				Specific Gravity of Soil			
				Sand Equivalent			
			ATM T314	Expansion Breakdown		5	
						Coarse	Fine
						Lab	Specs
				Friable Particles			
			AASHTO T104	Sulfate Soundness, % Loss	2		
				Agg. Specific Gravity, Bulk	2.802		
				Agg. Specific Gravity, SSD	2.847		
			AASHTO T85	Agg. Specific Gravity, App.	2.935		
				% Absorption	1.6		
			AASHTO T96	LA Abrasion, Total % Loss	29		
				@ 100 revs % Loss			
			ATM 313	Degradation	77		
				Nordic Abrasion			
							% +3"
				FSV Class			% Gravel
				AASHTO Class			% Sand
				Unified Class			% Silt/Clay
							% Clay
				California Bearing Ratio			
				Organic Impurities Plate #3			
				Mortar Making Properties of Sand - Compressive Strength			
				Age	Sample	Control	Ratio Spec
				7 Day			
				28 Day			

Remarks:

D2 The Material as Submitted Conforms to Specifications
Yes [] No [] NA [X]

THE TEST RESULTS ARE ONLY REPRESENTATIVE OF THE MATERIAL AS SUBMITTED

Signature:

Newton J. Bingham
Newton J. Bingham, PE
Regional Materials Engineer

**State of Alaska
Department of Transportation & Public Facilities
Central Materials Lab
5750 East Tudor Road
Anchorage, AK 99507
Phone (907) 269-6200 FAX (907) 269-6201
Laboratory Report**

Preconstruction

Laboratory No.: 2011A-2907

Name: **Mertarvik Waterfront Development Study**

Project No.: 80861

Sample: *Rock*

Item/Specification No.:

Field No.: **GS1**

Sampled From: **Quarry, Depth Surface**

Date Sampled: 08/15/2011

Source: *Material Site Hill 460*

Quantity Represented:

Date Received: **08/24/2011**

Location:

Submitted By: **C. Boeckman**

Date Completed: 08/31/2011

Examined For: **Degradation, Sulfate Soundness and SpG**

Date Reported: 08/31/2011

Sieve Analysis			Lab		Specs	
4"	% Organic					
3"	% Natural Moisture					
2"	pH of Soil					
1 1/2"	% Sticks & Roots					
1"	Dry Unit Weight, pcf					
3/4"	% Lightweight Particles					
1/2"	Uncompacted Voids of FA					
3/8"	Specific Gravity of Soil					
1/4"	Sand Equivalent					
#4	Expansion Breakdown					
#8						
#10	Friable Particles					
#16	AASHTO T104 Sulfate Soundness, % Loss					
#30	Agg. Specific Gravity, Bulk					
#40	Agg. Specific Gravity, SSD					
#50	AASHTO T85 Agg. Specific Gravity, App.					
#80	% Absorption					
#100	LA Abrasion, Total % Loss					
#200	@ 100 revs % Loss					
.02 mm	ATM 313 Degradation					
.002 mm	Nordic Abrasion					
Fineness Modulus						
% Fracture						
Single Face	FSV Class					
Double Face	AASHTO Class					
	Unified Class					
Atterburg Limits						
Liquid Limit						
Plastic Limit						
Plastic Index						
Flat / Elongated						
1:3						
1:5						

Remarks:

D2 The Material as Submitted Conforms to Specifications
Yes [] No [] NA [X]

THE TEST RESULTS ARE ONLY REPRESENTATIVE OF THE MATERIAL AS SUBMITTED

Signature:

Newton Bingham

Newton J. Bingham, PE
Regional Materials Engineer

**State of Alaska
Department of Transportation & Public Facilities
Central Materials Lab
5750 East Tudor Road
Anchorage, AK 99507
Phone (907) 269-6200 FAX (907) 269-6201
Laboratory Report**

PETROGRAPHIC ANALYSIS REPORT

Client: State of Alaska DOT&PF

Thin Section ID: GS-1 (orig. GS-2)

Project: #12-35-1019 Mertarvik

Field Classification: Med. greenish-gray,
moderately altered olivine basalt.

COMPOSITION:

Constituent	Optical/Physical Properties	Estimated %
Plagioclase (An₄₄ - Andesine) – Randomly-oriented twinned laths ≤ 1 mm long, averaging ~ 0.5 mm; moderate relief ($>$ quartz reflects higher An content). Some flow texture is apparent around the olivine/mafic phenocrysts. Plagioclase is essentially unaltered.		
		50%
Olivine – Small fractured phenocrysts (≤ 1 mm) are characterized by corroded polygonal outlines with alteration (chlorophaeite?) emphasizing rims and internal fractures. The high-relief grains, colorless in plane light, display typical strong (upper 2 nd order) interference colors under x-nicols.		
		10%
Clinopyroxene (Augite) – Occurs in this section as interstitial granules (~ 0.05 mm) in the matrix grading up to subhedral grains (~ 0.6 mm) that subophitically enclose the plagioclase in some places. The moderately high relief pyroxene grains are neutral-colored in plane light, and display low (1 st order to lower 2 nd order) interference colors, angular extinction and some twinning.		
		25%
Opaques (Magnetite) – Reflect black in incident light; occur as individual polygonal and irregular-shaped grains (i.e. fillings for interstices) and the occasional filled microfracture.		
		5%
Chlorite/Chlorophaeite – The latter term is defined as “a green or brown chloritic alteration of olivine” that, in this specimen, has a granular to fibrous habit and often displays a colloform structure. It is reddish-brown to deep olive green here.		
		9%
Calcite – Fills amygdules lined with chlorite/chlorophaeite (≤ 1.0 mm in diameter), and is also found as an irregular patch ~ 1.2 mm across.		
		<1%

TEXTURES AND STRUCTURES

Grain Size: Range in size from 1 mm (plagioclase & olivine) down to < 0.015 mm (magnetite).

Textures: Igneous volcanic, intergranular texture with some subophitic texture in places.

Structures: A couple of healed (with magnetite) microfractures are present, and one open fracture traverses the slide. Several round amygdules are rimmed with colloform “chlorophaeite”, then filled with calcite. A few vesicles are also present.

Alteration: Olivine is moderately altered (deutERICALLY) to chlorite/chlorophaeite, and later calcite filled some vesicles.

PETROGRAPHIC CLASSIFICATION: Olivine Basalt

PETROGENESIS: Lava flow was deutERICALLY altered during cooling, with later calcite filling some chlorophaeite-lined amygdules

COMMENTS:

Carolyn C. N. Stevens 11/8/2011
Petrographer Date

PETROGRAPHIC ANALYSIS REPORT

Client: State of Alaska DOT&PF

Thin Section ID: GS-2 (orig. GS-1)

Project: #12-35-1019 Mertarvik

Field Classification: Mod. fine-grained
med. gray basalt with slightly altered olivine

COMPOSITION:

Constituent	Optical/Physical Properties	Estimated %
Plagioclase (An₄₈₋₆₂-Andesine/Labradorite) – Occurs here as unaltered, slender twinned laths (≤1mm long, ranging down to ~0.15mm) in random orientation.		
		45%
Clinopyroxene (Augite) – High relief, neutral-colored subhedral to anhedral grains (plane light), with typical pyroxene cleavage and 1 st to middle 2 nd order birefringence (x-nicols), some twinning, and ~40° extinction angle in sections with maximum birefringence. Grains are unaltered and range in length from 1mm down to <0.15mm.		
		25%
Olivine – High relief, rounded (usually anhedral) grains with poor cleavage and irregular, often curved internal fractures and strong upper 2 nd order birefringence. Grain rims, internal fractures and cleavage are emphasized by alteration to iddingsite , a reddish-brown mineral with lamellar structure. Grains range from 2.3mm (max) down to 0.06mm.		
		12%
Opakes: Include Magnetite (black-reflecting, anhedral patches filling some interstices; up to ~0.6 mm long) and possible Chromite (brown in reflected light with brown semi-opaque edges on the anhedral grains. Some or most of these grains may also be totally altered olivine. Max diameter ~0.18mm.)		
		8%
Pores/Interstices – Angular spaces, homogeneously distributed throughout the specimen, range in size from 0.45mm down to <0.05mm. (Blue epoxy impregnation aided in estimating amount of pore space.)		
		10%

TEXTURES AND STRUCTURES

Grain Size: Grains range in size from 2.3mm down to 0.06mm.

Textures: Igneous volcanic, intergranular, diktytaxitic texture. (“Diktytaxitic” texture is defined as a volcanic igneous texture characterized by numerous jagged, irregular vesicles bounded by crystals, some of which protrude into the cavities.” AGI *Glossary of Geology*, 5th Edition, page 180.)

Structures: None noted.

Alteration: A fresh rock, with only the olivine slightly altered (deutERICALLY) to iddingsite.

PETROGRAPHIC CLASSIFICATION: Olivine Basalt

PETROGENESIS: Originally a lava flow that was subjected to slight deuteric alteration during cooling. This specimen was probably take from near the surface of the cooled flow.

Carolyn C.H. Stearn 11/8/2011
Petrographer Date

PETROGRAPHIC ANALYSIS REPORT

Client: State of Alaska DOT&PF

Thin Section ID: GS-3

Project: #12-35-1019 Mertarvik

Field Classification: Friable, earthy, reddish brown baked volcanic soil(?)

COMPOSITION:

Constituent	Optical/Physical Properties	Estimated %
Fe Oxide/Limonite(?) – Most of this specimen, under x-nicols, is isotropic--dark translucent red, and black (opaque). Plane light best displays the textural features. Under x-nicols, only the rare small quartz grains, one pyroxene(?) grain, plus the thin edges of both grains and matrix impinging upon pore space display anisotropism. The dark blood-red and opaque Fe-oxide/limonite content constitutes the majority of this slide.		
		65%
Clasts: Spheroids/"Oolites" & Lithic Fragments – Particles in this specimen are almost all spherical, ovoid or rounded, and range in diameter from <0.05 to ~6mm, perhaps averaging ~0.2mm in diameter. Lithic fragments (when recognizable) are relatively larger (1.5mm-6mm), subrounded and display volcanic textures. Some of the spheroidal particles have concentric rings internally. While most of the particles are translucent to semi-opaque, many are opaque. Occasional (non-spherical, non-limonitic) clasts/patches (≤0.20mm) appear to be clay (kaolinite?). One clast (~1mm long) appears to be orthopyroxene (1 st order gray birefringence, parallel extinction).		
Matrix – Consists of lighter reddish-brown limonite clay (kaolinite + fine-grained limonite?) that is isotropic under x-nicols except for thin birefringent edges. A little chamosite may even be present in one patch that is greenish in plane light.		
		22%
Quartz – Occurs here as small, mostly angular to subround grains or shards, ≤0.25mm in diameter.		
		<1%
Porosity – Due to natural pore space, desiccation cracks and abundant open microfractures, this specimen is quite porous and friable.		
		12%

TEXTURES AND STRUCTURES

Grain Size: 6mm (volcanic clast) ranging down to <0.05mm (silt or clay) in matrix.

Textures: Clastic, volcanic, with spheroidal/"oolitic" grains rather common.

Structures: Open microfractures and desiccation cracks are common, making this a friable, crumbly specimen.

Alteration: Weathering of iron-bearing minerals resulted in hydration + oxidation = Fe Oxides.

PETROGRAPHIC CLASSIFICATION: Oolitic Iron "Mudstone"

PETROGENESIS: Iron-rich material weathered from igneous/volcanic terrane was deposited in a shallow sedimentary basin where waves and currents were active. The iron-rich sediments were then thoroughly oxidized—possibly through baking by an overlying flow—before induration.

COMMENTS: Field relationships are necessary to determine the origin of this "rock".

Carolyn C.N. Steven 11/8/2011
Petrographer Date

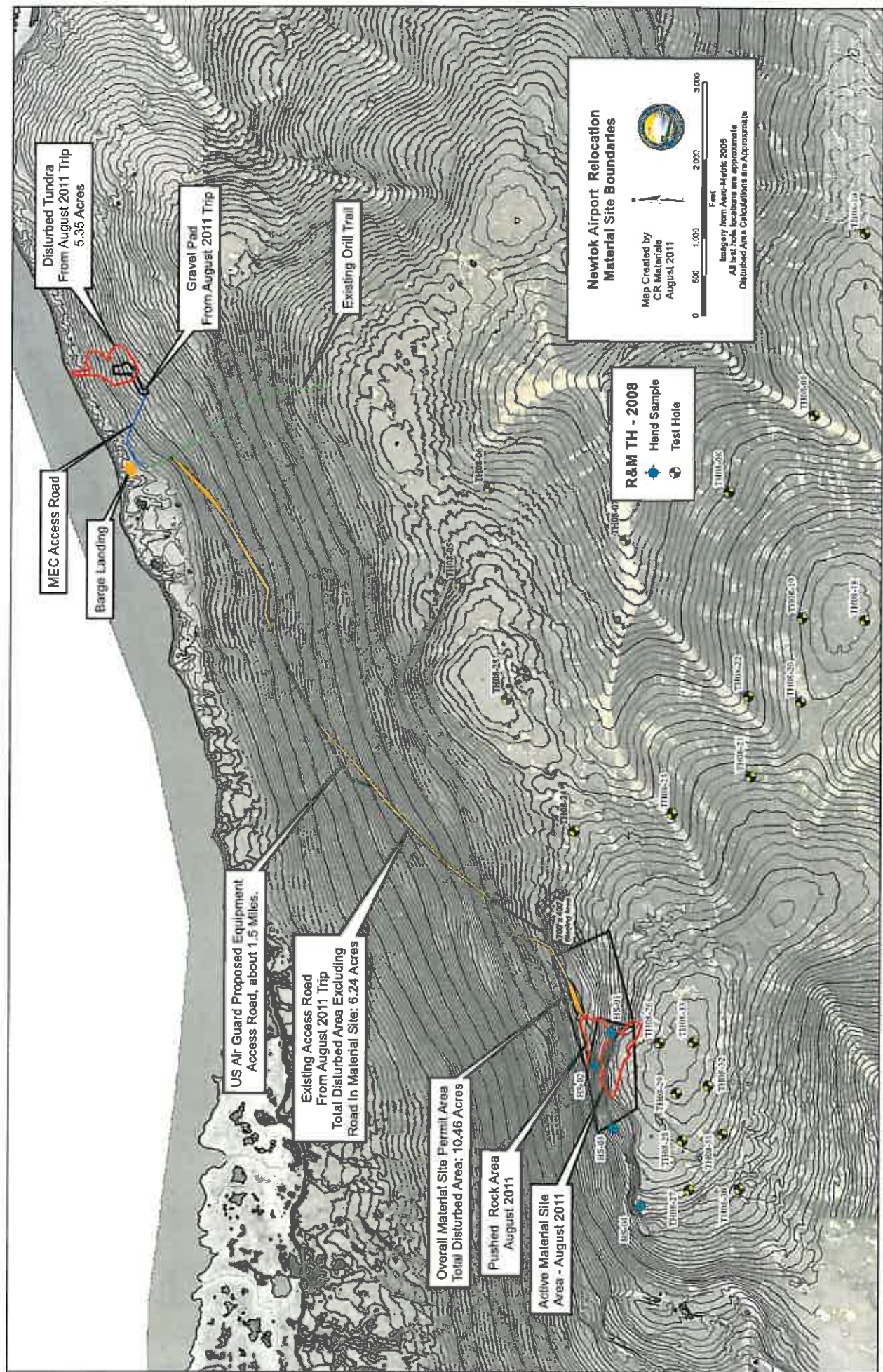


Figure 1
Newtok Airport Relocation
Material Site Access Road

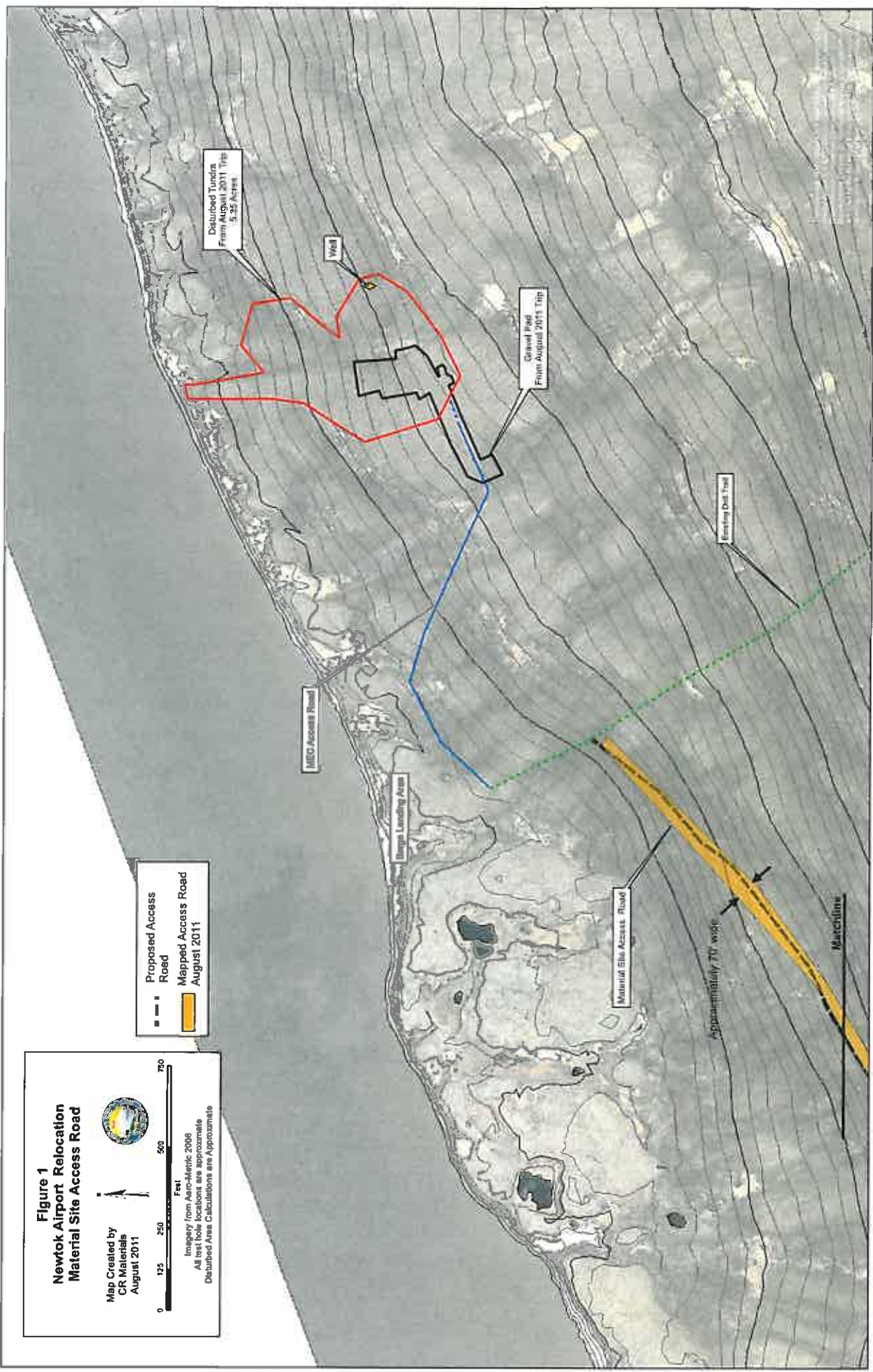
Map Created by
 CR Materials
 August 2011

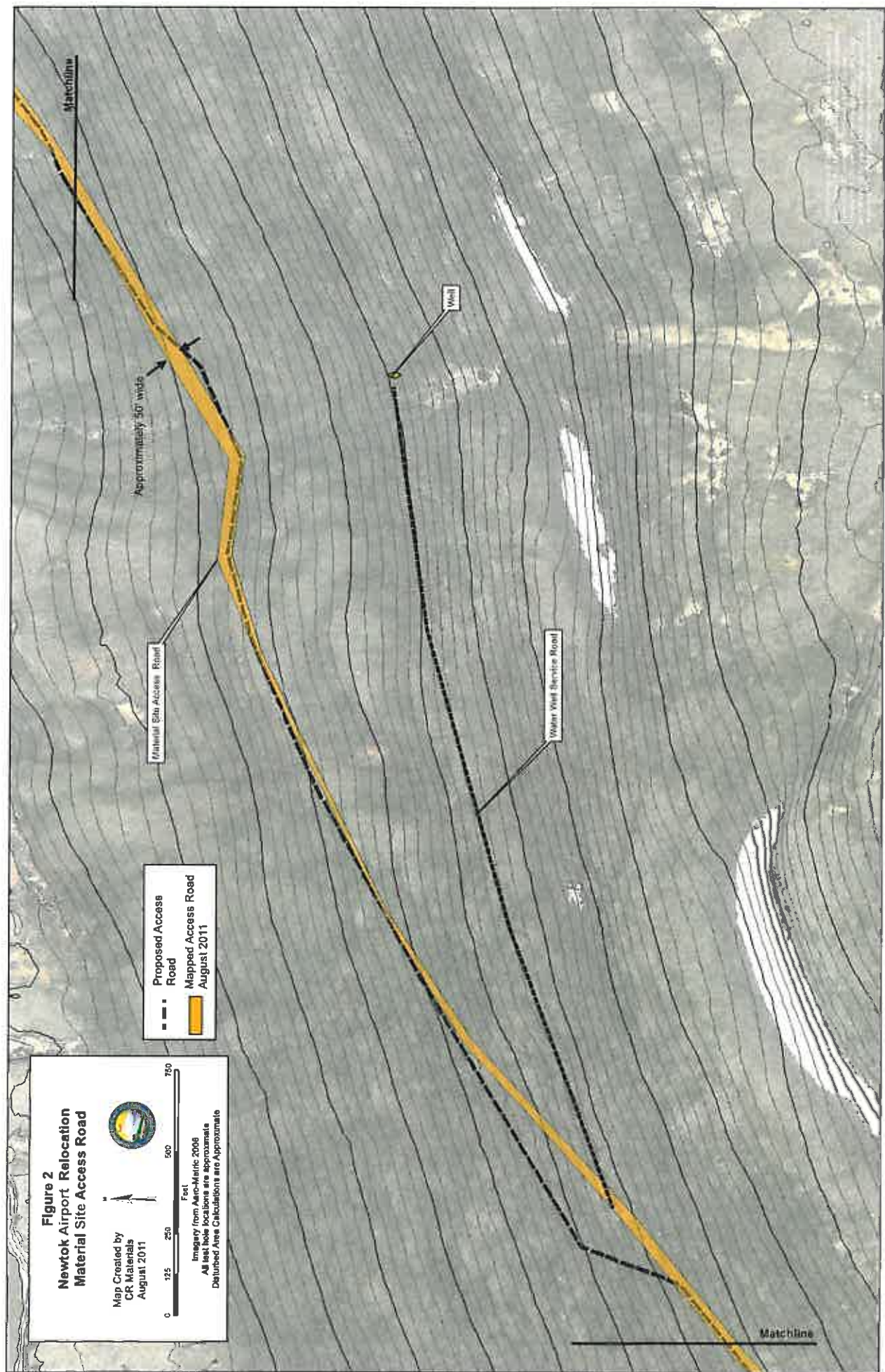


0 125 250 500 750
 Feet

Images from AerialMap 2008
 All test hole locations are approximate
 Disturbed Area Calculations are Approximate

Proposed Access Road
 Mapped Access Road
 August 2011





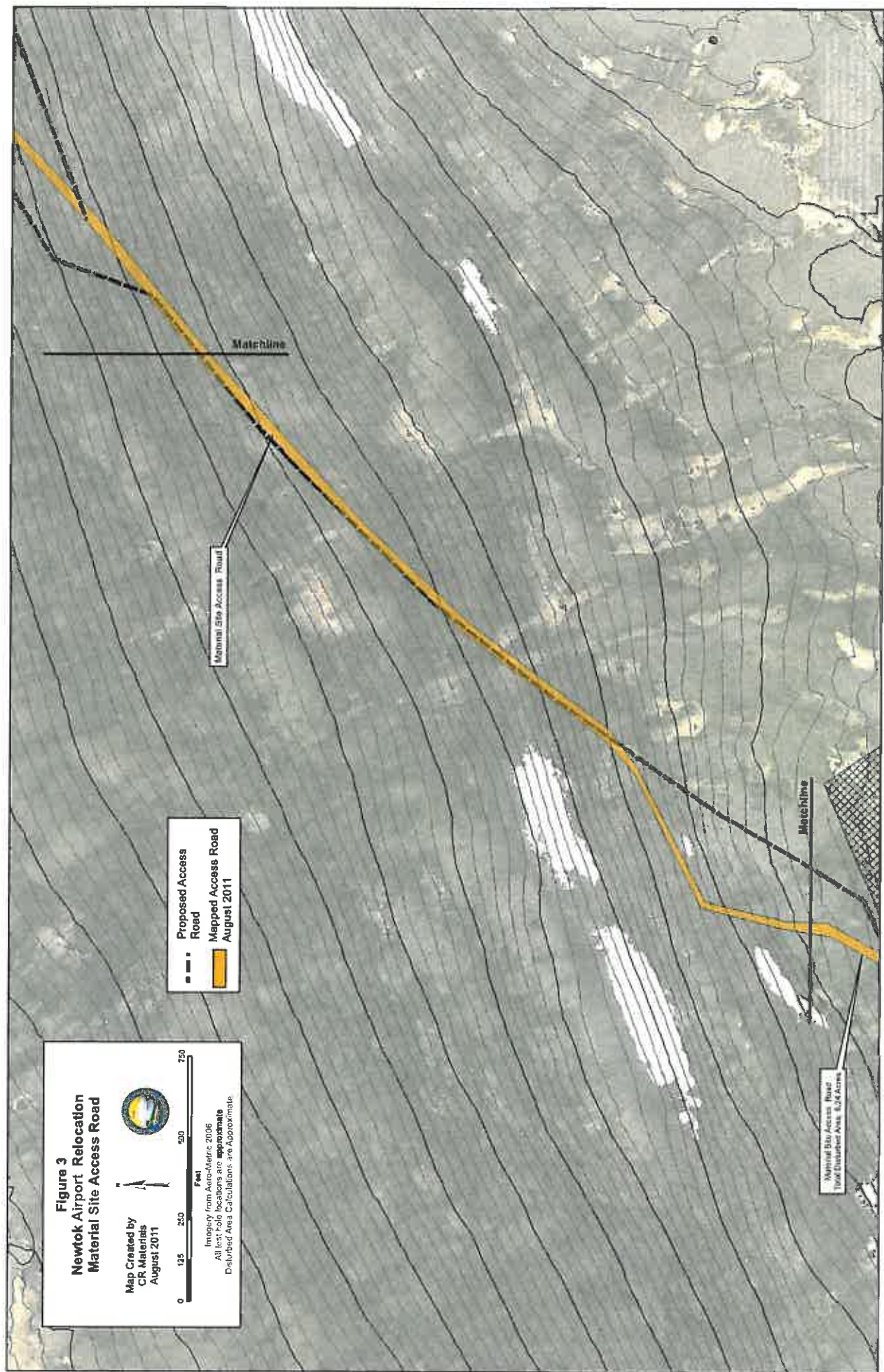


PHOTO LOG



GeoMats near base camp



Shot rock at quarry

PHOTO LOG



View toward Mertarvik from top of shot rock



Shot rock at quarry

PHOTO LOG



Backwall of shot area



Backwall of shot area at the rock quarry

PHOTO LOG



Shot rock (tabular)



Bedrock with 2-4 inch spaced joint sets

PHOTO LOG



Shot rock at the quarry



Shot rock at quarry

PHOTO LOG



Shot rock at the quarry



Shot rock at quarry

PHOTO LOG



Shot rock at the quarry



Red colored rock at quarry

PHOTO LOG



Red rock at the quarry



Shot rock at quarry with red rock in foreground

PHOTO LOG



Quarry access road



Quarry access road

PHOTO LOG



Quarry access road



Quarry access road

PHOTO LOG



Quarry access road



Quarry access road - geo mats

PHOTO LOG



Quarry access road with geo mats



Quarry access road with geo mats

PHOTO LOG



Quarry access road with geo mats



Quarry access road with geo mats

APPENDIX C-b
CONSULTANT CONTRACT and PERMIT
(2012, RE-SCOPED AND REBID)

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NOTICE TO PROCEED & INVOICE SUMMARY

NTP No: 2
Agreement No: 02512028
AKSAS Project No: 80861
PSA Expiration Date: 12/31/2013

(This form is for any FIXED PRICE Agreement or for a COST REIMBURSEMENT Agreement in which the sum of all NTPs will not exceed \$250,000.)

Contractor: R&M Consultants, Inc.

Project Title: Geotechnical Engineering Services Term Agreement: Mertarvik Waterfront Development, Geotechnical Field Investigation

NOTICE TO PROCEED

In accordance with our Agreement, provide the following services (or services described in the following referenced attachment):

The Contractor shall conduct an investigation to characterize the subsurface conditions of the planned facilities and provide recommendations of area as suitable for future development. Refer to DOT&PF Request For Proposal & Scope of Services, three (3) pages, dated April 2, 2012. Deliverables shall include a draft (delivered by Sept. 1, 2012) and final report. All Services shall be completed by October 1, 2012. NTP-2 expires June 30, 2013.

Compensation for this NTP shall be by the method(s) and not exceed the authorized amount(s) specified in the Invoice Summary (below). The Agency Contract Manager for this NTP is: David A. Hemstreet, P.E. Tel No.: 907-289-6233

Issued for the Contracting Agency per ADOT&PF Policy #01.01.050 by:

Signature: *Michael San Angelo* Date: *5/29/12*
Name: Michael San Angelo, P.E., State Materials Engineer

Accepted for the Contractor by:

Signature: *Charles H. Riddle* Date: *29 May 2012*
Name: Charles H. Riddle, CPG, Senior Vice President

INVOICE SUMMARY

This Invoice is for [] Progress OR [] Final Payment. Sequential Invoice Number for this NTP is: [].

* Generally, each firm may be compensated by only one of the following Methods of Payment for this NTP:

Fixed Price (FP) Amounts entered in Columns "c" and "g" only

Cost Plus Fixed Fee (CPFF) Columns "c", "d", "e", "f" and "g" only

FP + Expenses (FPPE) Columns "c", "e" and "g" only

Time and Expenses (T&E) Columns "c", "e" and "g" only

Firms (Prime & Subcontractors)*	Method of Pay	Labor (or FP)	Indirect Cost	Expenses	Fixed Fee	Total Price
R&M Consultants, Inc.	TE	\$54,347.00	\$0.00	\$14,299.00	\$0.00	\$68,646.00
Sub: Discovery Drilling, Inc (drilling)	TE	\$110,000.00	\$0.00	\$0.00	\$0.00	\$110,000.00
Sub: Discovery Drilling, Inc (mob/demob)	FP	\$143,200.00	\$0.00	\$0.00	\$0.00	\$143,200.00
Total NTP Amount Authorized for All Firms		\$307,547.00	\$0.00	\$14,299.00	\$0.00	\$321,846.00
Sum of Prior APPROVED Payments						
Sum for THIS INVOICE						
Sum of Prior Payments and this Invoice						
Balance of Authorized Amount						

Collocation Code
24462217
Ledger Code
30885382

Program Code
57610
Account Code
75535

PAYMENT REQUEST (Contractor):

Signature: _____ Date: _____
Name: Charles H. Riddle, CPG, Senior Vice President

APPROVAL FOR PAYMENT

PAYMENT RECOMMENDED: I certify this invoice to be valid and accurate and that services were performed substantially in conformance with the contract requirements and schedule.

Signature: _____ Date: _____
Name: David A. Hemstreet, P.E., State Foundation Engineer

PAYMENT APPROVED: Based upon the Contract Manager's recommendation and certification, I hereby approve payment.

Signature: _____ Date: _____
Name: Michael San Angelo, P.E., State Materials Engineer

INSTRUCTIONS TO CONTRACTOR for NOTICE TO PROCEED & INVOICE SUMMARY (NTP)

1. Retain an unmarked, as issued, copy of this (NTP) form to be used for reproduction and billing.

Note *Several NTPs may be concurrently active under one Professional Services Agreement, each requiring separate cost accounting.*

2. If this NTP is unacceptable, notify the Contracting Agency immediately. If acceptable, acknowledge by signature where indicated on a copy of this NTP and return it within ten days after your receipt.
3. Submit monthly Invoices to the Agency Contract Manager named in this NTP. You may use your firm's invoice forms; however, you must also **provide a copy of page one of this NTP form as the FACE PAGE of each invoice submitted and with the following entries accurately completed:**
 - a) Indicate if the Invoice is for Progress or Final Payment and show the Sequential Invoice Number for this NTP.
 - b) In each column (c, d, e, f & g) where there is an Authorized Amount, show amounts for: Prior APPROVED Payments; THIS INVOICE; Prior Payments plus this Invoice; and Balance of Authorized Amount.

Note "Prior APPROVED Payments" amounts may NOT be the same as the total of all your prior invoices if some items were disallowed or adjustments were made. If a prior billing has not been acknowledged with any payment, or a different amount from your billing was paid without notification to you of the reason(s), attach a request for an explanation and remedial action.

4. Sign, date and enter printed or typed name under "PAYMENT REQUEST (Contractor)" thereby attesting to the following:

"By signature on this form, the Contractor certifies entries to be true and correct for the services performed to date under or by virtue of said Agreement and in accordance with AS 36.30.400. The Contractor further certifies that all applicable Federal, State and Local taxes incurred by the Contractor in the performance of the services have been paid and that all Subcontractors engaged by the Contractor for the services included in any invoice shall be fully compensated by the Contractor for such services."

5. Substantiate all charges on each invoice, other than for Fixed Prices or Fixed Fees, by attaching a summary of hours expended and hourly labor rate per employee; summary of units completed; subcontractor invoices; expense receipts, etc.; or other proof of expenditures.
6. ***Prime Contractor's Labor and Indirect Cost shall be billed to the Contracting Agency within 45 days of performance. Subcontractors' Labor and Indirect Cost shall be billed to the Contracting Agency within 60 days of performance. All of the Contractor's and Subcontractors' Other Direct Costs (Expenses) shall be billed to the Contracting Agency within 90 days of being incurred. Charges submitted after the above stated times will, at the Contracting Agency's discretion, not be paid.***
7. When each NTP is approximately 75% complete, the Contractor shall determine if the Authorized Amount(s) might be exceeded; and, if so, shall provide an estimate of cost to complete. The Contracting Agency will determine after discussion with the Contractor if additional cost is reasonable and does not include costs that should be absorbed by the Contractor. If additional cost is validated, a negotiated Amendment will be executed which either (1) reduces the scope of services/work products required commensurate with the Authorized Amount(s), or (2) increases the Authorized Amount(s) to that required for completion of the original contract scope.



R&M CONSULTANTS, INC.

9101 Vanguard Drive, Anchorage, Alaska 99507

(907) 522-1707, FAX (907) 522-3403, www.rmconsult.com

May 17, 2012

R&M No. 1803.00

Mr. David A. Hemstreet, P.E.
Alaska Department of Transportation and Public Facilities
5800 East Tudor Road
Anchorage, Alaska 99507

RE: Mertarvik Waterfront Development
Project No. #80033
Geotechnical Engineering Services Term Agreement
PSA # 02512028

Dear Mr. Hemstreet:

R&M Consultants, Inc. (R&M) is pleased to submit this revised proposal to provide geotechnical exploration services for the Waterfront Development Project at Mertarvik, Alaska. At your requests, we revised our previous proposal (dated April 11, 2012) to reflect: the DOT&PF will now provide all necessary permits; R&M will now perform the laboratory testing; and R&M will now prepare the geotechnical data report. We understand the objectives of our work remain to characterize the geotechnical conditions at the proposed facility site, in particular the presence of cobbles, boulders and bedrock; and to conduct in-situ testing to qualify the relative density and consistency of the soils. The scope of R&M's services include: subcontracting the drilling contractor; providing an experienced field geologist to direct the drilling, logging the test holes, and securing the soil samples; and preparing a site conditions report. Our proposed work plan to accomplish these tasks is described in the following pages. R&M understands this project will be authorized using the time and expense method of compensation. Our total estimate for the above revised work plan is \$321,846 (cost detail attached).

Note that R&M solicited price quotes from three local drilling contractors. We intend to subcontract Discovery Drilling based on their price, availability and responsiveness (Discovery Drilling's quote is attached). Further, the RFP requested that the field work be completed by June 15, 2012. However, due to concerns about when the ice will go out in the Ninglick River and permit timing we are proposing to do the work in late July.

Please contact Peter Hardcastle (907.646.9685) or Buzz Scher (907.646.9613) if you have any questions.

Sincerely,

R&M CONSULTANTS, INC.

Charles H. Riddle, C.P.G.
Senior Vice President

Attachments

SCOPE OF SERVICES & PROPOSED WORK PLAN

PRE-MOBILIZATION.

- **Permits.** The DOT&PF will obtain any necessary permits for the drilling operations prior to mobilization of the drilling equipment, supplies and field crews.

FIELD EXPLORATIONS.

- **Mobilization.** R&M/Discovery Drilling will mobilize a track mounted drill rig and landing craft to the site from Naknek. The landing craft proposed for the project will not be available between early June (~4th) and late July (~24th) 2012. Due to the tight time frame between now and late May we are proposing to do the drilling in late July as we cannot be sure when the ice will go out in the Ninglick River, or if permits will be in place by that time.
- **Drilling.** The test holes will generally be drilled from the landing craft; however, borings in shallow locations may be drilled during low tide by off-loading the drill rig and walking it to the location. We plan to drill the test holes using hollow stem auger and down-hole sampling tools. After drilling, auger cuttings will be "backed down the hole" by reversing the auger direction, to the extent possible.
- **Test Borings.** R&M will drill a minimum of six test holes to a depth of 30 feet below mud line or until auger refusal, whichever occurs first. If boulders cause auger refusal within the upper 10 feet, the borings will be shifted and re-drilled as necessary to advance past the boulder obstruction. To the extent possible, we will discern whether the refusal is due to bedrock or boulders.
- **Test Hole Locations.** R&M will determine the location of each test hole using mapping grade hand-held GPS units. The test holes will be drilled as close as feasible to the locations indicated on the attached map. As-drilled coordinates will be included on the test hole logs (see below).
- **Sampling.** R&M will collect disturbed soil samples in all six test borings using the *Standard Penetration Test* (SPT; ASTM D 1586) every 2.5 feet between the surface and total depth explored. However, to increase the volume of sample recovered we will use 3.0-inch O.D., 2.5 inch I.D. samplers where clast size warrants. Measures to control heave will be taken as necessary to obtain representative samples. Recovered samples will be placed in doubled 4-mil plastic bags and sample tags placed between the bags. The samples will be returned to R&M's laboratory in Anchorage.
- **Sample Testing.** R&M will perform laboratory testing on selected samples obtained during the drilling program. Subject to the type of soil and recovered volume, samples will be tested to measure moisture content (ASTM D2216), gradation (sieve and

hydrometer; ASTM D422), Atterberg limits (ASTM D4318), and organic content (ASTM D2974).

- **Test Hole Logs.** R&M will prepare a formal log (in gINT format) for each test hole that will include our interpretation of the soil column, descriptions of the recovered soil samples (following ASTM D 2488 and 4083, as applicable), results of all field tests (e.g. SPT), and the laboratory test results.
- **Geotechnical Data Report.** R&M will prepare a geotechnical data report, outlining the field equipment and procedures, laboratory test methods, site photographs, problems encountered during the project, description of the regional geology and a summary of our interpretation of the local geotechnical conditions. The report will also include a site map (illustrating the test hole locations), laboratory test results, and the formal test hole logs.
- **Environmental Samples.** Environmental chemical testing samples for dredging permits will not be taken.

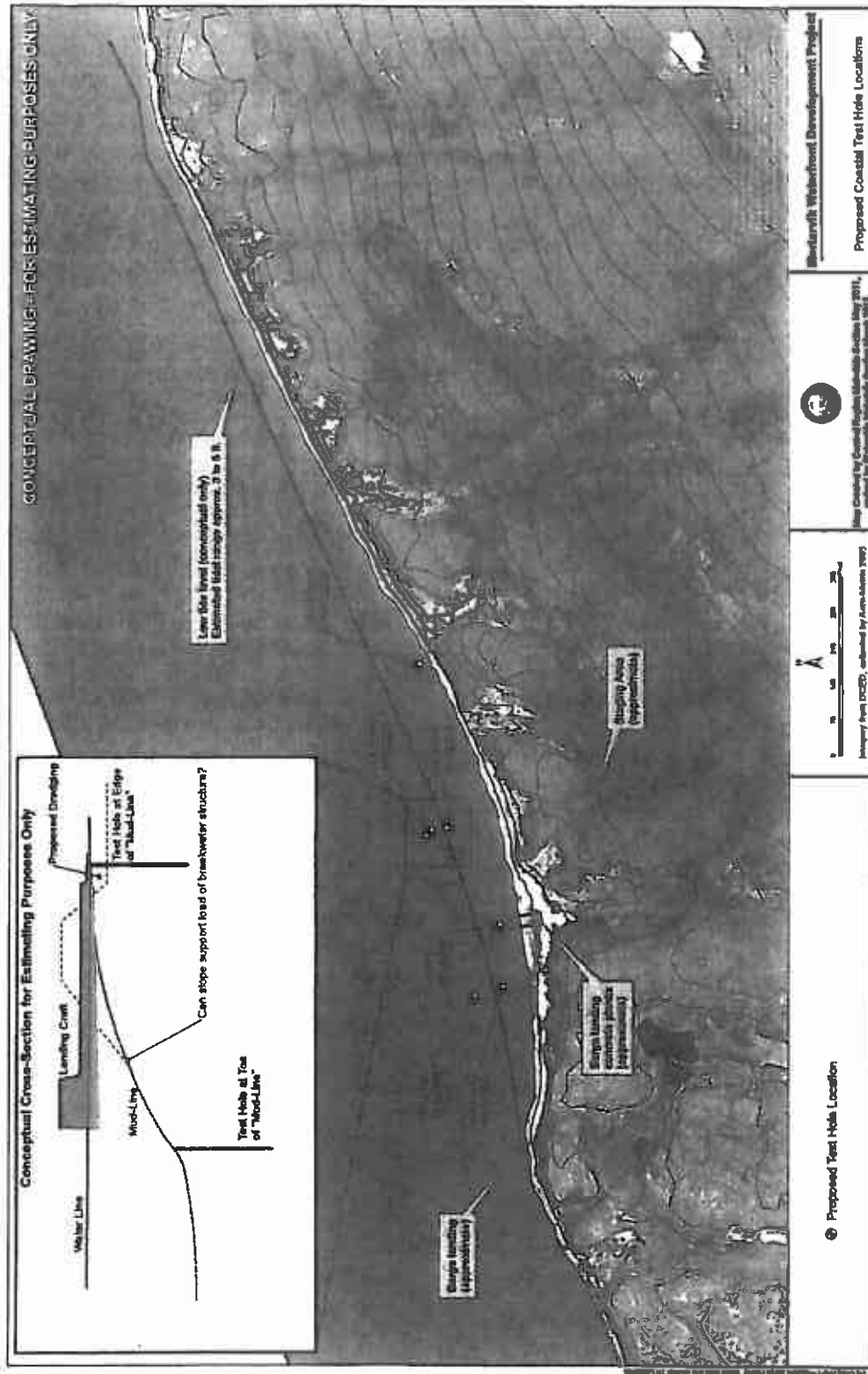
STANDBY

R&M's cost estimate includes two days of standby time due to weather and marine conditions which may not allow R&M and the drilling contractor to safely advance offshore drilling operations.

SCHEDULE

The landing craft and drill rig were available to do the work between late May and early June as per the schedule in the RFP. However, the landing craft would have to leave the site for other previously scheduled work by June 4th. Getting the field work done by the 4th would be contingent on the ice going out in the Ninglick River in time to carry out the field program. Also the issuance of necessary NTP's and permits could potentially delay the startup making it unfeasible to do the field work within that time frame. As a result we are proposing to delay the project to the end of July and the cost estimates reflect this.

R&M plans to start the mobilization in mid- to late July 2012, complete the field work by about mid-August, and submit the draft Geotechnical Data Report by September 1st.



RECORD OF NEGOTIATION AND SELECTION (RONS)

Agreement No: 02512028
AKSAS Project No: 80861
Federal Project No: N/A

Project Title: Geotechnical Engineering Services Term Agreement: Mertarvik Waterfront Development, Geotechnical Field Investigation.

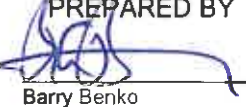
Contractor: R&M Consultants, Inc.

PURPOSE/SERVICES/PRICE (WITHIN THIS SPACE, without referencing other documents, provide a clear statement of the final negotiated purpose and services to be obtained. If an Amendment, *briefly* explain why it is necessary and whether it is an anticipated, or unanticipated, new task - or more effort/expense for the original Agreement.)

The purpose of this agreement is to acquire professional services to conduct and document a geotechnical field investigation at the proposed site for waterfront development.

PRICE: The negotiated maximum total Price for the services in this RONS is: \$321,846.00

PREPARED BY

Signature: 
Name/Date: Barry Benko
Title: Geotechnical Eng Assistant

CONCUR

Signature: 
Name/Date: David A. Hemstreet, P.E.
Title: State Foundation Engineer

PROCUREMENT OFFICER APPROVAL

Signature: 
Name/Date: Michael San Angelo, P.E.
Title: State Materials Engineer

This RONS is for:

- ☐ Original Agreement
☐ Amendment
☒ NTP for Term PSA
- Number:
NTP No: 2

Procurement method was:

- ☐ Small Procurement (<\$100,000)
☐ Competitive Sealed Proposals
☒ Established Agreement
☐ Other

AKSAS Collocation Code
24462217

AKSAS Ledger Code
30665382

PROCEDURE (WITHIN THIS SPACE, 1) describe the procedure used to obtain proposals for this Agreement, this Amendment or this Term Agreement NTP; and 2) If this RONS is for an Original Agreement or an NTP under a Term Agreement, explain why the Contractor was selected from all of the Offerors - you may reference and attach the Committee Evaluation Report if procurement was by Competitive Sealed Proposals.)

The Agency Contract Manager sent, via e-mail, a Request for Proposal to the Contractor requesting a proposal for these services on April 2, 2012 (see Exhibit A).

RESIDENCY (CHECK ONE OF THE FOLLOWING)

☒ This item is not applicable for Amendments, OR NTPs under Term Agreements.

☐ The selected contractor is an **ALASKA CONTRACTOR** defined by AS 36.30.170(b) as: (1) Holds a current Alaska Business License; (2) Submits an offer for goods, services, or construction under the name as appearing on that current Alaska Business License; (3) Has maintained a place of business within the State, staffed by the Contractor or an employee of the Contractor, for a period of six months immediately preceding the date of the proposal; (4) Is incorporated or qualified to do business as a corporation under the laws of the State, is a sole proprietorship, and the proprietor is a resident of the State, or is a partnership, and all partners are residents of the State; and (5) If a joint venture, is composed entirely of entities that qualify under (1)-(4).

OR The selected contractor is a **NON-RESIDENT CONTRACTOR** and as per AS 36.30.362, the basis of award is:

- ☐ Alaska preferences do not apply to this Federally funded contract (AS 36.30.890).
☐ Services cannot be obtained from sources within the State of Alaska.
☐ Other (explain):

CONCURRENCES - PROTESTS/APPEALS (Summarize **WITHIN THIS SPACE** and attach any pertinent approvals from client/funding agencies or documents concerning protests/appeals.)

N/A

DISADVANTAGED BUSINESS ENTERPRISES (DBE) (THIS ITEM MUST BE COMPLETED FOR ALL FEDERALLY FUNDED AGREEMENTS - AND AMENDMENTS IF ANY CHANGE TO SUBCONTRACTORS - EVEN IF DBE NOT SOLICITED OR AWARDED FOR THE AGREEMENT OR AMENDMENT):

- ☒ Not applicable - This RONS is for an NTP under a Term Agreement / Indefinite Delivery Contract
☐ Not applicable - This RONS is for an Amendment which does not add or delete or otherwise impact Subcontractors
☐ Not applicable - no federal funding

Contractor is a DBE: ☒ No OR ☐ Yes, Certification Number is:
DBE Subcontracts are ☒ None OR ☐ as follows:

<u>Service, Product or Equipment</u>	<u>Name of DBE Subcontractor</u>	<u>DBE Certification Number</u>	<u>Subcontract Amount - \$</u>
--------------------------------------	----------------------------------	---------------------------------	--------------------------------

THE PROFESSIONAL SERVICES COORDINATOR'S OFFICE SHALL RECEIVE THIS RONS AND SHALL PROVIDE A SIGNED COPY [AND A COPY OF PAGES 1& 2 OF THE AGREEMENT OR AMENDMENT] TO THE TITLE VI SPECIALIST IN THE DOT&PF CIVIL RIGHTS OFFICE WITHIN TWO WEEKS AFTER CONTRACT AWARD. THIS ACTION REPLACES THE DBE TITLE VI REPORT FOR PROFESSIONAL SERVICES AGREEMENTS.

METHOD OF PAYMENT (WITHIN THIS SPACE, explain why the chosen method(s) are necessary or most appropriate. If Cost Reimbursement method, explain what method(s) are being used.)

☐ Fixed Price or ☒ Cost Reimbursement Contract

The Method of Payment is Time and Expenses (T&E). It is impracticable to obtain these services through other than a cost reimbursement contract because these services are variable.

TECHNICAL AND PRICE NEGOTIATIONS

READ THIS SECTION CAREFULLY AS IT IS THE MOST SIGNIFICANT REQUIREMENT OF THE RONS

COMPLETE THE TABLE AT THE TOP OF THE NEXT PAGE. If a column is not applicable, explain in the text why it is inappropriate. ESTIMATES MUST BE DEVELOPED INDEPENDENTLY WITHOUT THE SELECTED CONTRACTOR'S ASSISTANCE.

AFTER THE TABLE, describe how the Contractor's Proposal was examined and compared to the Pre-Solicitation Statement of Services and your Independent cost estimates. First, to familiarize the reader, present a general discussion of major changes during each negotiation session, then provide important details. Your discussion should focus only on those items/tasks that have a significant cost difference between your estimate and the final amount. For example, a \$100 difference on a \$20,000 task would not warrant discussion while a \$2,400 difference might. Exercise judgement as to what is a significant change, based on the overall value of the contract. Your discussion should include reasons for the difference, i.e., level of expertise, hours per task, transportation and per diem, equipment, specific materials and supplies, etc. that may have been underestimated or overlooked. Identify any significant changes in services that were not included in the Pre-Solicitation Statement of Services or the Contractor's first proposal.

Summarize any special conditions, items to be resolved as work progresses (such as need for additional soils investigation), increases/decreases of subcontractor use, completion of tasks by Phases or any understandings reached that may result in future Amendments.

If hourly labor rates, equipment rates, per diem, or other cost elements were significant negotiation issues for the Contractor or and Subcontractor, include a discussion of such issues with the explanation of how the final rates, etc. are determined to be reasonable. Identify the Indirect Cost Rates (IDCRs) and how they were established. If possible, briefly summarize information rather than attach numerous copies of correspondence, proposals, work sheets, etc. Keep all materials that may be used for future contract discussions in your project files.

Explain how the Fee (profit) was negotiated, i.e., Fee Objective Work Sheet or other approach. Explain how the final total price was determined to be fair and reasonable.

TECHNICAL AND PRICE NEGOTIATIONS

TASK, SUBTASK, OR ACTIVITY, ETC.	PRESOLICITATION ESTIMATE	PREPROPOSAL ESTIMATE	CONTRACTOR'S FIRST PROPOSAL	NEGOTIATION OBJECTIVES	FINAL AMEND OR PSA <i>AMOUNT</i>
NTP 2 Mertarvik Waterfront Devel.: Contractor portion	N/A	\$27,757.00 ²	\$37,605.00 ⁴	\$29,706.00	\$68,646.00
Subcontractor portion (Drilling)	\$222,680.00 ¹	\$249,030.00 ³	\$275,228.00	\$275,228.00	\$253,200.00
TOTALS >>>	\$222,680.00	\$276,787.00	\$312,833.00	\$ 304,934.00	\$321,846.00

Notes:

1 – The pre-solicitation estimate was provided by DOT Central Region Materials Section (July 7, 2011) for drilling services subcontracted by DOT Central Region Materials Section (see Exhibit C).

3 – Source: low bid on bid tab certified July 14, 2011 by Central Region Contracts Section (Exhibit D). All bids were rejected (see Exhibit E), and the project was re-scoped.

4 – Under the re-scoped version of the project, term contractor was engaged to submit a proposal that includes services by a drilling subcontractor.

TECHNICAL AND PRICE NEGOTIATIONS

Term Contractor R&M responded to an RFP issued by AKDOT Statewide Materials Section dated April 2, 2012. Services and prices detailed in R&M's proposal dated April 11, 2012 (Exhibit F) was agreed to, with the following exceptions: 1) Contract Mgr rejects their Task 2 (permitting); and 2) Contract Mgr requests verification of subcontract estimate (drilling).

Contract Manager, David A. Hemstreet sent email April 20, 2012 identifying items for negotiation.

Term Contractor thereafter provided quote from subcontract bidder Denali Drilling for comparison of rates used by Discovery Drilling (Exhibit F) and an amended quote from Subcontractor Discovery Drilling (Exhibit G). R&M proposed to accept quote from Discovery Drilling, DOT contract manager agreed.

Contract Manager requested final proposal documents from R&M May 10, 2012.

Contract Manager received revised proposal (Exhibit I) from R&M, dated May 17, 2012.

Fee was negotiated at 5% on subcontractor Discovery Drilling. The rates and wages submitted by R&M are consistent with the terms of the Contract. Therefore, the final total price was determined to be fair and reasonable.

Attachments:

- Exhibit A – RFP issued to Term Contractor 2 April 2012
- Exhibit B – Concurrence from Project Mgr
- Exhibit C – Preproposal estimate for services by Term Contractor for this project
- Exhibit D – Certified bid tab for previous scope of work
- Exhibit E – Bid rejection for previous scope of work
- Exhibit F – Proposal from contractor (R&M, April 11, 2012)
- Exhibit G – Quote from drilling subcontract bidder Denali Drilling
- Exhibit H – Amended Quote from selected drilling subcontractor Discovery Drilling
- Exhibit I – Revised proposal from contractor (R&M, May 17, 2012)

EXHIBIT A



STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

STATEWIDE DESIGN & ENGINEERING SERVICES DIVISION
STATEWIDE MATERIALS

Sean Parnell, Governor

5800 E. TUDOR ROAD
ANCHORAGE, ALASKA 99507-1286

PHONE: (907) 269-6230
FAX: (907) 269-6231
TEXT: (907) 269-0473

2 April 2012

Charles Riddle, C.P.G.
R&M Consultants, Inc.
9101 Vanguard Drive
Anchorage, AK 99507

SENT via E-mail 2 April 2012 to criddle@rmconsult.com

Project: Mertarvik Waterfront Development
State Project # 80861
Contract: PSA 02512028, Geotechnical Engineering Services Term Agreement

Dear Mr. Riddle:

AKDOT&PF requires Geotechnical Engineering services in support of the *Mertarvik Waterfront Development Project (80861)* on Nelson Island, AK. We are requesting the services of R&M Consultants under PSA #02512028.

SCOPE: This project entails the design of waterfront facilities at Mertarvik, including breakwaters, boat ramp, and dock. The requested work items under this Task Order include geotechnical drilling and materials sampling as described below.

OBJECTIVES:

- Characterize the soil profile at the site of the planned facilities.
- Identify the presence of cobbles, boulders, or bedrock in the subsurface.
- Conduct in-situ testing for determination of bearing capacities.

REQUESTED SERVICES:

- **Test Holes** – Drill a minimum of six test holes to depth of 30 ft. below ground surface (bgs) or hollow stem auger refusal. Proposed locations are provided on the attached figure. If boulders within the upper ten ft. cause drilling/sampling refusal at any of the six locations, re-drill as necessary to advance past the boulder obstruction. Discern refusal due to bedrock versus refusal due to boulders to the extent possible with the exploration method.
- **In-Situ Testing and Sampling**– Perform Standard Penetration Tests according to ASTM Method D 1586, at an interval of every 2.5 ft. starting at the surface. Switch to a larger

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diameter sampling spoon if clast size warrants. Take measures to control heave as necessary to obtain representative samples. Retain recovered samples that are considered representative of the sampled interval. Sample preservation should be at level suitable for expected standard index tests on bulk samples (e.g., gradation).

- Documentation— Field geologist is to log the test holes, classifying soils according to USCS. Collect test hole location coordinates with GPS. Assign identification numbers to retained samples, and deliver these to AK DOT's Central Region Laboratory in Anchorage.
- Deliverables— Provide test hole locations in a digital format spreadsheet or shape file. Provide final test hole logs in AKDOT&PF gINT® format.

SCHEDULE: Complete field work before 15 June 2012. Deliver draft test hole logs and material samples to Statewide Materials Section by 30 June 2012.

PROPOSAL SUBMITTAL: Prepare a preliminary Exploration Plan and Cost Estimate for negotiation with Statewide Materials Section as soon as possible, but not later than 11 April 2012. If you have technical questions regarding the objectives, expected site conditions, or scope of work, you may wish to contact Steve Evans at 269-6210 or Barry Benko at 269-6211.

If you have any questions regarding contract issues, please feel free to call Kimberly Hays at 269-6212 or Dave Hemstreet at 269-6233.

If you cannot perform this work, you must submit a written justification for refusal or unavailability to accept a project assignment, prior to 11 April 2012.

Thank you for your attention and response to this request.

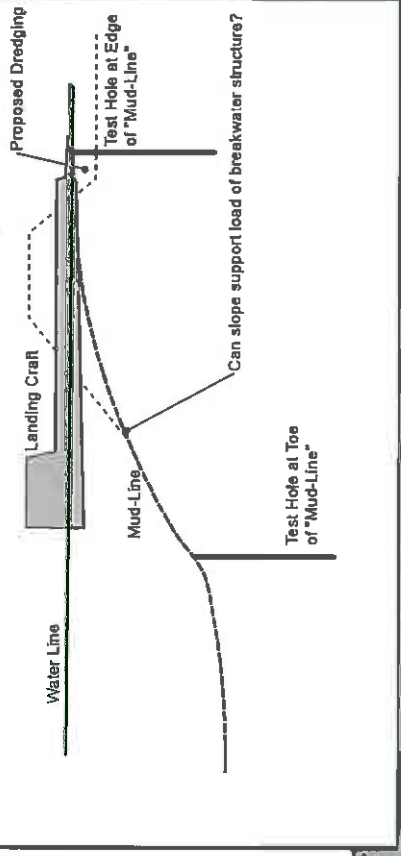
Sincerely,

David A. Hemstreet, P.E.
State Foundation Engineer

Attachment: Location Figure

cc: Kimberly Hays, Statewide Materials Administrative Manager
Harvey Smith, P.E., State Coastal Engineer
Mitch Miller, P.E., Central Region Geotechnical Engineer

Conceptual Cross-Section for Estimating Purposes Only



CONCEPTUAL DRAWING - FOR ESTIMATING PURPOSES ONLY

Low tide level (conceptual only)
Estimated tidal range approx. 3 to 5 ft.

-164 50826
60.82228

-164.51009
60.82223

-164.51144
60.82187

-164.51192
60.82202

-164.51182
60.82186

Barge landing
(approximate)

Barge landing
concrete planks
(approximate)

Staging Area
(approximate)



Proposed Test Hole Location



Martavik Waterfront Development Project

Map Created by Gentili Popilio/Martavik Section May 2011.
revised by Stawicki/Martavik Section March 2012.

Imagery from DCED, collected by Aero-Metric 2005

Proposed Coastal Test Hole Locations

EXHIBIT B

From: [Carter, Ruth A \(DOT\)](#)
To: [Benko, Barry A \(DOT\)](#); [Smith, Harvey N \(DOT\)](#); [Evans, Steve T \(DOT\)](#)
Subject: FW: 02512028 - pj# 80861 Mertarvik Waterfront Development
Date: Wednesday, April 18, 2012 2:47:04 PM
Attachments: [image003.png](#)

Barry, we have an additional \$100K, so we can negotiate the contract. As noted, hopefully we can negotiate the cost down a bit. Let me know how it goes.

I'll still be approaching BIA for a bit more money as well.

Thanks, Ruth

Ruth A Carter, P.E.
Coastal Engineering Section
907-269-6241

From: Lukshin, Michael A (DOT)
Sent: Wednesday, April 18, 2012 8:41 AM
To: Carter, Ruth A (DOT)
Cc: Smith, Harvey N (DOT)
Subject: RE: 02512028 - pj# 80861 Mertarvik Waterfront Development

Ruth,

Last night, I got word from Mike Coffey that he is going to give us an additional \$100K for the Mertarvik Waterfront Project. I'll work on getting the money added to PJ80861. Go ahead and tell Dave to negotiate and award the work to R&M.

As I explained the other day, we only have \$212K left in the project. I hope there is a way to shave a few bucks from R&M's proposal during the negotiating process. If not, then we will have to use the Harbor Program Development funding to cover the remaining work by you and Harvey.

Michael

Michael Lukshin, P.E.
Statewide Ports and Harbors Engineer
Alaska DOT&PF
W 907-465-3979

From: Carter, Ruth A (DOT)
Sent: Monday, April 16, 2012 11:51 AM
To: Lukshin, Michael A (DOT)
Cc: Smith, Harvey N (DOT)
Subject: FW: 02512028 - pj# 80861 Mertarvik Waterfront Development

Michael, we got an estimate from R&M. There is some negotiating room, but we're not going to

get from \$320K to \$180K. You mentioned at one time that DOT might have some funding to add to the pot. Is there any funding available? I'd also asked this same question of BIA as they mentioned some "wiggle room" in the price. I have not approached the village.

Let me know as soon as you can; Dave is waiting to negotiate with R&M.

Thanks, Ruth

p.s. I think since this is a proposal and not a final bid that the package in the attachment should be kept somewhat confidential.

RuthA Carter, P.E.
Coastal Engineering Section
907-269-6241

From: Hemstreet, David A (DOT)
Sent: Friday, April 13, 2012 9:59 AM
To: Miller, Mitchel R (DOT); Benko, Barry A (DOT); Evans, Steve T (DOT); Smith, Harvey N (DOT); Carter, Ruth A (DOT)
Cc: Hays, Kimberly J (DOT); Hemstreet, David A (DOT)
Subject: FW: 02512028 - pj# 80861 Mertarvik Waterfront Development

Attached is the proposal from R&M for the Mertarvik project. Please review and prepare (if not done already) an estimate for the work to be used in the price negotiations. Let me know if you have any comments or questions.

Dave

*David A Hemstreet, P.E.
State Foundation Engineer
State of Alaska, DOT/PF
5800 E. Tudor Road
Anchorage, Alaska 99507*

*Phone: (907) 269-6233
Cell: (907) 306-8362
Fax: (907) 269-6231*

From: Buzz Scher [mailto:bscher@rmconsult.com]
Sent: Wednesday, April 11, 2012 5:22 PM
To: Hays, Kimberly J (DOT)
Cc: Hemstreet, David A (DOT)
Subject: RE: 02512028 - pj# 80861 Mertarvik Waterfront Development

Kimberly & Dave

Attached is our cost proposal for the Mertarvik Waterfront Development project. Feel free to call me or Pete Hardcastle if you have any questions, or wish to meet and discuss the proposal further.

Robert (Buzz) Scher, PE
Senior Geotechnical Engineer

9101 Vanguard Drive
Anchorage, AK 99507
907.646.9613 Direct
907.522.3403 Fax
www.rmconsult.com

From: Hays, Kimberly J (DOT) [<mailto:kimberly.hays@alaska.gov>]
Sent: Monday, April 02, 2012 2:20 PM
To: Charlie Riddle; Buzz Scher
Cc: Hemstreet, David A (DOT); Benko, Barry A (DOT); Smith, Harvey N (DOT); Miller, Mitchel R (DOT)
Subject: 02512028 - pj# 80861 Mertarvik Waterfront Development

Hi Charlie & Buzz,

Please find attached RFP for the subject project. Please provide a Time & Expense cost estimate for the work required.

Let us know if you have any questions or concerns.

Thanks!

Kimberly

Kimberly Hays - Administrative Manager | Alaska Department of Transportation & Public Facilities,
Statewide Materials Section | 5800 E. Tudor Rd. Anchorage, AK 99507-1286 | Direct Line: 907-269-6212 |
Cell Phone: 907-529-5106 | e-mail: kimberly.hays@alaska.gov

"Get Alaska Moving through service and infrastructure."



COST ESTIMATE PER TASK

FIRM: R&M

— 100 —

[illegible]

PROJECT TITLE: M

PROJECT TITLE: Meritvilk Waterfront Development**TASK NO:****TASK DESCRIPTION:**

Preparation of Preliminary and Final SFR

GROUP:

METHOD OF PAYMENT:

३३

प्रवादः

T&E ✓

339

PREPARED BY:

DATE: _____

[illegible]

EXPENSES

SUB-TASK NO.	ITEM(S)	QUANTITY	UNIT PRICE	TOTAL PRICE
	Air Transportation	1	\$1,500.00	\$1,500.00
	Lodging	6	\$150.00	\$900.00
	Shipping by Contractor	2	\$1,000.00	\$2,000.00
	Per Diem (man days)	6	\$60.00	\$360.00
	Transpo in field	6	\$150.00	\$900.00

COMMENTS:

					FIRM'S TOTAL COST OF LABOR (or Fixed Price):		\$9,000
					IF CPFF, TOTAL INDIRECT COST @	123.20%	\$11,088
					FIRM'S PROFIT	10.00%	\$2,008.80
				TOTAL EXPENSES:	\$5,660	FIRM'S TOTAL EXPENSES	\$5,660
SUB-CONTRACTORS: Firm Initials and Price Per Task							
FIRM:						FIRM'S TOTAL COST (no Subcontracts or Fee)	\$27,757
AMOUNT:						TOTAL SUBCONTRACTOR PRICES:	\$0
						TOTAL PROJECT COST:	\$27,757

* Labor Rates shall be direct labor (base pay) only if Method of Payment is CPFF; otherwise, Labor Rates shall be total rates (i.e. base pay + benefits + overhead + profit.)

STATE OF ALASKA		Project Number: 80881		Operated At: 4111 Aviation Ave. Anchorage, Alaska 99502		Certified True & Correct	
Dept. of Transportation and Public Facilities		Project Name: Meritavik Wetland Development Study Drilling Services		Operated By: Sharon L. Smith, P.E., Chief of Contracts		Sharon L. Smith, P.E. Chief of Contracts Section, Central Region	
Location: Meritavik, Alaska		Engineer's Estimate		Date: July 13, 2011		7/14/11 Date	
COMPILEATION OF BIDS		Amount		Total Amount		Amount	
Item		Quantity		Total Amount		Total Amount	
Drill Crew Mobilize and Demobilize		LS	All Required	\$40,000.00		LS	\$30,000.00
Drill crew timeper hour		\$320.00	72	\$23,040.00			
Barge/Landing Craft Mobil/Demob		LS	All Required	\$100,000.00		LS	\$289,000.00
Barge/Landing Craft & Crew Timeper day		\$8,000.00	6	\$48,000.00			
Barge & Crew Weather Delayper hour		\$850.00	12	\$7,800.00			
Drill Crew Weather Delayper hour		\$320.00	12	\$3,840.00			
a.	Total Basic Bid			\$222,880.00			\$447,860.00
b.	Alaska Bidder's Preference (5% of a)			0.00			
c.	Alaska Veterans-Owned Business Preference (5% of a, not to exceed \$5,000.00)			\$0.00			\$22,378.00
d.	Alaska Products Preference (Attach worksheet(s))			\$0.00			\$0.00
e-b-c-d	Adjusted Basic Bid Amount			\$222,880.00			\$435,182.00

EXHIBIT E

MEMORANDUM

State of Alaska

Department of Transportation and Public Facilities

DATE: July 14, 2011

TO: Newt Bingham, Central Region Materials

THRU: Craig Boeckman CB 7-21-2011

FROM:  Sharon Smith, P.E.

SUBJECT: Bid Tab Analysis & Recommendation to Proceed with Intent to Award –
Mertarvik Waterfront Development Study Drilling Services/80861

Attached is the Certified Bid Compilation indicating the low bidder for the above referenced project. The Project Manager is responsible for review and analysis of the bid tab and for marking your recommendation(s) for proceeding with the Intent to Award by initialing below.

Bid Tab Analysis: See attached Bid Analysis Guidance.

Did any unit bid prices differ significantly from the estimate? Yes If so, list the major items (at least 10% of the contract amount) Barge Craft mob/Demob

Was any obvious unbalancing of the low bid identified? If so, describe _____

Additional Notes/Findings (attach additional information if required): _____

Recommendation: The Project Manager is responsible for obtaining Project Control's verification of adequate funding and legislative authority below. Once complete, obtain Section Chief's signature and return to me as soon as possible.

_____ Award to Low Bidder (Award amount (unadjusted) = \$ 267,400)

☒ Reject All Bids (Explain below, i.e., lack of funding, may be re-bid, etc.)
Lack of funding. See attached memo

_____ Multiple Award (Specify below, i.e., primary, primary & secondary, etc.)

_____ Additive Alternates (List as appropriate, i.e., no alternates, Alt. 1 & 2, etc.)

_____ Other (Explain below, i.e., hold for further instructions, etc.)

*****Verification of adequate funding and legislative authority for this action:*****

Laurie Holland, Chief of Project Control

Date


Newt Bingham, Central Region Materials

7-21-11

Date

Sharon L. Smith, P.E.

Date

BID ANALYSIS GUIDANCE

23CFR 635.114 c

Following the opening of bids, the State Transportation Department shall examine the unit bid prices of the apparent low bid for reasonable conformance with the engineer's estimated prices. A bid with extreme variations from the engineer's estimate, or where obvious unbalancing of unit prices has occurred, shall be thoroughly evaluated.

23CFR 635.114d

Where obvious unbalanced bid items exist, the State Transportation Department's decision to award or reject a bid shall be supported by written justification. A bid found to be mathematically unbalanced, but not found to be materially unbalanced may be awarded.

MATHEMATICALLY UNBALANCED BID

A bid (a) where each pay item fails to carry its share of the cost of the work plus the bidder's overhead and profit, or (b) based on nominal prices for some pay items and enhanced prices for other pay items.

MATERIALLY UNBALANCED BID

A mathematically unbalanced bid that either (a) gives rise to a reasonable doubt that it will ultimately result in the lowest overall cost to the Department, even though it may be the lowest bid or (b) is so unbalanced as to be tantamount to allowing a significant advance payment.



MEMORANDUM

Department of Transportation and Public Facilities
Central Region Materials
5750 EAST TUDOR ROAD
ANCHORAGE, AK 99507-1225
Tel. 269-6200 Fax 269-6201

TO: Sharon Smith, Contract Section Chief

Date: July 21, 2011

THRU: *Newton Bingham*
Newton Bingham PE, Central Region Materials Engineer

FROM: Craig Boeckman, Regional Geologist Central Region Materials *CB*

FILE NO: Mertarvik Off-Shore Drilling Services #80861

SUBJECT: Non-Award Notification

Statewide Coastal Section has received a grant of \$350,000 for reconnaissance and preliminary design of a harbor facility at Mertarvik. This funding covers survey, geotechnical investigation, and in-house design activities.

We prepared a Scope-of-Work for geotechnical services on behalf of Statewide Coastal Engineering. The original engineer's estimate was \$181,040. During the bid process a contractor had questions regarding weather and access risk. These questions were answered in Amendment #2. The original engineers estimate was revised to accommodate changes to the bid line items. The additional line items for weather delay, and money to accommodate the additional risk, increased the engineer's estimate to \$222,680.

The apparent Low Bid was \$249,030. This is 37% higher than the original engineer's estimate and 12% higher than the revised engineer's estimate.

Even though the low bid is only 12% higher than the revised engineers estimate this does not leave enough money for Statewide Coastal Engineering to perform other necessary functions such as a bathymetric survey and in-house design. Since it is a recon effort the geotechnical investigation will therefore not be performed at this time.

Therefore the bids are rejected and no award is recommended.

EXHIBIT F



R&M CONSULTANTS, INC.

9101 Vanguard Drive, Anchorage, Alaska 99507

(907) 522-1707, FAX (907) 522-3403, www.rmconsult.com

April 11, 2012

R&M No. 1803.00

Mr. David A. Hemstreet, P.E.
Alaska Department of Transportation and Public Facilities
5800 East Tudor Road
Anchorage, Alaska 99507

RE: Mertarvik Waterfront Development
Project No. #80033
Geotechnical Engineering Services Term Agreement
PSA # 02512028

Dear Mr. Hemstreet:

R&M Consultants, Inc. (R&M) is pleased to submit our proposal to provide geotechnical exploration services for the Waterfront Development Project at Mertarvik, Alaska. We understand the objectives of our work will be to characterize the geotechnical conditions at the proposed facility site, in particular the presence of cobbles, boulders and bedrock, collect disturbed soil samples for laboratory testing (by the DOT&PF), and conduct in-situ testing to qualify the relative density and consistency of the soils. The scope of R&M's services include: subcontracting the drilling contractor; obtaining the permits necessary for drilling; providing an experienced field geologist or geotechnical engineer to direct the drilling, log the test holes, and collect the soil samples; and prepare formal test hole logs upon completion of the field work and DOT&PF's laboratory testing. We estimate the total cost for this work to be \$312,833 (cost details are attached). Our proposed exploration plan is detailed in the following pages.

Note that R&M solicited price quotes on an expedited basis from three local drilling contractors. Discovery Drilling's quote was selected as the best based on price, availability and responsiveness and R&M proposes to subcontract the drilling to them. Further, the RFP requested that the work be completed by June 15, 2012. However, due to concerns about when the ice will go out in the Ninglick River and permit timing we are proposing to do the work in late July.

Should you have any questions regarding our proposal, please contact me or Peter Hardcastle (907) 646-9685.

Sincerely,

R&M CONSULTANTS, INC.

for

Charles H. Riddle, C.P.G.
Senior Vice President

Attachments

SCOPE OF SERVICES / EXPLORATION PLAN

PRE-MOBILIZATION.

Prior to mobilization, R&M will obtain any necessary permits for the drilling operations.

FIELD WORK.

R&M will perform field work according to the following plan:

- **Mobilization.** R&M will mobilize a track mounted drill rig and landing craft to the site from Naknek. The landing craft proposed for the project will not be available between early June (~4th) and late July (~24th) 2012. Due to the tight time frame between now and late May we are proposing to do the drilling in late July as we cannot be sure when the ice will go out in the Ninglick River, or if permits will be in-place by that time.
- **Drilling.** The test borings will generally be drilled from the landing craft. Test borings in shallow locations may be drilled during low tide by off-loading the drill and walking it to the location. We plan to utilize hollow stem auger. To the extent possible auger cuttings will be “backed down the hole” by reversing the auger direction. Where cuttings rise above mud line they generally will not come up through the water column and will be left on the river-bottom surrounding the drill hole.
- **Permits.** R&M will acquire necessary permits for the drilling. These are anticipated to include;
 - Title 16 Fish Habitat permit from the Alaska Department of Fish and Game
 - Temporary Water Use Permit from the Alaska Department of Natural Resources
 - Section 10/404 permit from the Corps of Engineers (anticipated to be NWP-6)
- **Test Borings.** R&M will drill a minimum of six test holes to a depth of 30 feet below mud line or until auger refusal occurs. If boulders within the upper 10 feet cause drilling refusal the borings will be re-drilled as necessary to advance past the boulder obstruction. To the extent possible, we will discern whether the refusal is due to bedrock or boulders.
- **Sampling.** R&M will collect disturbed soil samples in all 6 test borings following the Standard Penetration Test (SPT; ASTM D 1586) every 2.5 feet starting at the surface to the total depth explored by auger. Larger 2.5 inch I.D. samplers will be utilized if clast size warrants. Measures to control heave will be taken as necessary to obtain representative samples. Recovered samples will be placed in doubled 4 mil plastic bags and sample tags placed between the bags. The samples will be delivered to DOT&PF Central Region Laboratory in Anchorage at the completion of the drilling program.

- **Test Hole Logs.** The field geologist/geotechnical engineer will log the test holes, classifying soils according to ASTM D 2488-Description and Identification of Soils (Visual-Manual Procedure) and any frozen samples will be further described as to bonding and visible ice conditions following ASTM D 4083-Description of Frozen Soils (Visual-Manual Procedure).
- **Test Hole Locations.** R&M will determine test hole locations using mapping grade hand-held GPS units. The test holes will be drilled as close as feasible to the locations indicated on the attached map.
- **Deliverables.** R&M will provide drafted test boring logs to DOT&PF in gINT format. A brief trip report providing information on the equipment used, drilling methods, photographs and any problems encountered will also be provided.
- **Environmental Samples.** Environmental samples for dredging permits will not be taken.

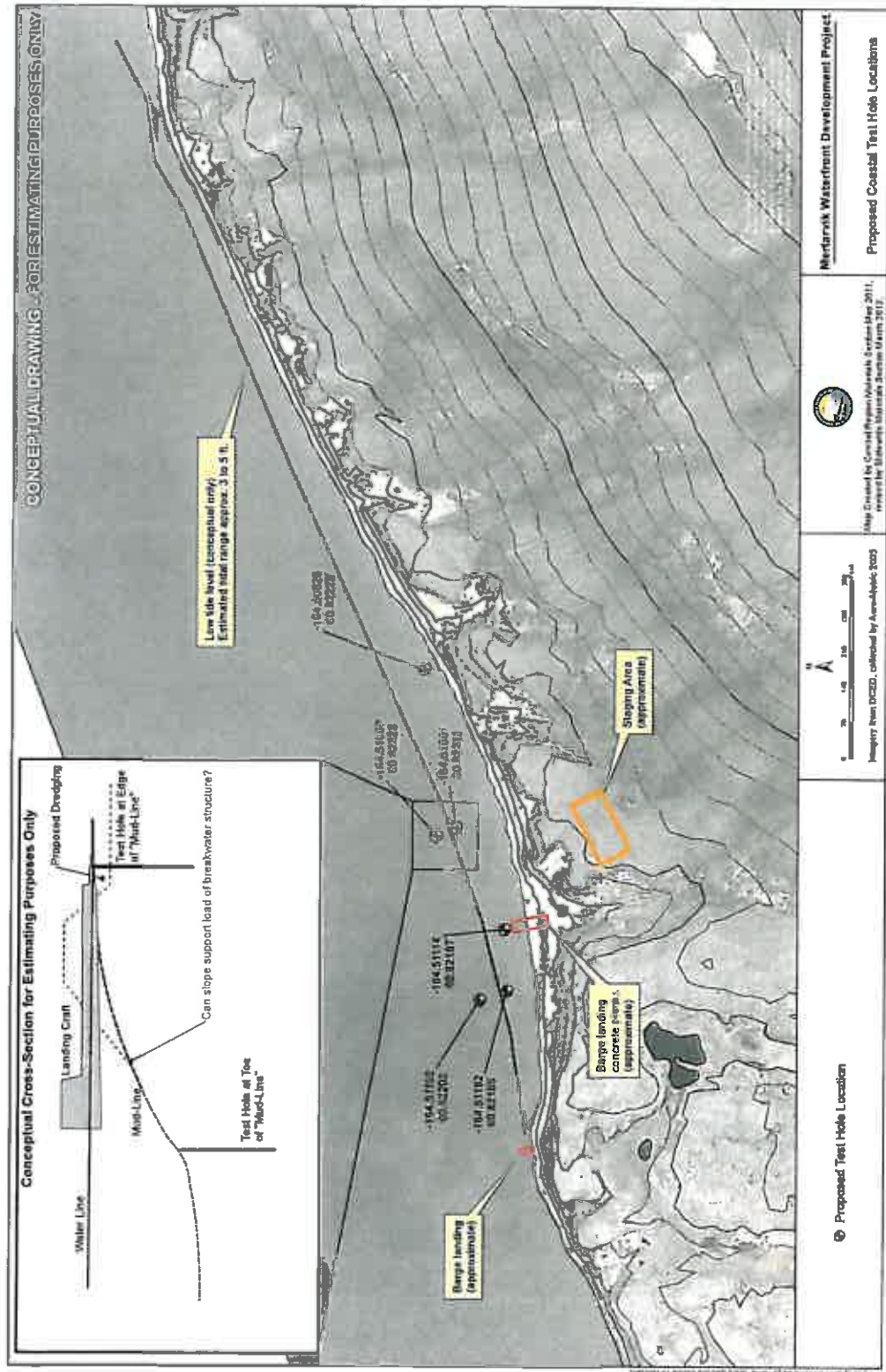
STANDBY

We are assuming two days of standby time due to weather and marine conditions which may not allow R&M and the drilling contractor to safely advance offshore drilling operations.

SCHEDULE

The landing craft and drill rig were available to do the work between late May and early June as per the schedule in the RFP. However, the landing craft would have to leave the site for other previously scheduled work by June 4th. Getting the field work done by the 4th would be contingent on the ice going out in the Ninglick River in time to carry out the field program. Also the issuance of necessary NTP's and permits could potentially delay the startup making it unfeasible to do the field work within that time frame. As a result we are proposing to delay the project to the end of July and the cost estimates reflect this.

R&M plans to start the mobilization on or about the 24th of July to complete the above geotechnical task and deliver the draft logs by August 8, 2012. Field logs can be provided sooner if desired.



Mr. David A. Hemstreet, P.E.
Alaska DOT&PF
April 11, 2012
Page 5



P.O. Box 111165
Anchorage, Alaska 99511
(907)344-6431

April 4, 2012

Quote # 112

Pete Hardcastle
R&M Consultants
9101 Vanguard Drive
Anchorage, Alaska 99507

Discovery Drilling Inc. is pleased to submit this cost estimate for your work in Metarvik. We plan to utilize a track mounted CME 55 and landing craft out of King Salmon

Discovery Drilling understands the scope of work to be as follows:

- Mobilize a landing craft, track mounted auger drill, equipment and crew to site.
- Drill, sample and backfill 6 borings to 30 feet in depth.
- Sampling will occur at 2.5 foot intervals.

Discovery Drilling assumes the following regarding this work:

- Utilities will be located and marked as necessary.
- No wage requirements apply to this work.

Mobilization/Demobilization Truck mounted rig, equipment and crew.	\$ 143,200
Drill, sample and backfill geotechnical borings – estimate 8 days @ \$ 11,600/day	\$ 92,800
Landing craft, drill rig and crews standby @ \$8600/day or \$1075/hour	
Estimated Project Total	\$ 236,000

We look forward to working with you on this project. Please call with any questions you may have.

Sincerely,

Mark Terry
Discovery Drilling Inc.

PRICE PER TASK SUMMARY

[illegible]

[illegible]

- Labor Rates shall be direct labor (base pay) only if Method of Payment is CPPF; otherwise, Labor Rates shall be total rates (i.e. base pay + benefits + overhead + profit.)

[illegible]

* Labor Rates shall be direct labor (base pay) only if Method of Payment is CPFF; otherwise, Labor Rates shall be total rates (i.e. base pay + benefits + overhead + profit.)

[illegible]

* Labor Rates shall be direct labor (base pay) only if Method of Payment is CPFF, otherwise, Labor Rates shall be total rates (i.e. base pay + benefits + overhead + profit.)

[illegible]

* Labor Rates shall be direct labor (base pay) only if Method of Payment is CPFF; otherwise, Labor Rates shall be total rates (i.e. base pay + benefits + overhead + profit.)

EXHIBIT G



Denali Drilling

April 9, 2012

R & M Consultants
9101 Vanguard Drive
Anchorage, AK 99507
Attn: Pete Hardcastle

Ref: Mertarvik Waterfront Development

Dear Pete,

Denali Drilling, Inc. is pleased to have this opportunity to offer the following proposal to provide labor, equipment, and barge to drill and sample a minimum of six test borings to 30' depth or to refusal for the above referenced project.

Mob/Demob Drill Crew - Lump Sum	\$ 25,000.00
This lump sum cost includes all transportation for crew, equipment, and materials.	
Drill Crew Time - Per Hour	\$ 385.00
This hourly rate includes two-man crew, drill on tracks, hollow stem auger tools, room & board, and fuel.	
Standby Drill Crew Weather Delay - Per Day	\$ 350.00
Mob/Demob Barge/Landing Craft - Lump Sum	\$185,000.00
This lump sum cost includes all transportation for crew and barge to arrive on site.	
Barge Crew - Per Day	\$ 8,500.00
Includes barge, crew, room & board, and fuel.	
Barge and Crew Weather Delay - Per Hour	\$ 690.00

Client is to provide clear access to boring locations, utility locates, and all permits required to complete the project. This proposal is based on our in-house wage rates with no provisions for Davis Bacon wages. We understand this work is to be completed before June 15, 2012.

We have had discussions with the State of Alaska, Department of Transportation in the past about doing this work on the ice with a helicopter drill which would be a big savings. If you are interesting in discussing this possibility, please give us a call.

If you have any questions regarding this proposal, or if we can be of assistance in any other manner, please do not hesitate to contact our office.

Sincerely,
DENALI DRILLING, INC.

Ron L. Pichler
President
RLP:kh

EXHIBIT H



P.O. Box 111165
Anchorage, Alaska 99511
(907)344-6431

April 23, 2012

Quote # 112

Pete Hardcastle
R&M Consultants
9101 Vanguard Drive
Anchorage, Alaska 99507

Discovery Drilling Inc. is pleased to submit this cost estimate for your work in Metarvik. We plan to utilize a track mounted CME 55 and landing craft out of King Salmon

Discovery Drilling understands the scope of work to be as follows:

- Mobilize a landing craft, track mounted auger drill, equipment and crew to site.
- Drill, sample and backfill 6 borings to 30 feet in depth.
- Sampling will occur at 2.5 foot intervals.

Discovery Drilling assumes the following regarding this work:

- Utilities will be located and marked as necessary.
- No wage requirements apply to this work.

Mobilization/Demobilization Equipment to King Salmon.	\$ 14,200
Landing craft preparation for anchoring	\$ 21,000
Mobilization/Demobilization Landing craft and drill rig - 12 days @ \$8500/day	\$ 102,000
Mobilization/Demobilization Crew, food and equipment	\$ 6,000
Mobilization/Demobilization Total	\$ 143,200
Drill, sample and backfill geotechnical borings – estimate 8 days @ \$ 11,600/day	\$ 92,800
Landing craft, drill rig and crews standby @ \$8600/day or \$1075/hour	
Estimated Project Total	\$ 236,000

We look forward to working with you on this project. Please call with any questions you may have.

Sincerely,

Mark Terry
Discovery Drilling Inc.

**R&M CONSULTANTS, INC.**

9101 Vanguard Drive, Anchorage, Alaska 99507

[907] 522-1707, FAX [907] 522-3403, www.rmconsult.com

May 17, 2012

R&M No. 1803.00

Mr. David A. Hemstreet, P.E.
Alaska Department of Transportation and Public Facilities
5800 East Tudor Road
Anchorage, Alaska 99507

RE: Mertarvik Waterfront Development
Project No. #80033
Geotechnical Engineering Services Term Agreement
PSA # 02512028

Dear Mr. Hemstreet:

R&M Consultants, Inc. (R&M) is pleased to submit this revised proposal to provide geotechnical exploration services for the Waterfront Development Project at Mertarvik, Alaska. At your requests, we revised our previous proposal (dated April 11, 2012) to reflect: the DOT&PF will now provide all necessary permits; R&M will now perform the laboratory testing; and R&M will now prepare the geotechnical data report. We understand the objectives of our work remain to characterize the geotechnical conditions at the proposed facility site, in particular the presence of cobbles, boulders and bedrock; and to conduct in-situ testing to qualify the relative density and consistency of the soils. The scope of R&M's services include: subcontracting the drilling contractor; providing an experienced field geologist to direct the drilling, logging the test holes, and securing the soil samples; and preparing a site conditions report. Our proposed work plan to accomplish these tasks is described in the following pages. R&M understands this project will be authorized using the time and expense method of compensation. Our total estimate for the above revised work plan is \$321,846 (cost detail attached).

Note that R&M solicited price quotes from three local drilling contractors. We intend to subcontract Discovery Drilling based on their price, availability and responsiveness (Discovery Drilling's quote is attached). Further, the RFP requested that the field work be completed by June 15, 2012. However, due to concerns about when the ice will go out in the Ninglick River and permit timing we are proposing to do the work in late July.

Please contact Peter Hardcastle (907.646.9685) or Buzz Scher (907.646.9613) if you have any questions.

Sincerely,

R&M CONSULTANTS, INC.

Charles H. Riddle, C.P.G.
Senior Vice President

Attachments

SCOPE OF SERVICES & PROPOSED WORK PLAN

PRE-MOBILIZATION.

- **Permits.** The DOT&PF will obtain any necessary permits for the drilling operations prior to mobilization of the drilling equipment, supplies and field crews.

FIELD EXPLORATIONS.

- **Mobilization.** R&M/Discovery Drilling will mobilize a track mounted drill rig and landing craft to the site from Naknek. The landing craft proposed for the project will not be available between early June (~4th) and late July (~24th) 2012. Due to the tight time frame between now and late May we are proposing to do the drilling in late July as we cannot be sure when the ice will go out in the Ninglick River, or if permits will be in-place by that time.
- **Drilling.** The test holes will generally be drilled from the landing craft; however, borings in shallow locations may be drilled during low tide by off-loading the drill rig and walking it to the location. We plan to drill the test holes using hollow stem auger and down-hole sampling tools. After drilling, auger cuttings will be “backed down the hole” by reversing the auger direction, to the extent possible.
- **Test Borings.** R&M will drill a minimum of six test holes to a depth of 30 feet below mud line or until auger refusal, whichever occurs first. If boulders cause auger refusal within the upper 10 feet, the borings will be shifted and re-drilled as necessary to advance past the boulder obstruction. To the extent possible, we will discern whether the refusal is due to bedrock or boulders.
- **Test Hole Locations.** R&M will determine the location of each test hole using mapping grade hand-held GPS units. The test holes will be drilled as close as feasible to the locations indicated on the attached map. As-drilled coordinates will be included on the test hole logs (see below).
- **Sampling.** R&M will collect disturbed soil samples in all six test borings using the *Standard Penetration Test* (SPT; ASTM D 1586) every 2.5 feet between the surface and total depth explored. However, to increase the volume of sample recovered we will use 3.0-inch O.D., 2.5 inch I.D. samplers where clast size warrants. Measures to control heave will be taken as necessary to obtain representative samples. Recovered samples will be placed in doubled 4-mil plastic bags and sample tags placed between the bags. The samples will be returned to R&M’s laboratory in Anchorage.
- **Sample Testing.** R&M will perform laboratory testing on selected samples obtained during the drilling program. Subject to the type of soil and recovered volume, samples will be tested to measure moisture content (ASTM D2216), gradation (sieve and

hydrometer; ASTM D422), Atterberg limits (ASTM D4318), and organic content (ASTM D2974).

- **Test Hole Logs.** R&M will prepare a formal log (in gINT format) for each test hole that will include our interpretation of the soil column, descriptions of the recovered soil samples (following ASTM D 2488 and 4083, as applicable), results of all field tests (e.g. SPT), and the laboratory test results.
- **Geotechnical Data Report.** R&M will prepare a geotechnical data report, outlining the field equipment and procedures, laboratory test methods, site photographs, problems encountered during the project, description of the regional geology and a summary of our interpretation of the local geotechnical conditions. The report will also include a site map (illustrating the test hole locations), laboratory test results, and the formal test hole logs.
- **Environmental Samples.** Environmental chemical testing samples for dredging permits will not be taken.

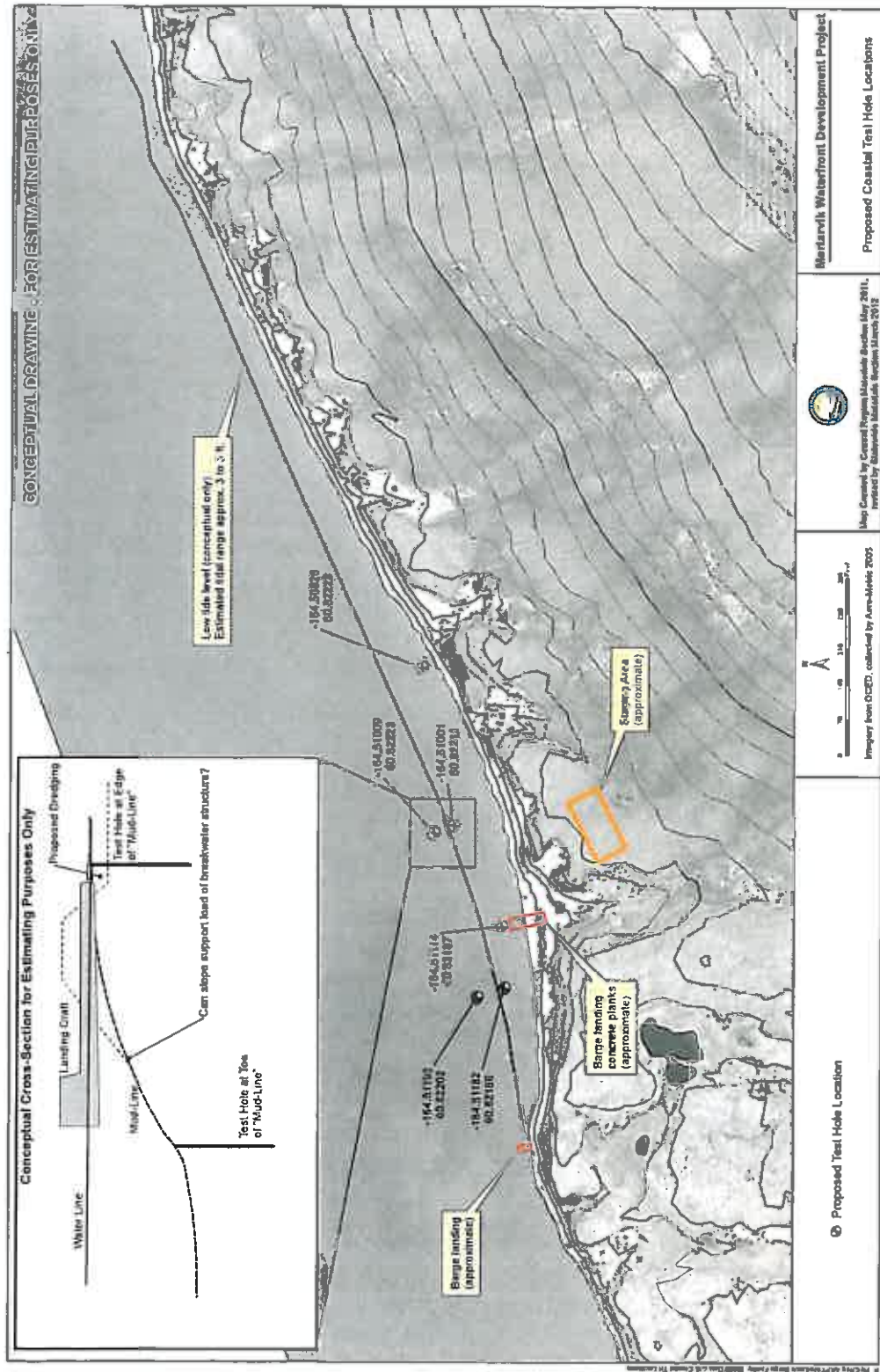
STANDBY

R&M's cost estimate includes two days of standby time due to weather and marine conditions which may not allow R&M and the drilling contractor to safely advance offshore drilling operations.

SCHEDULE

The landing craft and drill rig were available to do the work between late May and early June as per the schedule in the RFP. However, the landing craft would have to leave the site for other previously scheduled work by June 4th. Getting the field work done by the 4th would be contingent on the ice going out in the Ninglick River in time to carry out the field program. Also the issuance of necessary NTP's and permits could potentially delay the startup making it unfeasible to do the field work within that time frame. As a result we are proposing to delay the project to the end of July and the cost estimates reflect this.

R&M plans to start the mobilization in mid- to late July 2012, complete the field work by about mid-August, and submit the draft Geotechnical Data Report by September 1st.





P.O. Box 111165
Anchorage, Alaska 99511
(907)344-6431

April 23, 2012

Quote # 112

Pete Hardcastle
R&M Consultants
9101 Vanguard Drive
Anchorage, Alaska 99507

Discovery Drilling Inc. is pleased to submit this cost estimate for your work in Mertarvik. We plan to utilize a track mounted CME 55 and landing craft out of King Salmon

Discovery Drilling understands the scope of work to be as follows:

- Mobilize a landing craft, track mounted auger drill, equipment and crew to site.
- Drill, sample and backfill 6 borings to 30 feet in depth.
- Sampling will occur at 2.5 foot intervals.

Discovery Drilling assumes the following regarding this work:

- Utilities will be located and marked as necessary.
- No wage requirements apply to this work.

Mobilization/Demobilization Equipment to King Salmon.	\$ 14,200
Landing craft preparation for anchoring	\$ 21,000
Mobilization/Demobilization Landing craft and drill rig - 12 days @ \$8500/day	\$ 102,000
Mobilization/Demobilization Crew, food and equipment	\$ 6,000
Mobilization/Demobilization Total	\$ 143,200
Drill, sample and backfill geotechnical borings – estimate 8 days @ \$ 11,600/day	\$ 92,800
Landing craft, drill rig and crews standby @ \$8600/day or \$1075/hour	
Estimated Project Total	\$ 236,000

We look forward to working with you on this project. Please call with any questions you may have.

Sincerely,

Mark Terry
Discovery Drilling Inc.

PRICE PER TASK SUMMARY

FIRM: R&M Consultants, Inc.				PROJECT TITLE: MERTARVIK WATERFRONT DEVELOPMENT			DATE: 5/17/2012		
<div>NEGOTIATED PROFIT ON SUBCONTRACTS5.00%</div>									
GROUP	TASK	LABOR (or FP)	INDIRECT COST	EXPENSES	*SUB- CONTRACTS	PROFIT ON SUB- CONTRACTS			TOTAL TASK COST
	1	\$5,708		\$12	\$0	\$0			\$5,720
	2	\$19,906		\$9,960	\$253,200	\$12,660			\$295,726
	3	\$16,073		\$4,327	\$0	\$0			\$20,400
<div>*Subcontractors for negotiated professional or technical services, products, etc. (Commodity items available to the general public at market prices, equipment use, and unit priced items are generally included in estimate as expenses.)</div>									
ESTIMATED TOTALS		LABOR (or FP)	INDIRECT COST	EXPENSES	*SUB- CONTRACTS	PROFIT ON SUB- CONTRACTS			TOTAL COST
FOR FIRM:		\$41,687	\$0	\$14,299	\$253,200	\$12,660	\$0	\$0	\$321,846

FIRM: R&M Consultants, Inc.				PROJECT TITLE: MERTARVIK WATERFRONT DEVELOPMENT				DATE: 5/17/2012	
TASK NO: 1		TASK DESCRIPTION: Project Planning		PREPARED BY: PKH					
GROUP: ES	METHOD OF PAYMENT:			FP <input type="checkbox"/>	FPPE <input type="checkbox"/>	T&E <input checked="" type="checkbox"/>	CPFF <input type="checkbox"/>		
SUB-TASK NO.	SUB-TASK DESCRIPTION	LABOR HOURS PER JOB CLASSIFICATION							
		Contract Manager	PM/Geot. Eng.	Senior Geol	Staff Geol/ Eng	Environ. Specialist	Tech Drafting	Clerical Admin.	
A	Project Planning	8	12	24				4	
TOTAL LABOR HOURS		8	12	24	0	0	0	4	
* LABOR RATES (\$/HR)		\$198.87	\$126.44	\$96.37	\$63.84	\$73.66	\$67.52	\$71.81	
LABOR COSTS (\$)		\$1,590.96	\$1,517.28	\$2,312.88	\$0.00	\$0.00	\$0.00	\$287.24	
EXPENSES									
SUB-TASK NO.	ITEM(S)	QUANTITY	UNIT PRICE	TOTAL PRICE		COMMENTS: 1. The estimate assumes the exploration plan included in the scope of work is sufficient and will not need to be expanded on. 2. A site specific safety plan will be prepared.			
A	R&M Vehicle (Mileage)	20	\$ 0.60	\$12.00					
						FIRM'S TOTAL COST OF LABOR (or Fixed Price): \$5,708			
						FIRM'S TOTAL EXPENSES \$12			
						SUBCONTRACTS \$0			
						PROFIT ON SUBCONTRACTS 5.00%			
						TOTAL TASK COST: \$5,720			
FIRM:									
AMOUNT:									

COST ESTIMATE PER TASK

FIRM: R&M Consultants, Inc.			PROJECT TITLE: MERTARVIK WATERFRONT DEVELOPMENT			DATE: 5/17/2012		
TASK NO: 2		TASK DESCRIPTION: FIELD WORK		PREPARED BY: PKH				
GROUP: ES		METHOD OF PAYMENT:		FP <input type="checkbox"/> FPE <input type="checkbox"/> T&E <input checked="" type="checkbox"/> CPFF <input type="checkbox"/>				
SUB-TASK NO.	SUB-TASK DESCRIPTION	LABOR HOURS PER JOB CLASSIFICATION						
		Contract Manager	PM/Geol. Eng.	Senior Geol	Staff Geol/ Eng	Environ. Specialist	Tech Drafting	Clerical Admin.
A	R&M Geologist Mobilization - Demobilization	2	8	56				
B	Field Drilling and Sampling	2	8	104				
C	Field Standby		1	16				
TOTAL LABOR HOURS		4	17	176	0	0	0	0
* LABOR RATES (\$/HR)		\$198.67	\$126.44	\$96.37	\$63.84	\$73.66	\$67.52	\$71.81
LABOR COSTS (\$)		\$795.48	\$2,149.48	\$16,961.12	\$0.00	\$0.00	\$0.00	\$0.00
COMMENTS: 1. Boat Trips are for moving drill crew and geologist between Mertarvik and Newtok using local boats. 2. Lodging on site for the drill crew is included in R&M's expenses. Food for the drill crew is included in Discovery's day rate.								
SUB-TASK NO.		ITEM(S)		QUANTITY	UNIT PRICE	TOTAL PRICE		
A	Airfare (ANC-BET-ANC) Round Trip			1	\$ 650.00	\$ 650.00		
A	Air Charter (BET-EWU) One Way Cessna 207			2	\$ 1,000.00	\$ 2,000.00		
A	Air Freight (ANC-BET) Round Trip/lbs.			500	\$ 2.00	\$ 1,000.00		
A	Boat Trips (EWU-MIER)			4	\$ 250.00	\$ 1,000.00		
A	R&M Vehicle/mile			50	\$0.60	\$ 30.00		
B	Newtok Expeditor/hr			8	\$ 20.00	\$ 160.00		
B	Lodging (est. cost for entire field crew of 3)			8	\$ 325.00	\$ 2,600.00		
B	Food Per Diem (R&M Geologist Only)			8	\$ 60.00	\$ 480.00		
B	Expendable Field Supplies (Est. Cost)			1	\$ 250.00	\$ 250.00		
B	Boat Fuel/gal			25	\$ 8.00	\$ 200.00		
B	Satellite Phone/week			2	\$ 85.00	\$ 170.00		
B	Satellite Phone Minutes			200	\$ 1.75	\$ 350.00		
B	Mapping Grade GPS/GIS Unit Rental/week			2	\$150.00	\$ 300.00		
C	Lodging (Est. Actual Cost for entire crew of 3)			2	\$ 325.00	\$ 650.00		
C	Food Per Diem			2	\$ 60.00	\$ 120.00		
				TOTAL EXPENSES:		\$9,960		
SUB-CONTRACTORS: Firm Initials and Price Per Task								
		Discovery Drilling, Inc.		Quantity / Rate				
B	Mobilization/Demobilization			1	\$143,200 LS	\$143,200		
B	Drilling & Sampling			8	\$11,600 /Day	\$92,800		
C	Standby			2	\$8,600 /Day	\$17,200		
SUBCONTRACTOR TOTAL						\$253,200		
FIRM'S TOTAL COST OF LABOR (or Fixed Price):						\$19,906		
FIRM'S TOTAL EXPENSES						\$9,960		
SUBCONTRACTS						\$253,200		
PROFIT ON SUBCONTRACTS 5.00%						\$12,660		
TOTAL TASK COST:						\$295,726		

COST ESTIMATE PER TASK

FIRM: R&M Consultants, Inc.			PROJECT TITLE: MERTARVIK WATERFRONT DEVELOPMENT			DATE: 5/17/2012		
TASK NO: 3		TASK DESCRIPTION: Geotechnical Data Report						
GROUP: ES		METHOD OF PAYMENT: FP <input type="checkbox"/> FPPE <input type="checkbox"/>		T&E <input checked="" type="checkbox"/>		CPFF <input type="checkbox"/>		PREPARED BY: PKH

SUB-TASK DESCRIPTION		LABOR HOURS PER JOB CLASSIFICATION						
		Contract Manager	PM/Geot. Eng.	Senior Geol	Staff Geol Eng	Environ. Specialist	Tech Drafting	Clerical Admn.
A	Test Hole Logs	1	2	8	12			
B	Laboratory Testing	1	1	8				
C	Geotechnical Data Report	6	24	48	16		12	8
D	Coordinate with DOT&PF Geot. Engineer	1	6	8				
TOTAL LABOR HOURS		9	33	72	28	0	12	8
* LABOR RATES (\$/HR)		\$198.87	\$126.44	\$96.37	\$63.84	\$73.66	\$67.52	\$71.81
LABOR COSTS (\$)		\$1,789.83	\$4,172.52	\$6,938.64	\$1,787.52	\$0.00	\$810.24	\$574.48

EXPENSES		
SUB-TASK NO.	ITEM(S)	TOTAL PRICE
A, B, C	R&M Vehicle (Mileage)	20 \$ 0.60 \$12.00
B	Moisture Tests	48 \$20.00 \$960.00
B	Gradations (w/230 wash)	6 \$250.00 \$1,500.00
B	Atterburgs (3 point - wet prep)	3 \$375.00 \$1,125.00
B	Hydrometer 48 hr.	4 \$140.00 \$560.00
B	Organic Content	2 \$85.00 \$170.00
TOTAL EXPENSES:		\$4,327

SUB-CONTRACTORS: Firm Initials and Price Per Task		
FIRM:		
AMOUNT:		
		\$20,400

COMMENTS:

1. R&M will prepare geotechnical logs and provide boring locations.

2. All soil sample testing will be performed by R&M. Doing the wash over the 230 screen costs an additional \$100 which is included in the unit price shown.

3. We are proposing to perform wet prep Atterburgs as the fine-grained soils in this area are often MH/OH.

FIRM'S TOTAL COST OF LABOR (or Fixed Price):		\$16,073
FIRM'S TOTAL EXPENSES		\$4,327
SUBCONTRACTS		\$0
PROFIT ON SUBCONTRACTS 5.00%		\$0
TOTAL TASK COST:		\$20,400



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

**Department of
Fish and Game**

DIVISION OF HABITAT
Central Region Office

333 Raspberry Road
Anchorage, Alaska 99518-1565
Main: 907.267.2342
Fax: 907.267.2499

FISH HABITAT PERMIT FH 12-II-0181

ISSUED: July 30, 2012
EXPIRES: September 30, 2012

Alaska Department of Transportation and Public Facilities
Attn: Teresa Zimmerman
P.O. Box 196900
Anchorage, AK 99519-6900

Dear Ms. Zimmerman:

Re: Drilling and Water Withdrawal-- Ninglick River
Stream No. 335-40-14800
Sections 33 and 34, T. 9 N., R. 86 W., S.M.

Pursuant to AS 16.05.871(b), the Alaska Department of Fish and Game, Division of Habitat, has reviewed your proposal to conduct a geotechnical investigation for the Mertarvik Waterfront Development Study. This activity was previously authorized by Fish Habitat Permit FH 11-II-0135.

Project Description

You propose to drill six, 4-inch diameter test holes below the mean high tide line of the Ninglick River (see attached map). The drill rig will be operated from a boat or barge. The drilling activity will require withdrawing up to 500 gallons of water per day. Drill cuttings will be discharged over the side of the boat after heavier sand and material has settled out. The settled material will be stock piled at an upland location. The in-water work is expected to take four days.

Anadromous Fish Act

The Ninglick River has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The Ninglick River is known to support coho and pink salmon and whitefish.

In accordance with AS 16.05.871(d), project approval is hereby given subject to the project description above and the following stipulations:

1. To avoid entrainment, impingement, or injury to fish, a properly sized and screened structure must surround the water intake. The screen mesh shall not exceed 0.04 inches and the water velocity at the screen surface shall not exceed 0.1 feet per second. The intake screen shall be periodically monitored during operations to ensure that the screening has not collapsed between the water intake and screen surface, that there are no openings in the mesh or gaps between the mesh and frame of the intake structure greater than 0.04 inches, and that the screen has not become blocked by debris.
2. All settled material from the drill cuttings shall be handled in a manner and deposited in a location sufficient to prevent reintroduction into the Ninglick River.
3. The riverbanks shall not be altered to facilitate the drilling operation or water withdrawal.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly

or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

This permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

Any questions or concerns about this permit may be directed to Habitat Biologist Jim Bales at 267-2143 or emailed to james.bales@alaska.gov.

Sincerely,

Cora Campbell, Commissioner



For: Michael J. Daigneault
Regional Supervisor
Central Region Office

enc: Map

cc: AWT, Bethel

ecc: A. Ott, ADF&G
J. Chythlook, ADF&G
T. Elison, ADF&G
B. Piorkowski, ADF&G
B. Krauss, ADEC
USACE, Regulatory

CONCEPTUAL DRAWING - FOR BIDDING PURPOSES ONLY

River line
(approximate - varies on date,
time, weather, and flow)

Staging Area
(approximate)

Barge landing
(approximate)

Barge landing
concrete planks
(approximate)

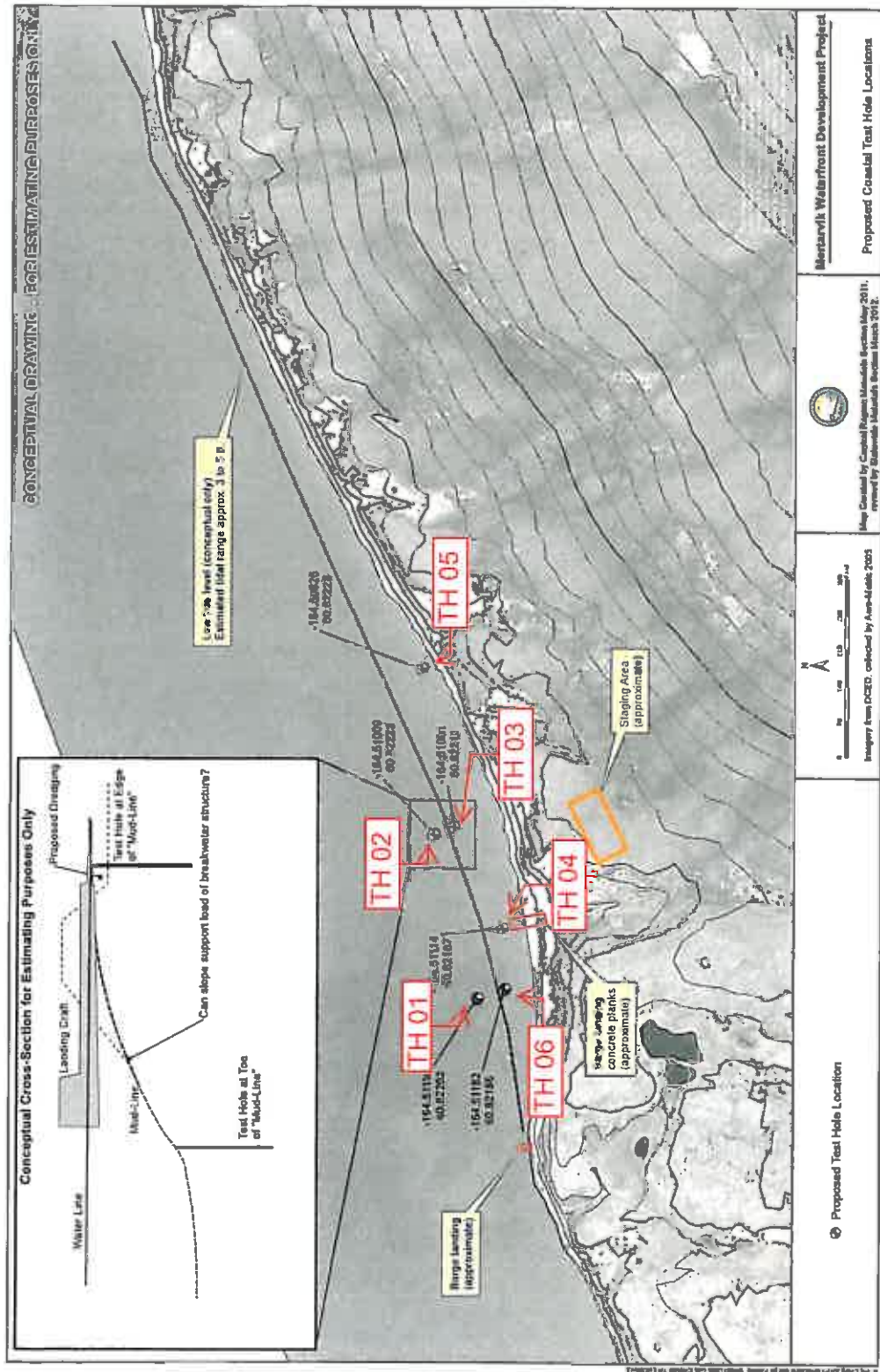
Map Created by Central Region Materials
May 2011



• Proposed August 2011 Test Hole
 - - - Approximate mud-line at low tide (variable)

**APPENDIX C-c
CONSULTANT TEST HOLE LOGS
AND TEST RESULTS
(DRAFT, to be finalized)**

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STANDARD SYMBOLS

SYMBOL	NAME	PARTICLE SIZE	SYMBOL	NAME
	CLAY	< 0.002mm, Plastic		ORGANICS
	SILT	0.002mm, - #200		ICE
	SAND	#200, - #4		ICE W/SOIL INCLUSIONS
	GRAVEL	#4, - 3"		ICE LENSE IN SILT
	COBBLES & BOULDERS	3' - 12' & > 12'		ICE CRYSTALS IN CLAY

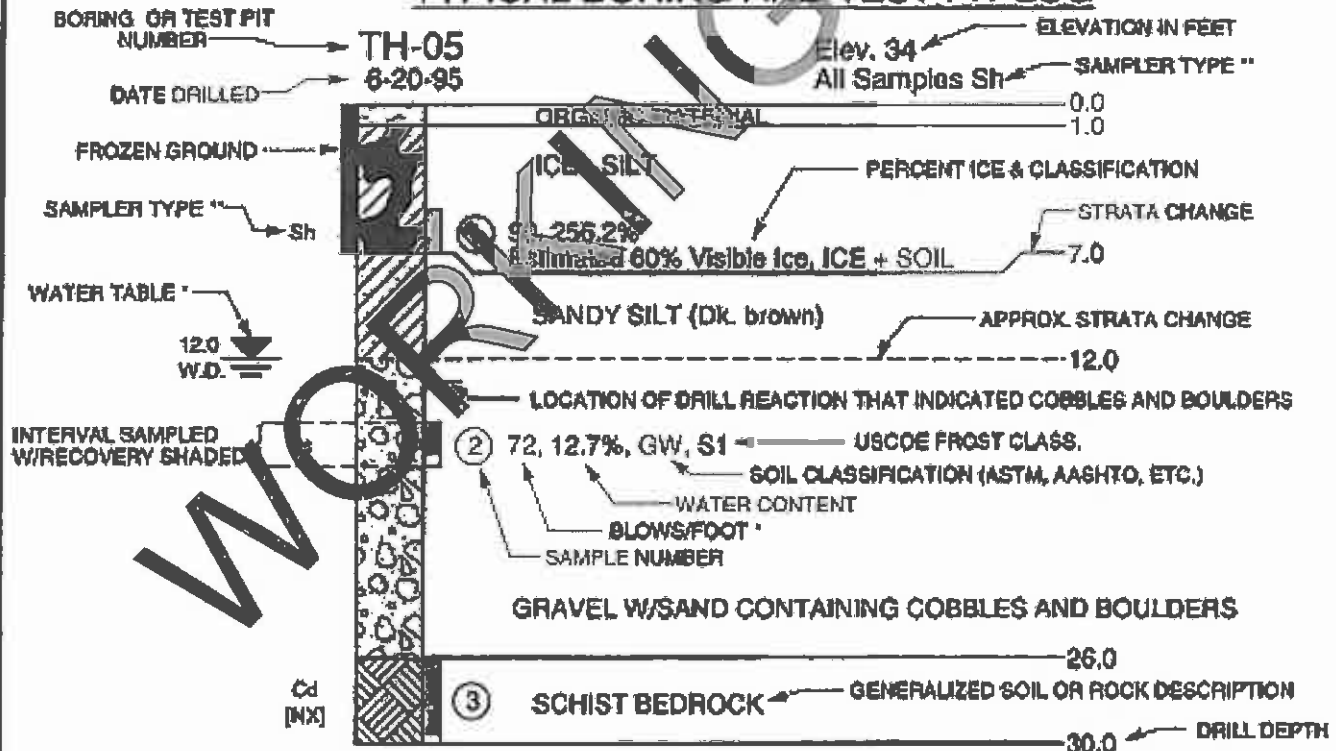
(The symbols shown above are frequently used in combinations, e. g. GRAVEL W/SILT AND SAND)

SAMPLER TYPE SYMBOLS

A Auger Sample	Sh 2.5 in. Split Spoon w/340 lb. Manual Hammer	Sp 2.5 in. Split Spoon Pushed
C Cuttings Sample	Sha 2.5 in. Split Spoon w/340 lb. Auto Hammer	Sz 1.4 in. Split Spoon w/340 lb. Hammer
Cd Double Tube Core Barrel	Sl 2.5 in. Split Spoon w/140 lb. Hammer	Ts Shelby Tube
C1 Triple Tube Core Barrel	Ss 1.4 in. Split Spoon w/140 lb. Manual Hammer	Tm Modified Shelby Tube
Cs Single Tube Core Barrel	Sea 1.4 in. Split Spoon w/140 lb. Auto Hammer	[x] Sampler I. D. (Added to Symbol)
G Grab Sample		

NOTE: Sampler types are either noted above the boring log or adjacent to it at the respective depth. An individual log may not utilize all of the items listed.

TYPICAL BORING AND TEST PIT LOG



* W.D. - WHILE DRILLING, A.B. - AFTER BORING, Ref. - SAMPLER REFUSAL

** - REFER TO SAMPLER SYMBOL (Ss, Sh, ETC.) FOR SAMPLER I.D. & HAMMER WEIGHT/TYPE

NOTE: Water levels shown on the boring logs are the levels measured in the boring at the times indicated.

DWN: P.K.H.
OKD: C.H.R.
DATE: GENERAL
SCALE: NONE

PREPARED BY: R&M CONSULTANTS, INC.

EXPLANATION OF SELECTED SYMBOLS

FB: N/A
GRID: N/A
PROJ. NO: GENERAL
DWG. NO: 7

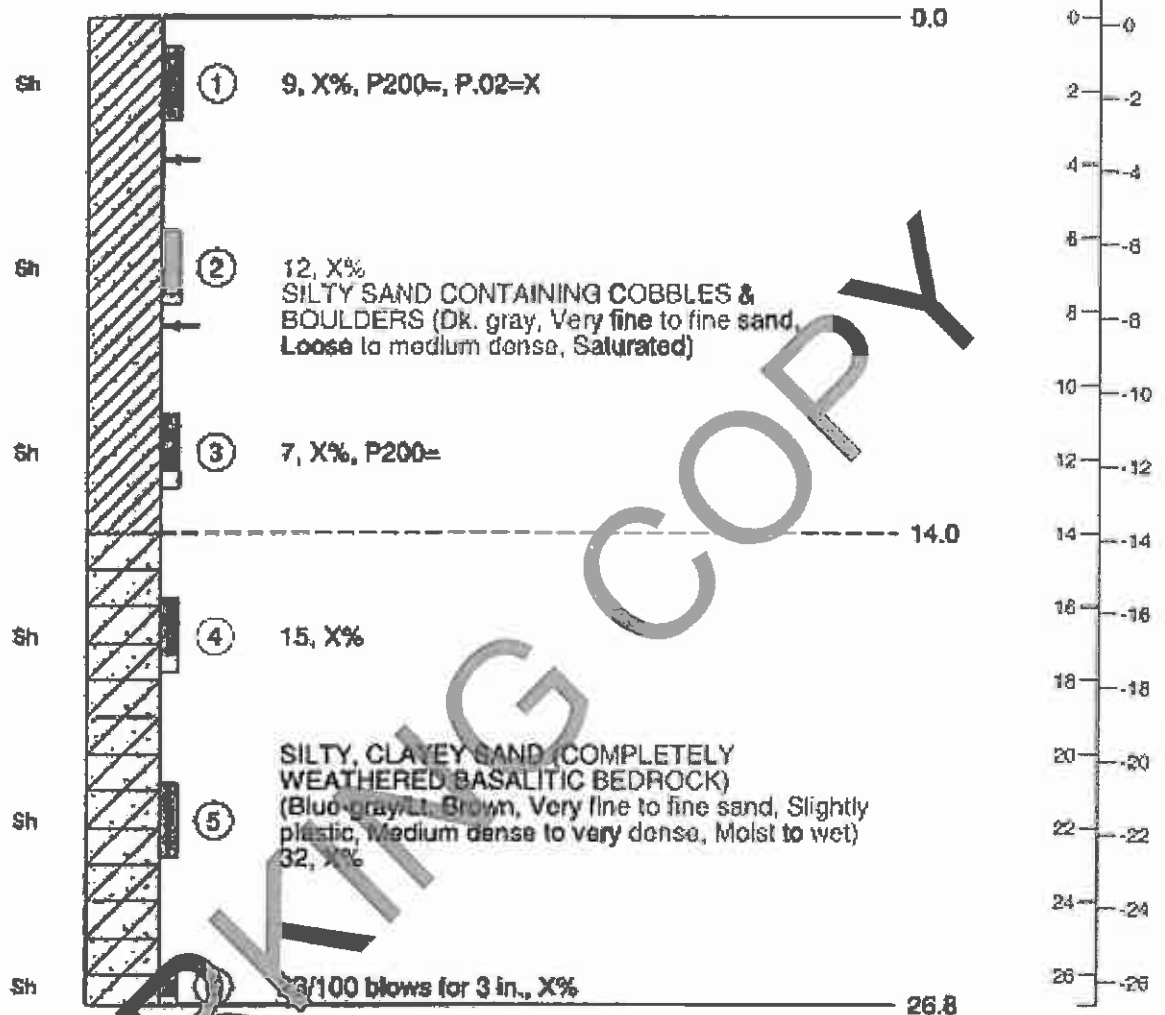
TH12-01(RM-12-01)

N 60.82207

E -164.51181

8/1/12

Elev. 0.2



Estimated classification based in part following ASTM D 2488

Geologist: Aaron T. Banks, C.P.G.

Drill rig: CME 45

Coordinate locations are Geographic/NAD 83 datum

Elevations are based in relation to MLLW elevation

Auger refusal at 26.8

DWN: A.T.B.

CKD: P.K.H.

DATE: AUG. 12

SCALE: 1"=5'

PREPARED BY: R&M CONSULTANTS, INC.

WATERFRONT DEVELOPMENT

MERTARVIK, ALASKA

LOG OF TEST BORING

TH12-01

FB: NA

GRID: BAIRD INL.

PROJ.NO: 1803.02

DWG.NO: 1

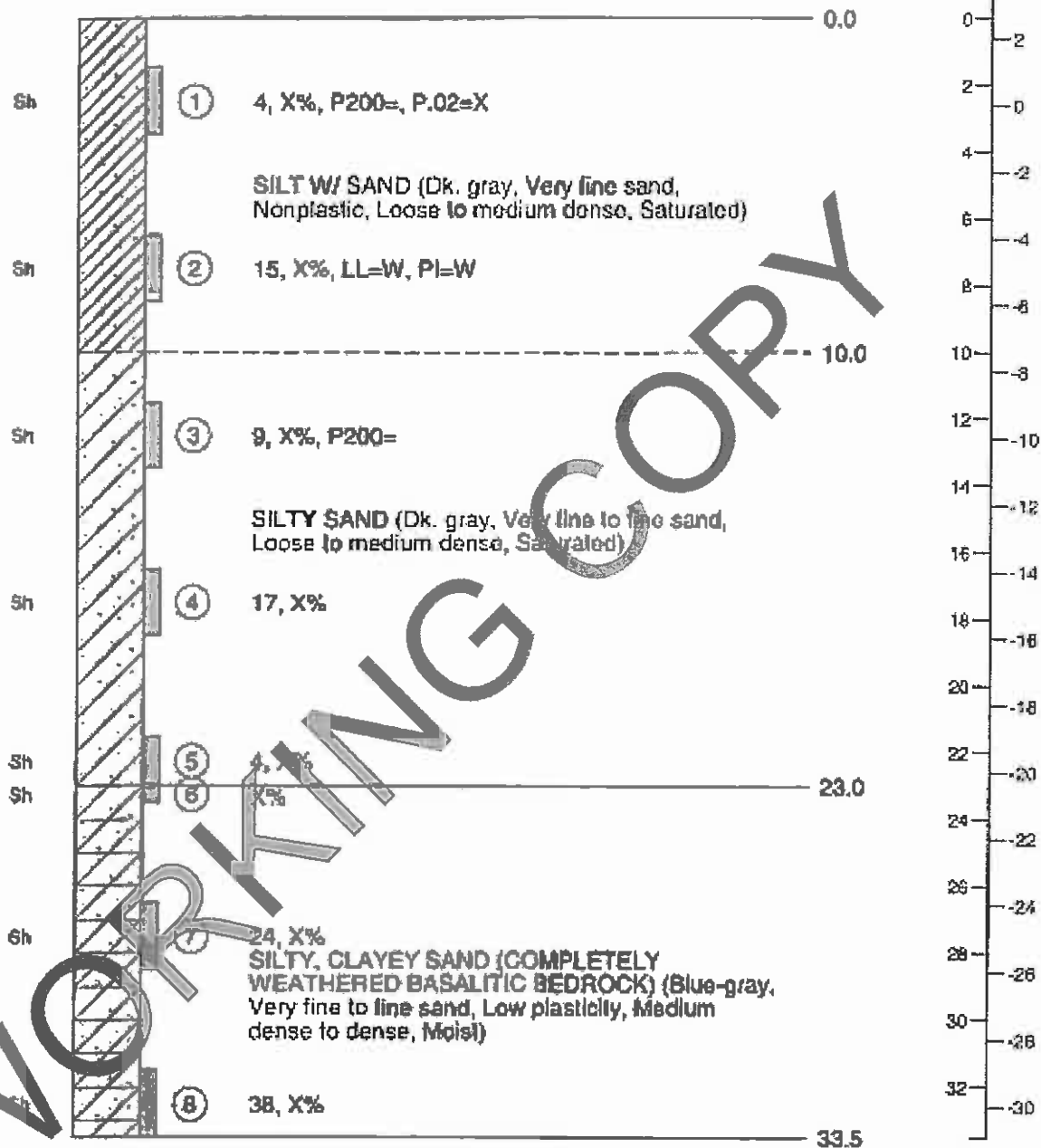
TH12-02(RM-12-02)

N 60.82222

E -164.51016

8/2/12

Elev. 2.6



* Estimated classification based in part following ASTM D 2488

Geologist: Aaron T. Banks, C.P.G.

Drill rig: GME 45

Coordinate locations are Geographic/NAD 83 datum

Elevations are based in relation to MLLW elevation

DWN: A.T.B.

CKD: P.K.H.

DATE: AUG. 12

SCALE: 1"=5'

PREPARED BY: R&M CONSULTANTS, INC.

WATERFRONT DEVELOPMENT

MERTARVIK, ALASKA

LOG OF TEST BORING

TH12-02

FB: NA

GRID: BAIRD INL

PROJ. NO: 1803.02

DWG. NO: 2

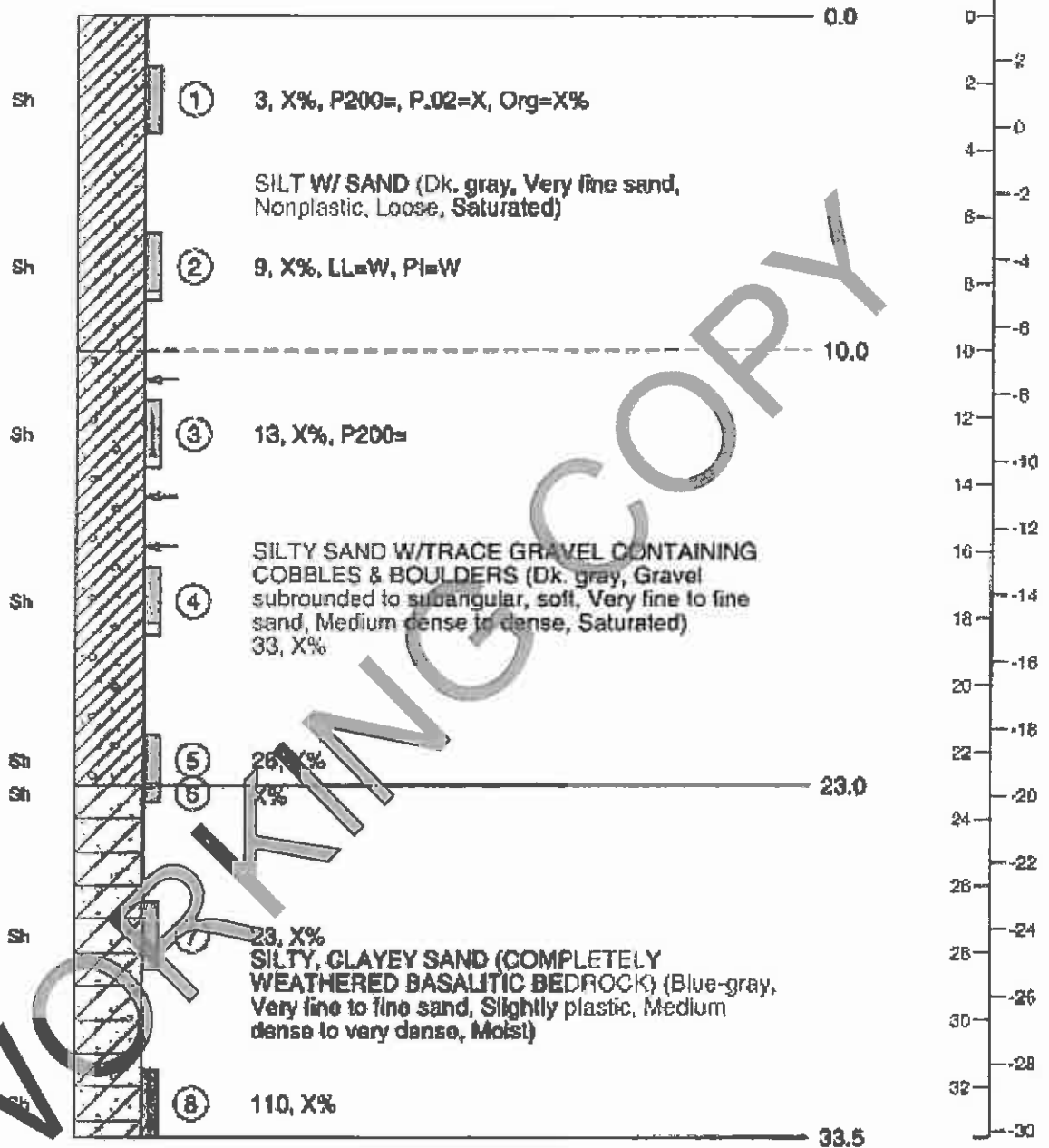
TH12-03(RM-12-03)

N 60.82211

E -164.51005

8/2/12

Elev. 3.3



* Estimated classification based in part following ASTM D 2486

Geologist: Aaron T. Banks, C.P.G.

Drill rig: CME 45

Coordinate locations are Geographic/NAD 83 datum

Elevations are based in relation to MLLW elevation

DWN: A.T.B.

CKD: P.K.H.

DATE: AUG. 12

SCALE: 1"=5'

PREPARED BY: R&M CONSULTANTS, INC.

WATERFRONT DEVELOPMENT

MERTARVIK, ALASKA

LOG OF TEST BORING

TH12-03

FB: NA

GRID: BAIRD INL.

PROJ.NO: 1803.02

DWG.NO: 3

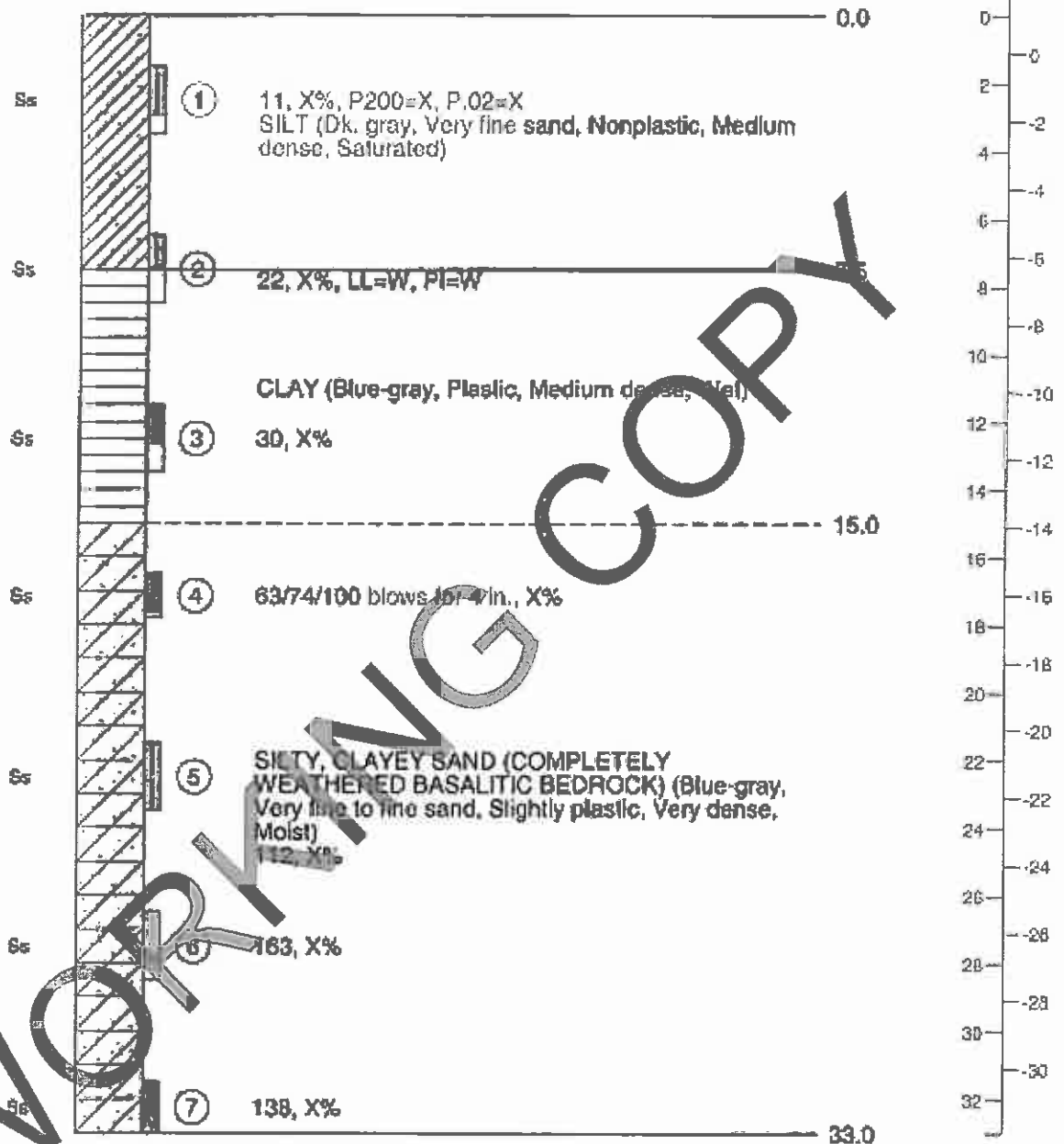
TH12-04(RM-12-04)

N 60.82194

E -164.51118

8/3/12

Elev. 1.1



* Estimated classification based in part following ASTM D 2488

Geologist: Aaron T. Banks, C.P.G.

Drill rig: CME 45

Coordinate locations are Geographic/NAD 83 datum

Elevations are based in relation to MLLW elevation

DWN: A.T.B.
CKD: P.K.H.
DATE: AUG. 12
SCALE: 1"=5'

PREPARED BY: RBM CONSULTANTS, INC.

WATERFRONT DEVELOPMENT
MERTARVIK, ALASKA
LOG OF TEST BORING
TH12-04

FB: NA
GRD: BAIRD INTL.
PROJ. NO: 1803-02
DWG. NO: 4

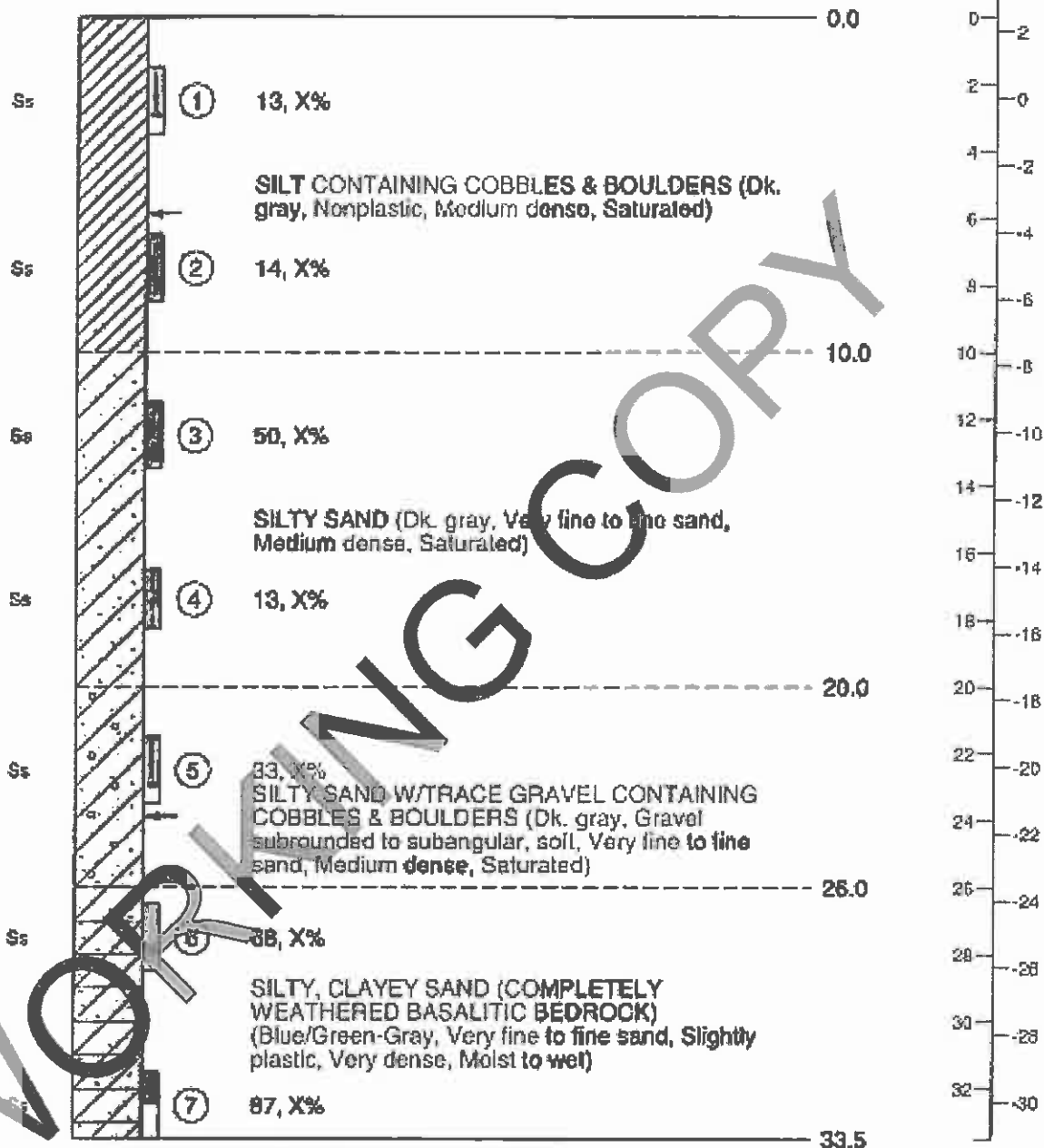
TH12-05(RM-12-05)

N 60.82242

E -164.50812

8/3/12

Elev. 2.4



* Estimated classification based in part following ASTM D 2486

Geologist: Aaron T. Banks, C.P.G.

Drill rig: CME 45

Coordinate locations are Geographic/NAD 83 datum

Elevations are based in relation to MLLW elevation

DWN: A.T.B.

CKD: P.K.H.

DATE: AUG. 12

SCALE: 1"=5'

PREPARED BY: RAM CONSULTANTS, INC.

WATERFRONT DEVELOPMENT

MERTARVIK, ALASKA

LOG OF TEST BORING

TH12-05

FB: NA

GRID: BAIRD INL.

PROJ.NO: 1803.02

DWG.NO: 5

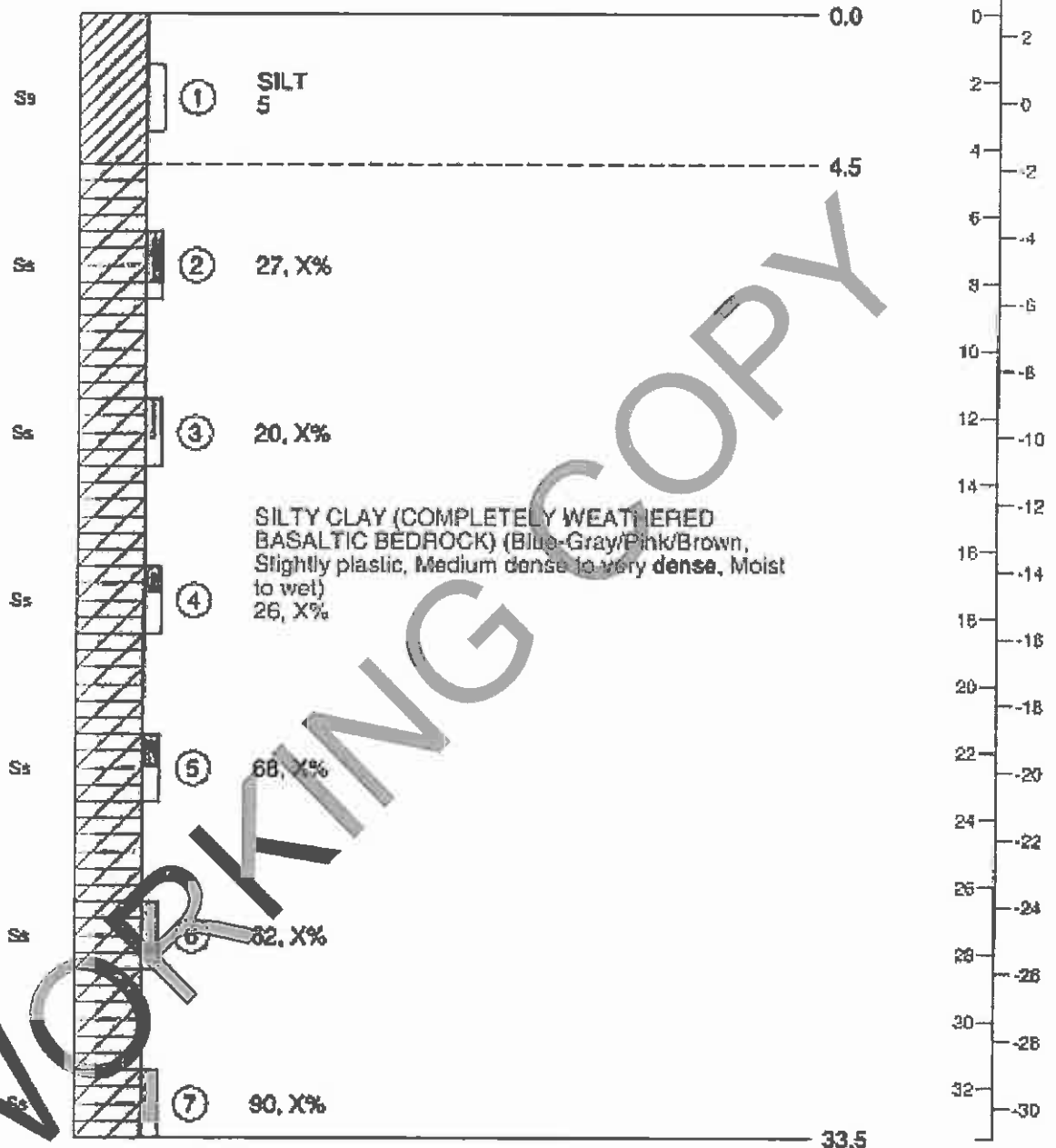
TH12-06(RM-12-06)

N 60.82194

E -164.51174

8/4/12

Elev. 2.6



* Estimated classification based in part following ASTM D 2488

Geologist: Aaron T. Banks, C.P.G.

Drill rig: CME 45

Coordinate locations are Geographic/NAD 83 datum

Elevations are based in relation to MLLW elevation

DWN: A.T.B.

CKD: P.K.H.

DATE: AUG. 12

SCALE: 1"=5'

PREPARED BY: R&M CONSULTANTS, INC.

WATERFRONT DEVELOPMENT

MERTARVIK, ALASKA

LOG OF TEST BORING

TH12-06

FB: NA

GRID: BAIRD INL.

PROJ. NO: 1803.02

DWG. NO: 6

2. PRODUCT: MERTARVIK WATERFRONT DEVELOPMENT
3. DEVELOPMENT: GEOTECHNICAL INVESTIGATION/EARLY STAGE WATERFRONT DEVELOPMENT

MASTER ONE COPY: MERTARVIK WATERFRONT DEVELOPMENT, 041 MERTARVIK, 99572

APPENDIX C-d
ADOT&PF GEOTECHNICAL REPORT
(DRAFT, to be finalized)

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