

Previously Received Correspondence: Trust Land Exchange

Menefee, Wyn (DNR)

From: Trust Land Office (DNR sponsored)
Sent: Friday, August 26, 2016 9:57 AM
To: Slenkamp, Paul E (DNR); Menefee, Wyn (DNR)
Subject: FW: Deer Mountain timber sale

Good Morning,

This was received through the TLO e-mail.

Thanks,

~Britt

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

From: Bob Sivertsen [mailto:rwsivertsen@gmail.com]
Sent: Friday, August 26, 2016 8:57 AM
To: Trust Land Office (DNR sponsored) <mhtlo@alaska.gov>
Subject: Deer Mountain timber sale

From: Bob Sivertsen <rwsivertsen@gmail.com>
Subject: Deer Mountain timber sale

Message Body:

I think it is sad day when the trust holds Alaska Communittees at risk and uses that leverage to try and force the federal government into a deal. I have lost faith in the Trust and its members. Where is the accountability in this, you are effecting the mental health of our community in a negative manner. This is a bad decision made out of frustration. I am pro resource development and have supported logging all my life. What you are doing in regards to the Deer Mountain Log sale is wrong on many levels. I believe you will be creating enemies out of at least two Southern Southeast Communittees. Ketchikan has been over regulated, turned into roadless and has had its economy depressed be federal over site, but we never lost our humanity, as I fear the trust has.

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This e-mail was sent from a contact form on Trust Land Office (<http://mhtrustland.wpengine.com>)

Menefee, Wyn (DNR)

From: Trust Land Office (DNR sponsored)
Sent: Wednesday, August 31, 2016 8:25 AM
To: Menefee, Wyn (DNR); Slenkamp, Paul E (DNR)
Subject: FW: Proposed logging of Deer Mt in Ketchikan

Good Morning-

This came in last night through the TLO e-mail.

Thanks,

~Britt

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

From: Sharon Boatwright [mailto:sharcolb@icloud.com]
Sent: Tuesday, August 30, 2016 9:32 PM
To: Trust Land Office (DNR sponsored) <mhtlo@alaska.gov>
Subject: Proposed logging of Deer Mt in Ketchikan

From: Sharon Boatwright <sharcolb@icloud.com>
Subject: Proposed logging of Deer Mt in Ketchikan

Message Body:

Please do not consider this travesty . This mountain is the scenic backdrop to our community. It is also an important recreational site and a draw for tourists who are so important to the financial well being of Ketchikan.

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This e-mail was sent from a contact form on Trust Land Office (<http://mhtrustland.wpengine.com>)

Menefee, Wyn (DNR)

From: Trust Land Office (DNR sponsored)
Sent: Friday, September 02, 2016 7:43 AM
To: Slenkamp, Paul E (DNR); Menefee, Wyn (DNR)
Subject: FW: Logging Deer Mt.

Good Morning Gentlemen,

Here's another comment regarding Deer Mountain.

Thanks,

~Britt

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

From: Martha Jacobson [mailto:alaskababayaga@kpunet.net]
Sent: Thursday, September 01, 2016 5:04 PM
To: Trust Land Office (DNR sponsored) <mhtlo@alaska.gov>
Subject: Logging Deer Mt.

From: Martha Jacobson <alaskababayaga@kpunet.net>
Subject: Logging Deer Mt.

Message Body:

You have got to be kidding! You threaten to log the predominate scenic mt. that towers over Ketchikan. This is "our mountain". - we climb it; we blast fireworks off it; we admire it ; it is a landmark the people here in this town treasure. Take your spat with congress somewhere else that won't be noticed.

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This e-mail was sent from a contact form on Trust Land Office (<http://mhtrustland.wpengine.com>)

Menefee, Wyn (DNR)

From: Trust Land Office (DNR sponsored)
Sent: Wednesday, August 24, 2016 11:44 AM
To: Morrison, John S (DNR); Menefee, Wyn (DNR); Slenkamp, Paul E (DNR)
Subject: FW: Logging Downtown Ketchikan/Deet mounts in

Michelle M. Steelman
Executive Assistant
Trust Land Office
2600 Cordova Street, Suite 100
Anchorage, AK 99503
(907) 269-8674 (Direct)
(907) 269-8905 (Fax)
michelle.steelman@alaska.gov
www.mhtrustland.org

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

From: Bob Weinstein [mailto:bobalaska@gmail.com]
Sent: Wednesday, August 24, 2016 10:45 AM
To: Trust Land Office (DNR sponsored) <mhtlo@alaska.gov>
Subject: Logging Downtown Ketchikan/Deet mounts in

From: Bob Weinstein <bobalaska@gmail.com>
Subject: Logging Downtown Ketchikan/Deet mounts in

Message Body:

I read today that Trust staff is holding this project over our heads once again.

I am completely opposed to logging Deer Mountain, and have started an organization called the "Alaska Mental Health Trust is Driving Me Crazy" to stop this foolish idea.

People here have supported the land exchange for years. Don't punish Ketchikan and Petersburg for Congressional gridlock.

Bob Weinstein
Ketchikan

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This e-mail was sent from a contact form on Trust Land Office (<http://mhtrustland.wpengine.com>)

From: Smith, Miri K (DOR)
To: [Kreiss-Tomkins, Jonathan S \(LAA\)](#)
Cc: [Williams, Stephen F \(DOR\)](#); [Lawrence, Carley J \(DOR\)](#)
Subject: RE: AMHT Petersburg Timber: Letter of Concern
Date: Monday, November 14, 2016 1:44:00 PM
Attachments: [AMHT Petersburg Letter of Concern.pdf](#)

Representative Kreiss-Tomkins:

Thank you for taking the time to submit your written comments. We will make sure the full Board of Trustees receives them.

Have a great day!

Miri K. Smith-Coolidge
Alaska Mental Health Trust Authority
Phone: 907.334.2533
Cell: 907.632.1836
Fax: 907.269.7966
Email: miri.smith-coolidge@alaska.gov

www.mhtrust.org

From: Menefee, Wyn (DNR)
Sent: Monday, November 14, 2016 1:18 PM
To: Smith, Miri K (DOR) <miri.smith-coolidge@alaska.gov>; Williams, Stephen F (DOR) <steve.williams@alaska.gov>
Cc: Morrison, John S (DNR) <john.morrison@alaska.gov>
Subject: FW: AMHT Petersburg Timber: Letter of Concern

I have just been reviewing through letters or emails that we have received for the exchange and this one actually states some things about the Petersburg and Ketchikan sales and should be included in the board materials.

Wyn Menefee
Deputy Director
Alaska Mental Health Trust Land Office
2600 Cordova Street, Suite 100
Anchorage, AK 99503
(907) 269-8753 (Direct)
(907) 269-8905 (Fax)
wyn.menefee@alaska.gov
www.mhtrustland.org

From: Trust Land Office (DNR sponsored)

Sent: Friday, October 21, 2016 8:04 AM

To: Morrison, John S (DNR) <john.morrison@alaska.gov>; Menefee, Wyn (DNR) <wyn.menefee@alaska.gov>

Subject: FW: AMHT Petersburg Timber: Letter of Concern

Good Morning,

This came in through the TLO e-mail.

Thank you,

~Britt

From: Rep. Jonathan Kreiss-Tomkins [<mailto:Rep.Jonathan.Kreiss-Tomkins@akleg.gov>]

Sent: Thursday, October 20, 2016 4:57 PM

To: Trust Land Office (DNR sponsored) <mhtlo@alaska.gov>; estewart@fs.fed.us

Cc: sgiesbrecht@petersburgak.gov; dthompson@petersburgak.gov; fvtalon@icloud.com; Sen. Bert Stedman <Sen.Bert.Stedman@akleg.gov>; Rep. Daniel Ortiz <Rep.Daniel.Ortiz@akleg.gov>; Kaciep@kgbak.us; Ephraim_Froehlich@Murkowski.Senate.Gov; Erik_Elam@Sullivan.Senate.Gov; Grant.Schultz@mail.house.gov; bpendleton@fs.fed.us; Menefee, Wyn (DNR) <wyn.menefee@alaska.gov>; Hozey, John F (GOV) <john.hozey@alaska.gov>

Subject: AMHT Petersburg Timber: Letter of Concern

Mr. Stewart and Mr. Morrison,

Please find the attached letter for your consideration.

Thank you,

Representative Jonathan Kreiss-Tomkins

ALASKA LEGISLATURE

Representative Jonathan Kreiss-Tomkins

Angoon · Coffman Cove · Craig · Edna Bay · Elfin Cove · Game Creek · Hollis · Hoonah · Kake · Kasaan · Klawock · Kupreanof · Naukati
Pelican · Petersburg · Point Baker · Port Alexander · Port Protection · Sitka · Tenakee Springs · Thorne Bay · Whale Pass

rep.jonathan.kreiss-tomkins@akleg.gov

Committees:
Fisheries
Judiciary
Rules
State Affairs



Juneau, Alaska 99801 (Jan. – April)
State Capitol, Room 426
(907) 465-3732

Sitka, Alaska 99835 (May – Dec.)
201 Katlian Street, Ste. 103
(907) 747-4665

Alaska Mental Health Trust Authority
Trust Land Office
John Morrison, Executive Director
3745 Community Park Loop, Suite 200
Anchorage, AK 99508

U.S. Forest Service
Tongass National Forest
M. Earl Stewart, Forest Supervisor
648 Mission Street
Ketchikan, AK 99901

October 20, 2016

Mr. Morrison and Mr. Stewart:

As the representative for rural communities throughout Southeast Alaska, I understand the importance of putting the interests of constituents first.

The Alaska Mental Health Trust (AMHT)'s decision to remove timber from the slopes above Mitkof Highway could generate income for the Trust's beneficiaries and provide wood to our local timber industry. These benefits, however, come at an unacceptable risk to the safety and security of families, infrastructure, and those transiting the highway downslope.

Our region's diverse livelihoods collectively sustain our communities, and for the most part work in unison. Alaskans work together and ensure that the success of one does not preclude another.

In this case, a benefit to the Trust's beneficiaries and local industry, is competing with our region's most valuable asset – people. The potential to harm or displace families from the homes in which they live is a concern that should be prioritized above all else.

Professional scientific analysis shows that the stability of the already landslide-prone slope above Mitkof Highway will be greatly diminished by removing trees, regardless of timber harvest method. Research suggests the proposed sale will negatively affect water quality and risk personal safety along the highway corridor where many Petersburg families live and commute.

Fortunately, in this difficult situation, an alternative exists.

I strongly urge the AMHT and U.S. Forest Service to continue and expeditiously pursue a land exchange process, and remove the unworkable January 15, 2017, deadline imposed by the AMHT.

The proposed land exchange is a worthwhile compromise that will provide harvestable wood to our region's timber industry, protect public safety, and generate income to the Trust.

Sincerely,

A handwritten signature in black ink, appearing to read 'JKT' or similar, written in a cursive style.

Representative Jonathan Kreiss-Tomkins

CC: Petersburg Borough Assembly, Petersburg Administrator Stephen Giesbrecht, Mitkof Highway Homeowner's Association, Governor Bill Walker, Senator Bert Stedman, USFS Regional Forester Beth Pendleton, Rep. Dan Ortiz, Ketchikan Gateway Borough, Senator Lisa Murkowski, Senator Dan Sullivan, Rep. Don Young

Trust
Alaska Mental Health
Trust Authority

3745 Community Park Loop, Suite
200
Anchorage, AK 99508
907-269-7960
www.mhtrust.org

Bob Weinstein
PO Box 7801
Ketchikan, Alaska 99901

Mr. Weinstein:

Respectfully, while trustees appreciate your public policy expertise and advocacy on behalf of the interests of your community, we suggest that your approach in response to our decision to conditionally approve timber sales on Trust land near Ketchikan and Petersburg is both misguided and misdirected. More importantly it is counterproductive to your cause.

With your level of experience in public policy we would expect a higher level of discourse than "conspiracy theory" allegations and inflammatory accusations, even when they are couched in legalese. Your message exemplifies the time-worn tactic: "If you can't win on substance attack the process". To that you have added the discredited but popular political tactic of avoiding substance all together and publicly demonizing your "opponent" - the Trust.

Before addressing your tactical process charges I want to address the substance of the issues at hand.

As a supporter of the timber industry in Southeast Alaska you are doubtless aware the industry has been in decline for years. A very limited supply of timber now available for harvest makes the entire future of the industry precarious, along with the jobs and other contributions by the industry to the economies of communities in Southeast.

We understand that timber industry operators have an available supply of timber to support operations only through 2017. We also understand the US Forest Service will not be able to sell any substantial quantities of timber for another 5 years. The Trust has been told that if no additional harvestable timber comes to market soon there is a high probability, nearing certainty, that the industry will be forced to cease operations in Southeast entirely. Once timber operations in Southeast have ended it is our understanding that it would be highly unlikely they would be restarted in the future.

As a former mayor of the City of Ketchikan you have, I am told, been fully aware that the Deer Mountain land being considered by the Trust for timber harvest is private trust land, not public land owned by the federal or state governments or the community.

You are likely also aware that the Trust has sought for years to gain value from the Deer Mountain parcel in ways that would accommodate community interests. We tried to sell that and other parcels near

Southeast communities to the Forest Service. That failed. We have, for 10 years now, been pursuing an administrative land exchange with the Forest Service. A decision made by the Forest Service to exclude the exchange from the recent Tongass Forest Plan Amendment virtually eliminated the likelihood it would ever occur. The administrative exchange process, for all practical purposes, has failed.

The Trust is left with only two viable options: achieve a land exchange through Congressional action or log its Deer Mountain parcel and other parcels before the timber industry dies and the land no longer has commercial value.

I am told that, though supportive of logging on other Trust lands near Ketchikan, you have been adamant that the Trust "would never log Deer Mountain". I can appreciate your passion for protecting the city viewshed and land that has come to be viewed and used by the community as local public park land. As Ketchikan residents recently wrote to trustees:

"The people who live in Ketchikan deserve to be surrounded by beauty, not a clear cut. Deer Mountain is used year round recreationally for hiking, winter sports, photography, nature viewing, and so much more. Each year, over 800,000 tourists pass through Ketchikan and they all see the iconic Deer Mountain."

"Logging Deer Mountain would destroy the very soul of Ketchikan. Deer Mountain is not only a very important recreational area for residents; it is the iconic backdrop for views and photos of our city as well as a major tourist attraction."

"Deer Mountain is integral to the health and happiness of our community. It is an iconic part of our home and is used for recreational purposes for the community and a scenery that tourists and locals alike can appreciate."

I know how these persons feel. During the nearly 30 years I resided in Juneau I lived immediately across the street from Trust land which I, too, used and valued. It was what I saw from my yard. I hiked the land regularly on my way up Mount Jumbo. I walked my dogs on it regularly. I hunted grouse and ptarmigan there. It was invaluable to me. But it was not my land and it was not public land. It was private trust land to which I had no right and over which I had no rightful control. My use of the land was something allowed as a courtesy by the owner - the Trust.

I had no more right to stop the Trust from developing that land than I had to stop my neighbor from clearing and building on his vacant lot next door to me if he needed income to care for his family. We can come to be passionate about things over which we have no rights. Our passion, however, does not create a right or justify preventing others from exercising their rights or meeting their responsibilities.

Your experience working with the Trust in relation to other timber parcels near Ketchikan surely gave you an understanding of the mission of the Trust. As a former public official I am also sure you understand the responsibilities of trustees to those for whom they hold a trust responsibility. You are clearly aware, as is the community at large, that the Trust has, for years, accommodated community recreational and other use of the Deer Mountain parcel at no cost to citizens as part of our "good neighbor" policy. This does not seem to demonstrate "contempt" for Ketchikan's citizens.

Your recent comments to the Ketchikan Daily News, reacting to our decision to conditionally approve a timber sale, indicates you also believe the Trust's Deer Mountain parcel has significant economic value to

the City of Ketchikan, as do others who have written us. The August 26 article, announcing your co-founding of a "Save Deer Mountain" group "for the sole purpose of stopping" the Trust timber sale on Deer Mountain indicates:

"Weinstein says logging Deer Mountain, which is right next to the City of Ketchikan, would adversely affect not just the look of the community, but its economy. The area that would be logged directly faces the town, and any visitor coming here would have a clear view of a clearcut. The visitor industry has become a huge part of the local economy, especially following the decline of the timber industry."

You seem to have a thorough and intimate understanding of the very high value placed on the Trust's Deer Mountain parcel by Ketchikan's citizens and a strong view of the economic importance of that parcel to the community. You are also exceptionally familiar with governmental processes and have been in a position with responsibility to use those processes to protect the interests of Ketchikan in the Deer Mountain parcel.

Trustees find it puzzling that your knowledge, public policy expertise, and obvious passion for protecting the community interest in the Trust's Deer Mountain parcel did not result in a proposal to purchase it or otherwise secure community interest in it during your twelve years as mayor of the City of Ketchikan. Neither trustees nor staff can recall proposals from you or other past community leaders of alternatives to logging that would have secured community interests while allowing the Trust to protect the interests of our beneficiaries.

We know of no efforts or suggestions by you or other community leaders to seek state legislation for a land exchange or purchase of the parcel by the state. We have been informed of no efforts by the community to work with organizations such as The Nature Conservancy to purchase the Deer Mountain parcel to preserve at least the economic interests of the community in its treasured viewshed.

Your message and public statements regarding trustee actions have ascribed nefarious motives to us and accused us of "...utter disregard for the public process, arrogance and frankly contempt for the people of Ketchikan". You accuse us of seeking to deny citizens an opportunity to be heard regarding these matters, being "disingenuous", and adopting "poor public policy". You focus on process not the substance of these issues.

Respectfully, I suggest that your efforts to "Save Deer Mountain" would be most usefully directed toward achieving an outcome that serves the interests of both the residents of Ketchikan and beneficiaries of the Trust. Trustees have done so for many years, including while you were mayor of Ketchikan. We would welcome your focus on an actual result that protects your community and Trust beneficiaries.

Demonizing trustees, ascribing nefarious motives to our actions, and focusing on minutiae to find procedural errors and force repetition of our decision process will not "Save Deer Mountain". Only constructive effort that advances Congressional action to effect a land exchange or development of other alternative methods through which the Trust can gain value from the parcel without logging it will do so.

If, however, demonizing trustees was part of a conscious fundraising strategy to enable your group to purchase the Deer Mountain parcel, I hope you succeed.

Trustees would certainly be interested in selling the land either directly to your group or to the local government, if doing so was in the best interests of our beneficiaries. That could solve a dilemma for the Trust and the residents of Ketchikan. It would not solve broader problems for other communities in Southeast, the Southeast timber industry, and the Trust that would be solved by Congressional action on a land exchange. But, it might be a feasible solution to the Deer Mountain dilemma which seems to be your "sole" purpose.

To directly address some of the process concerns/allegations raised in your message, in the order raised:

1. Trustees hurriedly called a special meeting "to make this decision in a manner that denied a meaningful opportunity for concerned citizens of Ketchikan and elsewhere to be heard."

The August 24 meeting of the board of trustees was not called "hurriedly" or to deny "meaningful opportunity for concerned citizens" to be heard. It was called following consideration of the timber sales at an August 11 Resource Management Committee meeting attended by all trustees. That meeting had long been planned and had been noticed to the public as required. The consultations regarding timber sales were not originally contemplated but were added to the agenda after TLO staff advised trustees of factors affecting the Trust's financial condition and ability to generate needed income. The timber sales and factors making Trust action imperative were discussed.

A meeting of the full board was scheduled for the same day, August 11, and a committee recommendation to approve the timber sales could have been considered by the board on that day. Instead, consideration and action on the timber sale was postponed until the special meeting on August 24 to allow the TLO to notify government leaders in the affected communities and make information about the proposed sales available for public review and download.

In considering action on the timber sales the board was cognizant that the public will have multiple opportunities to comment on the proposed timber sales before final decisions are made to proceed. Public comments will be taken in future meetings of the board and in the prescribed process that will occur *if* further action becomes necessary to actually implement the timber sales.

It is important, however, for you and other members of the public to understand that passionate comments about the value of the Trust's Deer Mountain parcel for community recreation and in promoting and sustaining tourism in the community will not, and cannot, be determinative. What **must** be determinative is ***the best interests of the Trust and its beneficiaries***. Community recreational and economic interests are important, of course, but cannot legally or ethically determine the final decision of trustees.

2. By setting a deadline of January 15, 2017, the board and staff are being disingenuous.

Trustees delayed further action to move forward with the timber sales until January 15, 2017. We further conditioned such action on failure of legislation directing the desired land exchange with the Forest Service. We have been and continue to work with Alaska's congressional delegation and others to pass an exchange bill during this Congress. We are told doing so will be challenging but not impossible. If we thought it impossible we would not waste time pursuing it.

An exchange would make the proposed Ketchikan and Petersburg area timber sales unnecessary by assuring the Trust could market a sufficient alternative supply of timber to maintain the viability of the timber industry and gain value from our timber lands. If Congressional action does not direct the exchange during this session it will be necessary for the Trust to initiate further action to assure there is a market for Trust timber after the existing supply is exhausted at the end of 2017. That process will require time and would need to be completed before timber operators run out of timber.

This is not "disingenuous". It is recognition of cold, hard facts that threaten the value of Trust land.

3. Having been involved in government in Alaska for many years, I believe this decision is not only an example of poor public policy but a poor public process as well. It appears to me that the decision process...was very possibly unlawful by violating the Alaska Open Meetings Act.

I appreciate your extensive government experience. I too have been privileged to be a public servant in Alaska for more than 30 years.

I thank you for articulating the basis for your opinion that the Trust's actions embody "a poor public process". It is not clear to me, however, how you reached your conclusion that our decision represents "poor public policy".

I'm sure your expansive knowledge of law and your depth of understanding of public policy far exceed my own. With my limitations in mind, however, I simply disagree with your opinion. Here's why:

Trustee's acted on August 24 without great discussion or debate because they had previously considered these matters at the August 11 Resource Management Committee meeting. All trustees participated in that meeting and they unanimously approved moving the matter to the board level for a decision. The executive session considered issues material to the Trust's finances, which if publicly discussed, would clearly have an adverse effect upon the financial condition of the Trust and harm Trust beneficiaries.

As you noted, when a motion was made at our August 24 meeting to conditionally approve the initial step toward a timber sale there was little discussion. The facts, as presented in the two written consultations in the Resource Management Committee and in executive session, made obvious to trustees that conditional approval of the timber sales was in the best interests of our beneficiaries. Trustees were of one mind. There was no disagreement to debate. The motion was adopted unanimously.

Because there was no disagreement or debate, I placed on the record my understanding of the reasoning underlying trustee actions as derived from our August 11 Resource Management Committee discussion - precisely so the public could understand the basis of our action. Trustees agreed unanimously.

You provide no information or substantive argument supporting your opinion that our decision is "poor public policy" or not in the best interests of the Trust and our beneficiaries. Your argument is that the process we employed is flawed. I do not believe or concede the process was flawed.

However, if it were flawed, the remedy is, as you suggest, a complete reconsideration of the matter. Such reconsideration would allow opportunity for the public to provide input and the Trust to review their decision in light of that input. Such opportunities are already available to the public. The public may comment on our action in writing at any time as you and others have already done. Interested persons

will also have an opportunity to provide information during public comment periods at the board's upcoming meetings on September 7 and November 17, and following a Best Interest Decision regarding the timber sales, *if* a sale ever becomes necessary.

I can assure you with absolute certainty: if you or any other person brings to the attention of trustees information demonstrating that our action in conditionally approving these timber sales is not in the best interests of the Trust or our beneficiaries **we will rescind our action**.

However, passionate demands for preservation of free recreational opportunities for community residents will not be persuasive. Nor will advocacy for the Trust to forego our only opportunity to gain economic value for beneficiaries in order to preserve, without compensation, the economic value of the parcel to the community.

For the reasons I have explained trustees reject your request to rescind our action in approving, conditionally, timber sales near Ketchikan and Petersburg.

We hope you, the "Save Deer Mountain" group, and the citizens of Ketchikan will vigorously support a land exchange as the Ketchikan City Council has done on behalf of the community in adopting Resolution No. 16-2637 on September 1. We do not believe a land exchange is impossible during this session of Congress. Difficult, certainly. Impossible, no.

If you do not wish to support the exchange we encourage you to take other constructive actions that will further both the interests of Trust beneficiaries and your community.

Respectfully,

Russ Webb
Chair

Bob Weinstein
PO Box 7801
Ketchikan, Alaska 99901
September 4, 2016

Russ Webb, Chair
Alaska Mental Health Trust Authority
3745 Community Park Loop, Suite 200
Anchorage, AK 99508

"I always cheer up immensely if an attack is particularly wounding because I think, well, if they attack one personally, it means they have not a single political argument left."

Margaret Thatcher, London Daily Telegraph (1986)

Dear Mr. Webb:

I am in receipt of your letter received today in response to my August 26, 2016 email to you and other members of the Alaska Mental Health Trust Authority board expressing concern about both the substance and the lack of public process relative to the board's decision to harvest parcels in Ketchikan and Petersburg unless Congress passed S 3006, the exchange legislation, by January 15, 2017. To me, as well as many other people, the lack of public involvement on an issue that you and the Board knew was of great public concern, and would be "strongly opposed by the community," is simply astounding.

As I believe you know, the people of this community dearly love Deer Mountain, and were blindsided by the decision of the Trust board, which to us came out of the blue. Deer Mountain is used extensively by Ketchikan families and visitors alike who appreciate its intact beauty and grandeur. As your letter notes, its economic value to Ketchikan is appreciated as well.

I do want to note that your letter, and the personal insults, arrogance and self-serving statements therein, show a lack of professionalism, judgment and maturity, and I do not intend to dignify most of your comments with a response- other than to say they remind me of the concept of projection I studied when I was getting my original degree in psychology. Moreover, I am somewhat surprised that a member of a State of Alaska commission would respond to a concerned citizen in this manner and tone.

My specific responses are as follows:

1. Counterproductive actions: You stated that the approach in my initial email was "counterproductive" to my "cause." I can say, with no hesitation whatsoever, that the board's actions, as well as your recent op-ed in the *Ketchikan Daily News*, have been counterproductive to the Trust's desire to harvest Deer Mountain, or exchange it for USFS lands. Moreover, you have given the Trust an enormous black eye in this

community, essentially negating years of positive relationship building. You have awakened a sleeping dragon in Ketchikan.

2. Potential Sale of Deer Mountain Parcel: Your letter states that the Trust “tried to sell” the Deer Mountain parcel to the U.S. Forest Service (USFS). My recollection is that, when an opportunity existed at one time to do so in the form of an appropriation, the Deer Mountain parcel was pulled at the request of an industry trade group while the purchase of some other parcels proceeded.

You further state that you and other Trust board members find it “puzzling” that there was not an offer to purchase the parcel when I was Mayor of the City of Ketchikan. As noted above, I believe an opportunity to purchase the Deer Mountain parcel with a federal appropriation existed at one time, and a decision was made to pull Deer Mountain from a group of parcels that were being considered for purchase by the USFS. In addition, the Trust has been stating that it has been trying to exchange the land with the USFS for 10 years. If the Trust was interested in selling the land or otherwise giving the community an opportunity to “secure an interest,” it seems to me that it was incumbent upon the Trust to make that option known to the people of Ketchikan by initiating a dialogue with the community. Is the Trust actually interested in selling the Deer Mountain parcel rather than proceeding with an exchange for USFS lands??

Your letter notes that you know of no effort by the community to work with the Nature Conservancy and similar organizations to purchase the Deer Mountain parcel. Again, until now, I do not believe that the community was aware that the Trust had any recent interest in selling, rather than exchanging for USFS lands, the Deer Mountain parcel. In addition, I am not aware of any efforts by the Trust itself to work with the Nature Conservancy and similar organizations to purchase the Deer Mountain parcel.

Importantly, a potential sale of Deer Mountain was not one of the options publicly discussed, nor included as one of the options- either exchange or log- approved by the board for parcels here and in Petersburg during its August meetings.

If sale of the Trust’s interest on Deer Mountain is in fact a viable option, I would suggest that the Trust engage the community in a meaningful positive dialogue wherein mutual interests can be explored and discussed with the involvement of the organizations you referenced. Presumably, this would occur in the event that the exchange legislation does not pass, and/or there is an understanding between the Trust and the Congressional delegation that it will not pass, in what you deem is a timely manner so as to protect the Trust’s interests. Please advise whether or not this is the case, or whether you wish to discuss a potential sale regardless of the status of the exchange legislation.

I want to note in response to your final comment that I am a supporter of the exchange legislation. In fact, I recently wrote to each member of our delegation in that regard, and have urged other persons concerned about potential timber harvest on Deer Mountain to do the same.

Finally, I again repeat my request that the board rescind its action of August 24, and proceed instead with a dialogue with this community and Petersburg regarding the Trust parcels under discussion. I think that, had this been done last month, the Trust and a number of interested citizens would be working together today instead of being at odds with one another. I believe that the potential exists to get to a solution that fixes this problem in a mutually satisfactory way. How we get there, however, is up to you and the Alaska Mental Health Trust Authority board.

Sincerely,

Bob Weinstein.

Mr. Weinstein:

I am pleased to learn that you support the proposed land exchange between the Trust and the US Forest Service that would result in the Trust's Deer Mountain parcel being transferred to Forest Service ownership. Thank you for that support and for taking action to communicate it to Alaska's congressional delegation.

The Trust would be most appreciative if you, and others whom you have urged to write in support of the exchange, would do us the courtesy of providing the Trust Land Office (TLO) with a copy of your correspondence supporting the exchange legislation. It will be helpful in our own advocacy efforts to have documentation of that support.

Given your visibility and influence in the community and region, as a former elected public official and current leader of the "Save Deer Mountain" group, your public support of the land exchange legislation could be invaluable in gaining the active support of others throughout Southeast. I ask and urge you to apply the same leadership skills, energy, and public relations acumen to support of the legislation that you have applied to condemning the Trust's recent decision. In doing so you could serve the long-term interests of not only Ketchikan but other Southeast communities as well as Trust beneficiaries throughout the state.

You have asked for confirmation that the Trust would consider selling the Deer Mountain parcel. The answer, of course, is yes, if doing so best serves the interests of our beneficiaries. As our exchange of letters has confirmed the Trust previously attempted to sell the parcel to the US Forest Service along with other parcels. That sale of the Deer Mountain parcel failed, as you noted - not because of Trust action, but as a result of influence exerted by other interests to remove the parcel from the sale. This points out how difficult it is to align and balance the often conflicting interests regarding such issues. Doubtless you have greater familiarity with and understanding of these matters than do I.

You and others in the community obviously knew of the Trust's willingness to sell the Deer Mountain parcel - at the time of the failed sale to the Forest Service and in the interim period preceding trustees' recent decision. My understanding is that members of the community have focused their efforts on the administrative land exchange process as the preferred means of protecting community interests in Deer Mountain rather than on purchasing the parcel outright.

We have made no attempt to market the land for the simple reason that, aside from its timber, it is marketable essentially only to the community of Ketchikan or an entity acting on behalf of the community. Lacking a market, the TLO did not see sale of the parcel as a viable option for

trustees to consider in making our recent decision. And, of course, the parcel is integral to the land exchange.

You are correct that, at the moment, exchange of the Deer Mountain parcel via legislation is likely more beneficial to the Trust's interests than an outright sale would be. The exchange proposed, both administratively and now in legislation, is a carefully crafted package developed through years of effort that balances a broad range of interests. Maintaining that balance, and alignment of the interests, is critical to success as was demonstrated in the previous failed effort to sell the parcel to the Forest Service.

The Trust parcels to be exchanged affect not only Ketchikan but other Southeast communities as well. It would be counter to the interests of the Trust and all communities in Southeast, including Ketchikan, to begin piecemeal sale of **any** of the parcels included in the exchange until and unless it is clear that an exchange is unachievable. If that occurs it would be in the interests of each of the communities to have identified alternatives acceptable to them to protect their interest in Trust land that also help the Trust meet its responsibilities to our beneficiaries.

The Trust would certainly consider such alternatives if the land exchange proves unachievable, so long as doing so does not negate our ability to achieve broader goals that serve Trust interests, for example maintaining a viable timber industry so the Trust can gain maximum value from all its remaining timber resources. As you know, finding the best solution inevitably involves balancing varying, sometimes competing interests and assessing the value and impact of multiple alternatives.

I appreciate your suggestion that the Trust engage with communities potentially affected by our recent decision. It has always been our intent to do so. The timing of our recent decision, driven largely by external factors, made it impossible to accomplish the degree of on-the-ground communication that we intend and that is an important part of the Trust's normal process. This has been further complicated by previously scheduled and critical travel by key TLO staff and also by a grave family emergency necessitating an absence.

We are certainly interested in constructive dialogue with government leaders and others that can advance the interests of the communities and the Trust. But we see no value in holding public meetings in the communities, as has been suggested, merely for the purpose of allowing citizens who oppose Trust efforts to vent their anger and vilify staff, trustees and the Trust. Nor are we under an obligation to do so.

We do expect to hear a great deal from citizens of Ketchikan and Petersburg during the public comment period at our meeting on September 7. We hope to hear constructive suggestions for productive dialogue and effective working relationships between the Trust and the communities.

I, too, believe it is both possible and necessary for the communities and the Trust to work together rather than "being at odds with one another". We have worked together throughout the effort to achieve an administrative land exchange and should be able to do so now. It is likely the only way we can achieve a solution that serves our mutual and respective interests. However, I do not believe that the power or responsibility to work effectively together lies solely with the Trust. We have to have partners willing to focus constructively on finding acceptable solutions and achieving common goals. We realize that achieving unanimity of purpose,

strategy, and tactics is a rare occurrence in communities and among interest groups. We do not expect every member of communities to support our goals or work productively with us.

In consideration of that I feel it necessary to address the tenor and a few specifics of your communication.

In statements to the press you have characterized trustees as showing "...utter disregard for the public process, arrogance and...contempt for the people of Ketchikan". Your August 26 message, which you widely distributed, including to the press, accuses trustees and staff of being "disingenuous", of knowingly and willfully violating the law, and scheming to deny "a meaningful opportunity for concerned citizens of Ketchikan and elsewhere to be heard".

Your letter today condemns my response to your August 26 message as being characterized by "personal insults, arrogance, and self-serving statements" and you accuse me of showing "a lack of professionalism, judgment and maturity".

With all due respect, I think you should re-read my letter. You will, I hope, see that nowhere did I criticize your character, as you have done mine and that of other trustees and staff. I did nothing to attack you personally. I questioned your statements, your tactics, and your message as counterproductive. I suggested alternative, more constructive, actions.

My letter contains no "personal insults". It is factual and is neither accusatory nor demeaning. I acknowledge, repeatedly, your public policy experience, your knowledge of the law, your experience as an elected leader in your community, and your passion to protect your community's interests. I even acknowledged that, though we apparently share a commitment to public service, your experience and knowledge likely exceed my own.

Your most recent letter expresses consternation "that a member of a State of Alaska commission would respond to a concerned citizen in this manner and tone". Again, with due respect, please review my responses of yesterday and today. I have nowhere insulted you or attacked your character or otherwise employed a demeaning "tone". I am seeking to focus on our opportunity to work together, effectively, for a common purpose serving the interests of your community and Trust beneficiaries.

I think you significantly mischaracterize yourself as merely a "concerned citizen". You are hardly merely a humble "concerned citizen" being victimized by an overbearing board member. You are a public figure skilled and experienced in the public arena. You chose the public arena to attack the motives and character of trustees and staff. You employed insulting and inflammatory language to make accusations of wrongdoing. You chose the venue for communication - your public statements to the press and correspondence you chose to make public - to elected officials, the press, and ultimately the general public. You chose to make personal attacks.

Readers of our correspondence may judge for themselves whether I have responded in kind. I think objective readers will disagree with your assessment - both of the nature of my responses and whether they reflect the psychological concept of projection at work as you imply.

Interestingly we share not only a commitment to public service but a background in psychology. My understanding of the concept of neurotic projection is that of perceiving others as operating in ways one unconsciously finds objectionable in oneself. I leave it to you and objective readers

of our correspondence to draw conclusions from our correspondence. I note however, that it was you, not I, who introduced into the discourse the following words and phrases: disingenuous, arrogance, self-serving, contempt (for others), "utter disregard for the public process", and "lack of professionalism, judgment and maturity". You applied all these in describing myself, other trustees, staff or some combination.

I have received messages from a few other "concerned citizens" from Ketchikan. They were neither insulting, inflammatory, accusatory nor made public by the sender. I am responding to those persons privately.

Again, in the hope of finding common ground and common purpose, I thank you for supporting legislation to achieve a land exchange and for taking action to demonstrate that support. I urge you to use your considerable skills to enlist the support and action of others in Southeast and, in whatever manner you find appropriate, to influence the varying interest groups, in Alaska and nationally, whose opinions and actions may affect the success of the legislation.

We may never agree on the manner, tone, or responsibility for the unfortunate direction taken in our discourse on these issues. I hope we can reach agreement on how to best advance the interests of communities in Southeast Alaska and Trust beneficiaries and work effectively to do so.

Finally, thank you substituting the quote of Mrs. Thatcher for the quote at the bottom of your message yesterday. Though I appreciate dark and sometimes sarcastic humor, even I found that quote in poor taste and demeaning to Trust beneficiaries who suffer from mental illness. We can both agree Mrs. Thatcher's statement is more pertinent.

Respectfully,

Russ Webb
Chair



THE TRUST

SEP 30 2016

RECEIVED

September 22, 2016

Alaska Mental Health Trust Authority
Trust Land Office
Attn: John Morrison, Executive Director
3745 Community Park Loop, Suite 200
Anchorage, AK 99508

US Forest Service
Tongass National Forest
Attn: M. Earl Stewart, Forest Supervisor
648 Mission Street
Ketchikan, AK 99901

Dear Mr. Morrison and Mr. Stewart,

The Petersburg Borough Assembly is extremely concerned with the August 24, 2016 decision of the Alaska Mental Health Authority ("Trust") to approve the sale of its timber parcels in Petersburg and Ketchikan should Congress fail to pass the Alaska Mental Health Trust Land Exchange Act of 2016 by the Trust's January 15, 2017 deadline. The sale parcels are part of an ongoing land exchange between the Trust and the US Forest Service ("Forest Service") that has been in negotiations since August, 2006, with an Agreement to Initiate signed on June 30, 2015.

We are in favor of the Alaska Mental Health Trust Land Exchange Act of 2016. The Assembly has supported the United States Forest Service/Tongass National Forest and Alaska Mental Health Trust Authority Proposed Land Exchange, dated September 4, 2012. We strongly encourage the Trust to continue to work with the US Forest Service to realize the exchange. While we support the Southeast Alaska timber industry, we adamantly feel that logging should not take place on the Trust's slopes above Mitkof Highway under any circumstances, as doing so could pose an accelerated risk of landslide and blowdown, endangering homes and property below, cause a loss of water quality to homeowner's patented mountainside water streams, threaten citizens transiting the highway - including Petersburg School District buses August through June, and jeopardize the Tyee hydroelectric utility corridor.

The Trust has expressed concerns for the cost of required environmental review needed to complete the land transfer; however, previous credible analyses of the likely landslide risks as a result from logging these acres clearly puts the burden of liability on the State of Alaska should impact of life or property occur. As we are sure you would agree, the safety of all Alaskans should be the driving force in matters such as these.

Nine (9) landslides have occurred since 1986, of which eight (8) were on Trust property, crossing and closing Mitkof Highway, and within the proposed land exchange/timber sale parcel area. As an attachment to this letter you will find a map showing the slide dates and locations along with many photos of slide debris.

In April of 2006, the Trust contracted with Craig Erdman of GeoEngineers, Inc., to perform risk assessments on the Trust's mountainside parcels above Mitkof Highway.

The Mitkof Highway Homeowners Association's attorneys, Dillon & Findley, contracted with Douglas N. Swanston, Ph.D, a Certified Professional Geologist, to also conduct risk assessments. Dr. Swanston, recently retired from the Forest Service, hired Art Dunn of Dunn Environmental Services to perform the updated assessments on the Mitkof Highway mountainside. Dr. Swanston conducted slope stability assessments on the Mitkof Highway corridor in the 1970's as a Forest Service employee. He compared the 2006 field findings taken by Mr. Dunn to his 1970's baseline findings and concluded "the risk or danger to the utility corridor, structures and residents along the Mitkof Highway corridor from debris torrents initiated

Borough Administration

PO Box 329, Petersburg, AK 99833 – Phone (907) 772-4425 Fax (907) 772-3759
www.petersburgak.gov

by logging in this zone" (from Taain Creek and northward) "is **moderately high**", and "the risk or danger to structures and residents along the Mitkof Highway corridor from debris torrents initiated by logging in this zone" (from Taain Creek and southward) "is **extremely high**". These conclusions are detailed in Dr. Swanston's Assessment of Landslide Risk to the Urban Corridor Along Mitkof Highway from Planned Logging of Mental Health Trust Lands, which is provided as an attachment.

In response to the Trust's own risk report of logging their Petersburg mountainside parcels, Dr. Swanston's Critique of: "Geotechnical Forestry Practices Evaluation Petersburg Slope Stability Assessment Petersburg, Alaska File Number 5342-004-00" concluded, "Logging disturbance of any sort along the steep, unstable slopes above Mitkof Highway, particularly on slopes that drain into the gullies and channels reaching the highway, is **extremely reckless and irresponsible** above such an important transportation corridor and an area of known permanent occupation and planned urban expansion. **The risk is simply too high** considering the demonstrated unstable conditions along the slopes, the presence of numerous active and dormant torrent channels reaching the highway and the clear and demonstrated danger to the utility corridor and residents along the highway."

The Petersburg Assembly respectfully implores you, Mr. Morrison and Mr. Stewart, to find a way to complete the land exchange within a reasonable timeframe. Doing so will be the best course of action for **all** Alaskans.

In the event the land exchange fails to move forward prior to the deadline of January 15, 2017 mandated by the Trust, we suggest, strictly as a "Plan B" option to the 2016 Act, the federal government offer an ample monetary endowment to Alaska Mental Health Trust Authority in exchange for the controversial Trust lands in Southeast Alaska, including Petersburg and Ketchikan.

Sincerely,



Cindi Lagoudakis
Vice Mayor

Cc: Governor Bill Walker
Senator Lisa Murkowski
Senator Dan Sullivan

Ketchikan Gateway Borough









Attachments:

- Map of slides that impacted Mitkof Highway from 1986 to present
- Photos of slides with dates and locations
- Dr. Swanston's 2006 Assessment of Landslide Risk to the Urban Corridor Along Mitkof Highway from Planned Logging of Mental Health Trust Lands
- Dunn Environmental Services May 22, 2006 Report on Field Investigations, Mitkof Hwy Area, Petersburg, AK
- Dr. Swanston's August, 2006 Critique of: "Geotechnical Forestry Practices Evaluation Petersburg Slope Stability Assessment Petersburg, Alaska File Number 5342-004 -00"

SCOPING MAP Public Safety & Landslide Hazards Mitkof Island Area

Land Manager

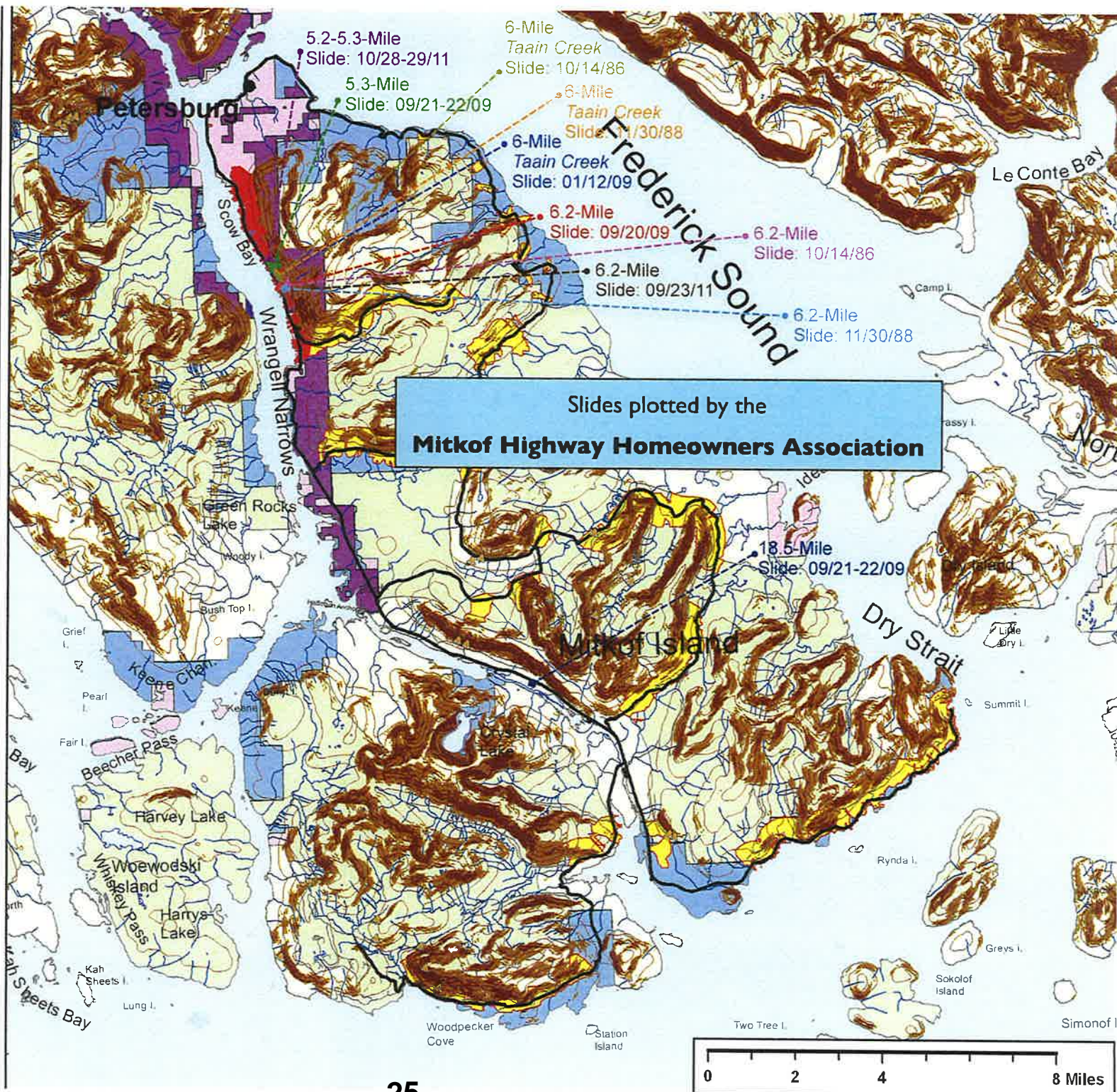
-  USFS
-  USFS - Natural Land Cover
-  State of Alaska
-  Mental Health Lands Trust
-  University of Alaska
-  ANCSA Corporation
-  Private/Local Government

-  USFS Documented Landslides (point)
-  USFS Documented Landslides (polygon)
-  Analysis Road
-  Other Forest Roads
-  50% - 67% Slope
-  67%+ Slope
-  Areas with public roads that are within a 1/2-mile downhill from slopes >50% that have forests that are open to commercial harvesting
-  Areas with public roads and residential or commercial buildings that are within a 1/2-mile downhill from slopes >50% that have forests that are open to commercial harvesting

Land Status - Assembled from data provided by the Tongass National Forest and the Alaska Dept of Natural Resources (2007). Additional land management information was drawn from the USGS Protected Area Database for Alaska (2006).

Roads - Assembled from the Alaska Division of Forestry Southeast Area and Tongass National Forest Roads Inventories. Roads selected for exposure to public safety were those with a TNF Management Objective of 3 (suitable for passenger cars) or higher, with additional roads identified by the Landslides ST&C.

Slopes - Calculated using the 20 meter Digital Elevation Model developed by NASA Shuttle Radar Topography Mission (SRTM), 2000.





6-Mile Mitkof Highway - 14 October 1986 "natural" slide. This slide event originated at approximate 1400-foot elevation on Trust property. Alaska Department of Transportation workers are removing boulders, cobbles and organic material from the two culverts in *Taain Creek* to release flood waters and drain Mitkof Highway (*State Highway #7*) which was closed to through traffic. Bud/Judy Peterson's residential property is visible at photo and was impacted by slide. Dave/Kelly Peterson's home was not built at this time but the driveway at photo right bottom now leads to their home. Aaron/Katrina Miller now live at the other end of the guardrail on the downhill side. The Jones' family lives just past the DOT vehicles.

Photo: Bud Peterson, 14 October 1986

October 14, 1986

6 Mile Mitkof Highway - Taain Creek



Taain Creek - 14 October 1986 "natural" slide. 6-Mile Mitkof Highway resident, Bud Peterson, photo center, heading up Taain Creek to survey slide path that originated on Trust land property. The slide crossed through a 62-acre timbered parcel, continuing on to impacting Mr. Peterson's residential property. Photo: R. Peterson, January 1987

October 14, 1986

6 Mile Mitkof Highway - Taain Creek

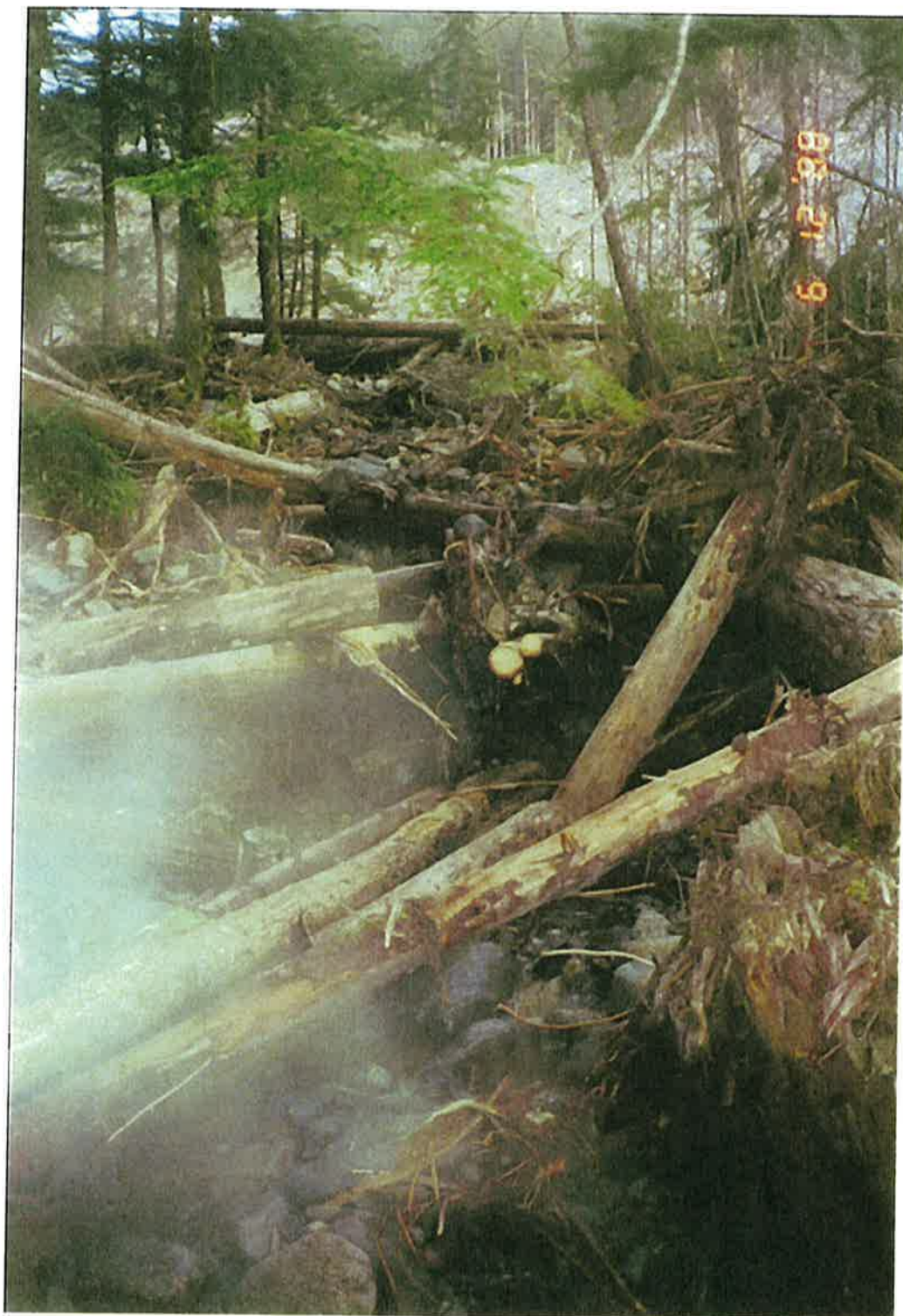


6.2-Mile, re-vegetating channel, 1986 and 1988 slide apex – Trust property. Looking upslope at re-vegetated debris avalanche site (approximate 1400 foot elevation), sparse re-growth due to high winds and volumes runoff, organic material refilling channel. Ground surrounding remaining hemlock at right of left channel was spongy and wobbly. Photo: Ed Wood, 21 February 2006



6.2-Mile, re-vegetating channel, 1986 and 1988 slide path – Trust property. Looking downslope, right of center, the channel is refilling with cobble and silt, organic material and logs. Photo center and on left bank is pioneer vegetation, predominantly Devil's Club.

Photo: Ed Wood, 21 February 2006



6-Mile, 1988 slide. Unmarketable harvested timber helter-skelter amidst boulders, cobbles and volumes of runoff that coursed downslope for over five hours during the 29 November 1988 slide at 6-Mile, jumping the banks of Taain Creek, impacting Bud Peterson's residential property at 6-Mile Mitkof Highway (State Highway #7). Looking upslope through standing trees, beyond the clearcut at photo center, is all Trust property.

Photo: Alaska Department of Transportation, 6 December 1988

November 29/30, 1988

6 Mile Mitkof Highway
Taain Creek



6-Mile, 1988 slide - Taain Creek cleanup and bank reconstruction. The 30 November 1988 slide that originated on Trust land at 1400 foot elevation coursed downslope with organic debris, and unmarketable harvested logs from a private property owner's clearcut timber harvest. The combination of the upslope organic debris, the unmarketable logs, and the runoff jumped the banks of *Taain Creek* impacting Bud Peterson's residential property at 6-Mile and onto Mitkof Highway, eventually spilling out into the *Wrangell Narrows*. During early Spring of 1990, the logging company contracted to have the unmarketable logs, boulders and organic debris removed from the lower portion of *Taain Creek*. The volume of debris in total required the rebuilding of the creek banks to an approximate 5-foot height.

Photo: Alaska Department of Transportation, 29 March 1990

November 30, 1988
6 Mile Mitkof Highway
Taain Creek



Telephone and electrical lines and Mitkof Highway itself was cut by a mudslide early Wednesday morning after more than eight inches of rain fell on Petersburg. Although students living south of the slide

area, near the 6.5 mile highway mark, got the day off when school officials decided not to send buses through the mire, city and state frontloaders opened the route to traffic before 9 a.m. Wednesday.

Landslide closes highway

by Bob Tkacz
A landslide which closed Mitkof Highway and disrupted utility ser-

vices early Wednesday morning forced drastic and dramatic action when city emergency medical technicians received a report of a possible heart attack at a residence south of the slide area.

Vern Hashagen, 69, was reported to be in stable condition in the Petersburg General Hospital intensive care unit after EMTs, private citizens and state and city road crews teamed up to transport him across a 100-foot-wide mess of mud, trees and utility wires described by one emergency worker as having "the consistency of chocolate pudding." A diagnosis of Hashagen's specific malady was pending completion of medical tests, Director of Nursing Joy Janssen said.

The storm which poured 8.49 inches of rain on Petersburg during the 48 hours ending Wednesday caused the slide shortly before 3 a.m. that day. As the hillside area near the 6.5 mile point of Mitkof Highway disintegrated, a large tree which fell with the tons of mud

and rock tore down the city's 24.9 kilovolt line from the Crystal Lake power plant and a GTE phone line.

Petersburg Police Department dispatchers said the power outage began at 2:50 a.m. Just 22 minutes later they received the call for help from Hashagen's home at 8.5 mile.

"At the time we were dispatched nobody in town, including the police, knew the slide existed," said firefighter Doug Cronlund who was a member of the ambulance crew. As EMTs were enroute police received their first report of the mudslide, he added.

The ambulance was stopped cold, and wet, at the slide. EMT Mike Scriven, aware that friends Don and Joanne Richter, who live south of the slide area, own a station wagon, contacted the couple and asked for their help.

Three EMTs with medical gear forced their way through the sodden mass. "They were up to their waists in the soup," Cronlund related.

They were met by the Richters

who took them to Hashagen and returned everyone to the blocked highway.

During the same period, Dept. of Transportation employee Bob Jones arrived with a front-end loader to start opening some passage for the emergency workers. Petersburg Municipal Power & Light employees also began the work of restoring power. "They were there just about as fast as we were," Cronlund said.

With the problems the EMTs had crossing the mud mass they knew that transporting Hashagen, a man more than six feet tall, through the mess would be difficult and dangerously time consuming. While Hashagen was being brought to the slide area a dozen firefighters were summoned and formed a human chain through the muck to pass the stretcher-bound man to the waiting ambulance, Cronlund said.

"It was pitch black. It was howl-

Continued on Page 8

Attachment 4 - Page 1 of 2

(See Photo 1 - 30 November 1988 slide apex originated on Trust property at 1400 foot elevation.)

Landslide closes.

Continued from Page 1

ing. Wires were hanging all over the place. We wondered if more mud was coming down was interesting," Cronk understated.

He credited the Richters emergency service crew and utility workers with quick thinking and action which resolved the threatening dilemma.

"It just required the cooperation of a group of people. It was a wall," Cronk declared.

With daylight the work of opening the road began in earnest. A city and a state front-end loader had one lane clear enough for vehicles to splash through ankle-deep mud by about 8:15 a.m. The diesels shoved a score of felled trees, some two feet in diameter, over the hillside to drain the water which still creased down the new gully.

Mountain View Manor residents said 5.1 inches of rain fell in the 24 hours which ended Wednesday afternoon, falling 3.9 inches of wet in the day before that.

The power outage which took off the downtown area lasted 30 minutes, but utility service from the Petersburg substation southward was not restored until about 6:30 a.m., PACE Superintendent Dennis Lewis said.

Telephone customers were worst-affected by Mother Nature's muscle flexing. GTE manager Brad Shepherd said, Wednesday evening, that about 50 customers remained without service all night. The communications company lost about 1,000 feet of cable and was experiencing problems removing the old cable so that a new line could be installed.

Shepherd had his crew scheduled to return to work at first light Thursday. He said he expects to have full service restored by midday.

LANDSLIDE - November 30, 1988
6.5 Mile Milkof Highway

Page 9, Pilot, December 1, 1988

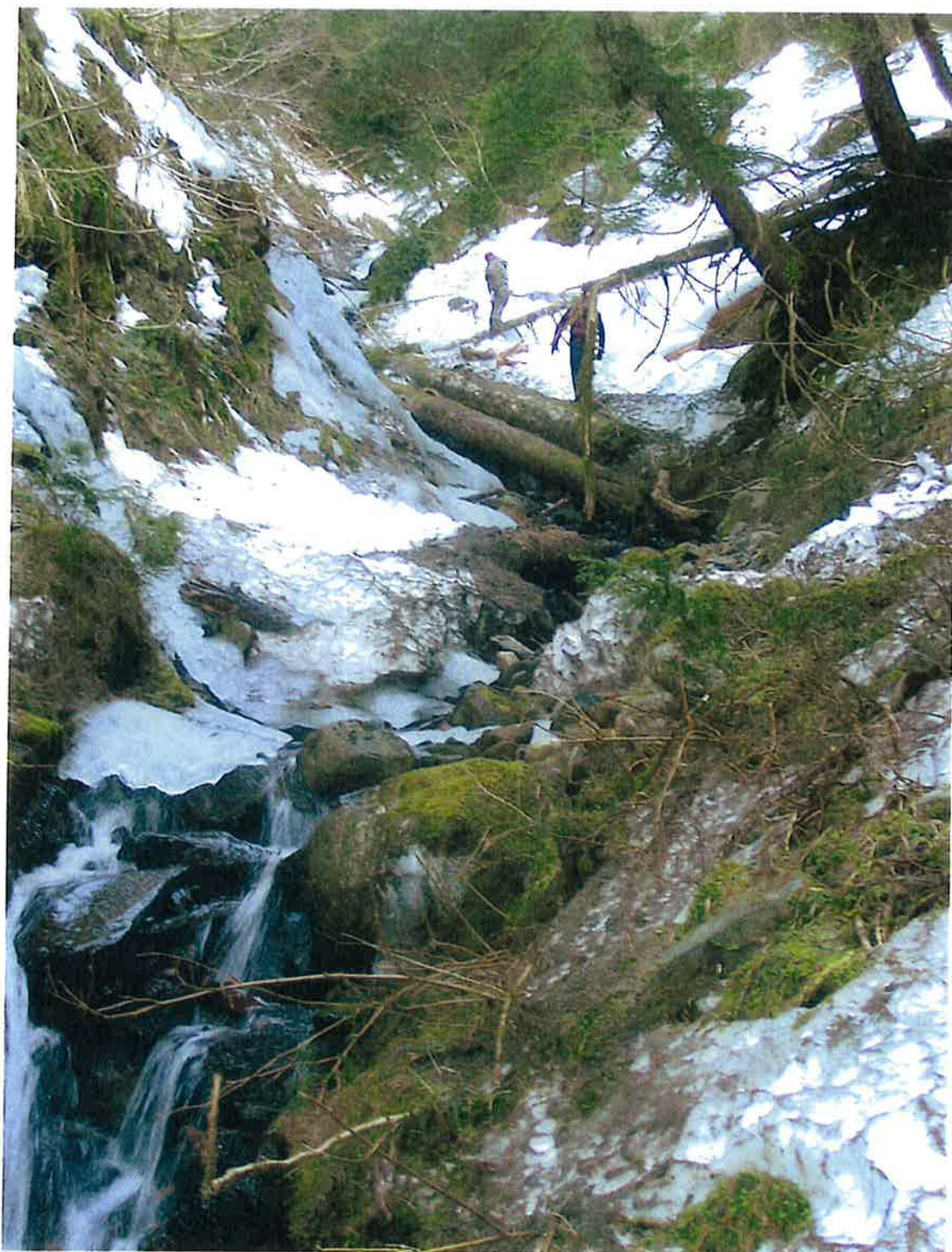


More than eight inches of rain which fell from Monday to Wednesday helped create a new creek near the 6.5 mile mark of Milkof Highway and resulted in the dramatic rescue of an apparent heart attack victim at a home south of the slide which closed the highway

early that morning. City and state Department of Transportation front-end loaders spent Wednesday reopening the roadway and rain kept falling. (Photograph by Bob Tkacz)

Attachment 4 - Page 2 of 2

(See Photo 1 - 30 November 1988 slide apex originated on Trust property at 1400 foot elevation.)



12 January 2009 Slide Apex – Trust property. Ed Wood and Dave Holmes, above photo center, round bend towards slide apex, approximate 1400 foot elevation. Avalanche released ice, cobbles, boulders and organic debris downslope. The flow's highest level is visible on the snowpack (silt and vegetation) with some areas having over a 15-foot high debris flow.

Photo: Suzanne West, 22 January 2009

January 12, 2009

6 Mile Mt. of Highway
Taain Creek



12 January 2009 Slide Apex – Trust property. Dave Holmes' is visible at photo upper left,, as he round the bend to slide apex, approximate 1400 foot elevation. Note thickness of ice-snowpack on bank with visible high flow mark (silt and organic material on snowpack) - in some places over 15 feet high.

Photo: Suzanne West, 22 January 2009

January 12, 2009

6 Mile Mitkof Highway
Taain Creek



12 January 2009 debris field – Trust property. Channel is packed with remnants of the avalanche flow - organic material including logs and limbs, boulders, cobbles, silt, and large chunks of ice overlain on a deep snowpack, connected by various layers of thick ice. Note runoff stream at photo center left. This channel is choked to the cliff edge in Photo 15. Photo: Suzanne West , 22 January 2009

January 12, 2009
6 Mile Mottkof Highway
Taavi Creek



12 January 2009 Slide – Trust property. Ice scoured banks releasing volumes of silt and organic debris and logs, cobbles and boulders, all coming to rest on this deep snowpack at the edge of a sheer 300' dropoff (photo center). Visible high flow mark of over 15-feet high that proceeds downslope through this narrow opening.

Photo: Suzanne West, 22 January 2009

January 12, 2009

6 Mile Mitkof Highway
Toain Creek



Taain Creek. The 12 January 2009 event deposited volumes of silt and organic debris on snowbank near the "OK Corral" logjam, transported downslope by a slide that originated at approximate 1400-foot elevation in an avalanche chute on Trust property. Like this slide, the 1986 and 1988 slides also transported silt and other organic debris down *Taain* Creek, overflowed the bank, impacting Bud Peterson's residential property and Mitkof Highway, caused a power outage and blocked through traffic.

Photo: Suzanne West, 22 January 2009

January 12, 2009
6 Mile Mitkof Highway
Taain Creek



Taain Creek. This logjam on Taain Creek, above Bud Peterson's residence at 6-Mile Mitkof Highway, was the largest of several blockages located within a previously logged parcel on private land. The 12 January 2009 slide originated in an avalanche chute at approximate 1400-foot elevation on Trust property. The logjam contains old logging debris from a 1988 timber harvest on private property. Related KFSK news story at: https://www.coastalaska.org/kfsk/modules/local_news/index.php?op=sideBlock&ID=307

Photo: Ed Wood, 22 January 2009

January 12, 2009
6 Mile Mitkof Hwy
Taain Creek



Taain Creek. The 12 January 2009 event originated at approximate 1400-foot elevation in an avalanche chute on Trust property. Ed Wood with arm raised to indicate high flow level (visible silt on snow) of Taain Creek during the event with Bud Peterson, Aaron/Katrina Miller, and Dave/Kelly Peterson residential properties, and Mitkof Highway (State Highway #7) downslope. Photo: Suzanne West, 22 January 2009

January 12, 2009
6 Mile Mitkof Highway
Taain Creek



Taain Creek terminus – culvert runout to Wrangell Narrows. The 12 January 2009 event originated at approximate 1400-foot elevation an avalanche chute on Trust property and coursed through the Taain valley, crossing a private property clearcut in 1988, and then forced into the meandering Taain Creek. Some of the debris remained upslope at various debris sites. The left culvert is half full with cobbles and small boulders while the right culvert is completely obstructed. Both were fed a continuous supply of organic debris and runoff for hours, eventually emptying into the Wrangell Narrows. The Mitkof Highway (State Highway #7) guardrail is visible at the top of the snow line. Bud Peterson's home is to the right of this photo on the uphill side while Dave/Kelly Peterson's home is on the downhill side of Mitkof Highway. Aaron/Katrina Miller's home and warehouse are just across the highway to the left. Kelly and Aaron both contributed to the related KFSK news story https://www.coastalaska.org/kfsk/modules/local_news/index.php?op=sideBlock&ID=307

Photo: Suzanne West, 22 January 2009

January 12, 2009
6 Mile Mitkof Highway
Taain Creek



6.2-Mile, 12 January 2009 Slide – Trust property. The force of the slide originating at 1400 foot elevation propelled this huge log (Suzanne West at far end of log) downslope on its journey leading to Mitkof Highway (State Highway #7). Note height of exposed bank scoured by slide debris.

Photo: Ed Wood, 22 January 2009

January 12, 2009
6 Mile Mitkof Highway



6.2-Mile, 12 January 2009 Slide – Trust property. Here's more of the same log shown (note bark scraping) ! * Visible water flow coursing under this huge log eroding the silt and organic material to expose cobbles and boulders, and bedrock. Despite the log's immense weight, runoff and the momentum of other debris moved this multi-ton log further downslope, towards Mitkof Highway (State Highway #7).
Photo: Ed Wood, 22 January 2009

January 12, 2009
6 Mile Mitkof Highway



6.2-Mile, re-vegetated "old" slide path, and "new" slide path – Trust property. The 1986 and 1988 slide debris path is left of center. Right side of photo reveals a large volume of silt and organic material on bank (around base of two tree trunks) following 20 September 2009 slide. Note organic material and visible channel runoff. Photo: Ed Wood, 1 October 2009

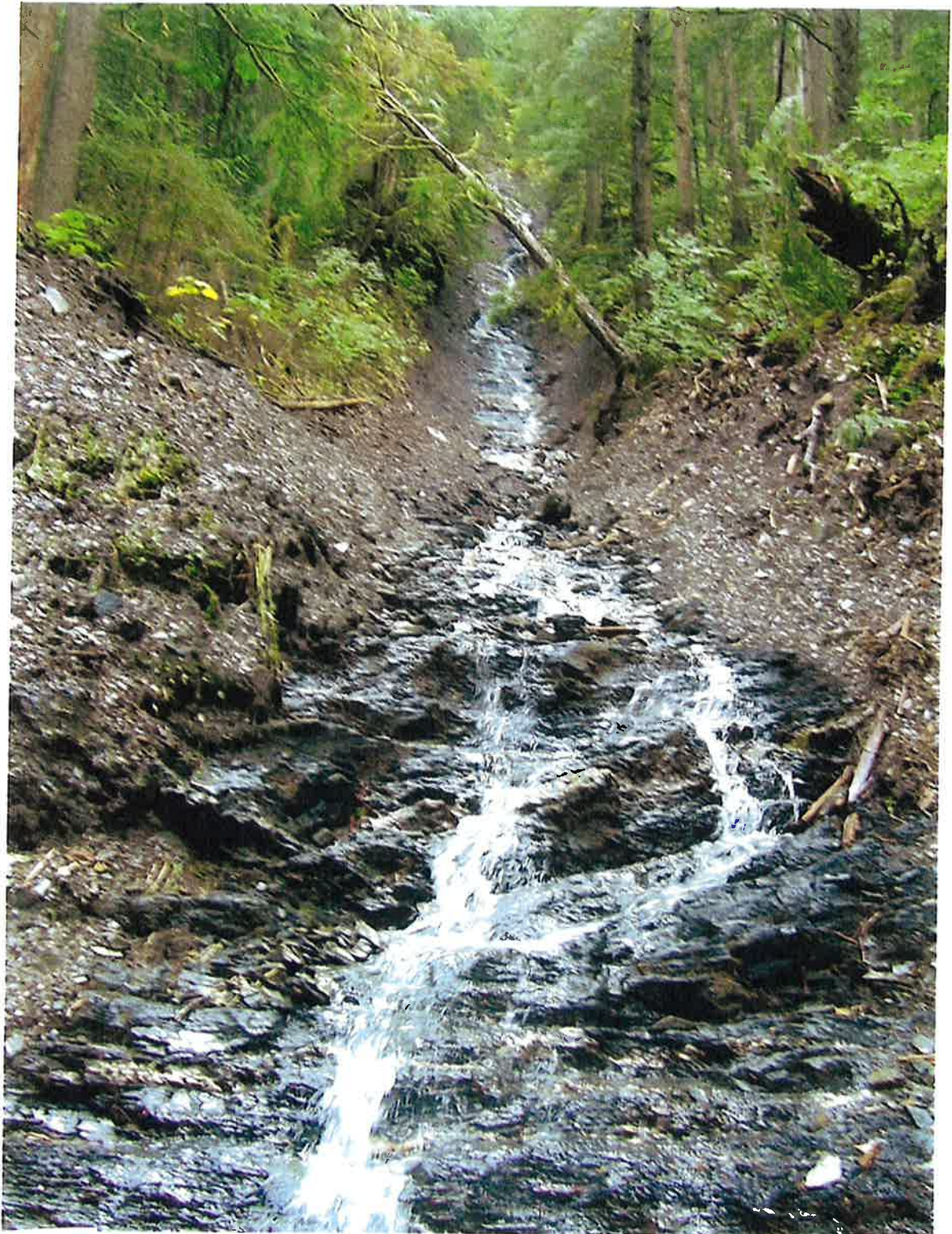
September 20, 2009
6.2 mile Mitkof Highway



"New" slide path – Trust property. Looking upslope at partially scoured channel. Remaining bank vegetation marks level of debris flow. Slide path continues to the left beyond tree clustered ridge. This was a solid choked channel when we hiked by on our way to "old" slide (1986 and 1988 slide). on 21 February 2006.

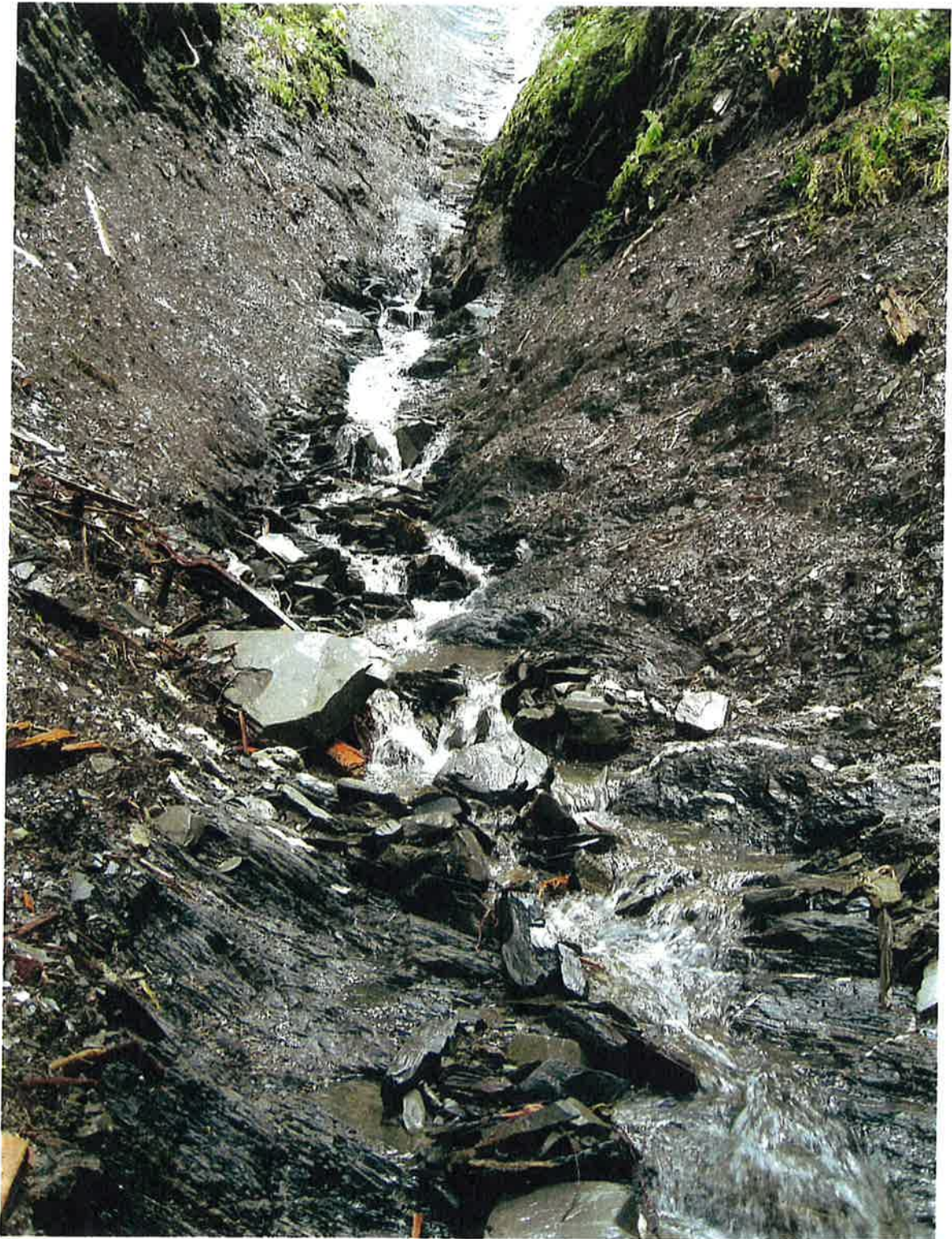
Photo: Ed Wood, 1 October 2009

September 20, 2009
6.2 Mile Mittkof Highway



"New" slide path – Trust property. Continuing upslope at juncture of slide channels
 , 1986 and 1988 slide path out of view to left. Scoured slide path at
 photo center top to bottom with silt, organic material on channel banks increase as we progress upslope.
 Leaning tree photo center will become part of channel re-vegetation. Photo: Ed Wood, 1 October 2009

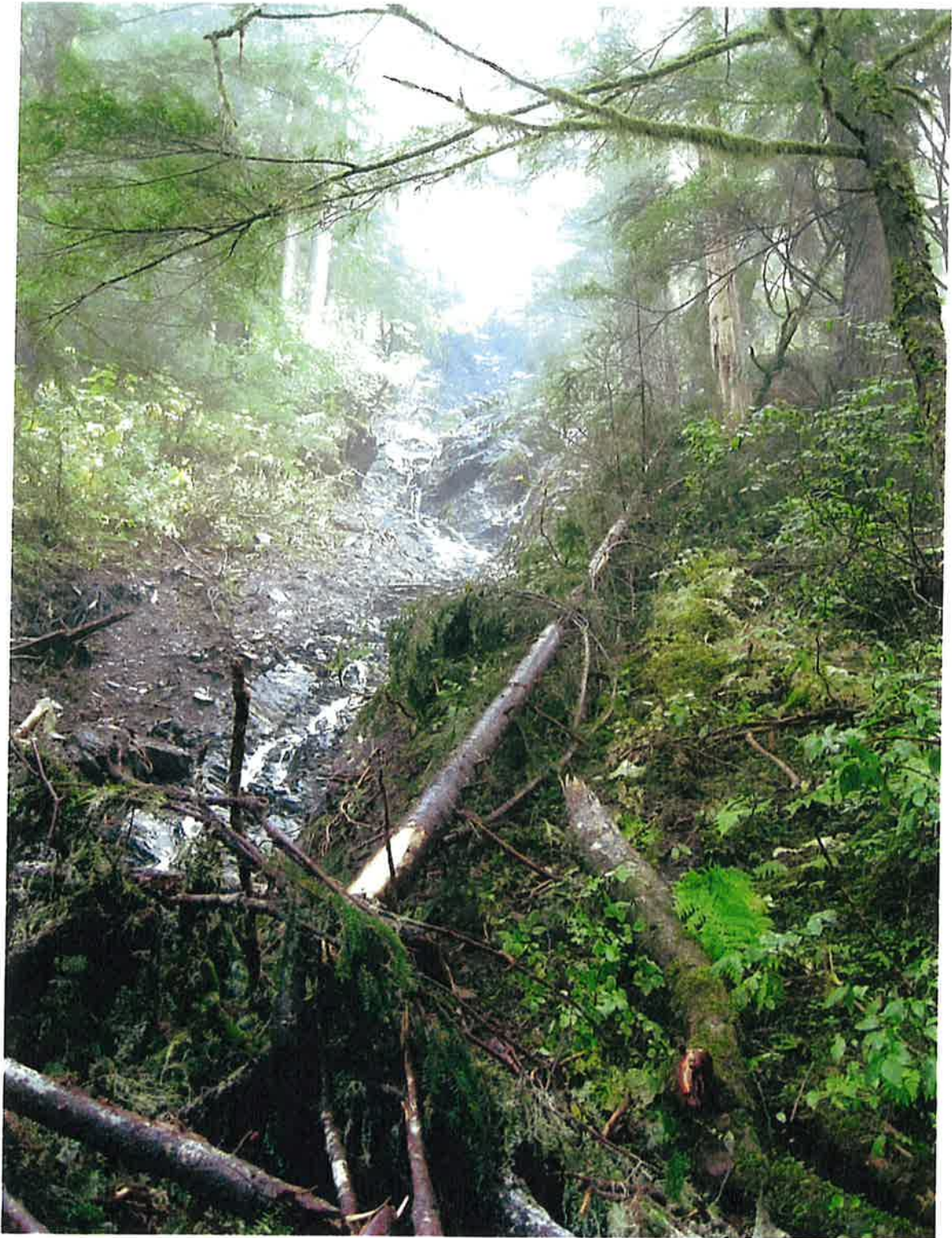
September 20, 2009
 6.2 mile Mt. Hood Highway



"New" slide path – Trust property. This steep gradient channel, previously choked with organic material and mature vegetation, now mostly scoured following slide activity except for a minimal layer of silt and sparse vegetation. Note steady runoff at center of channel.

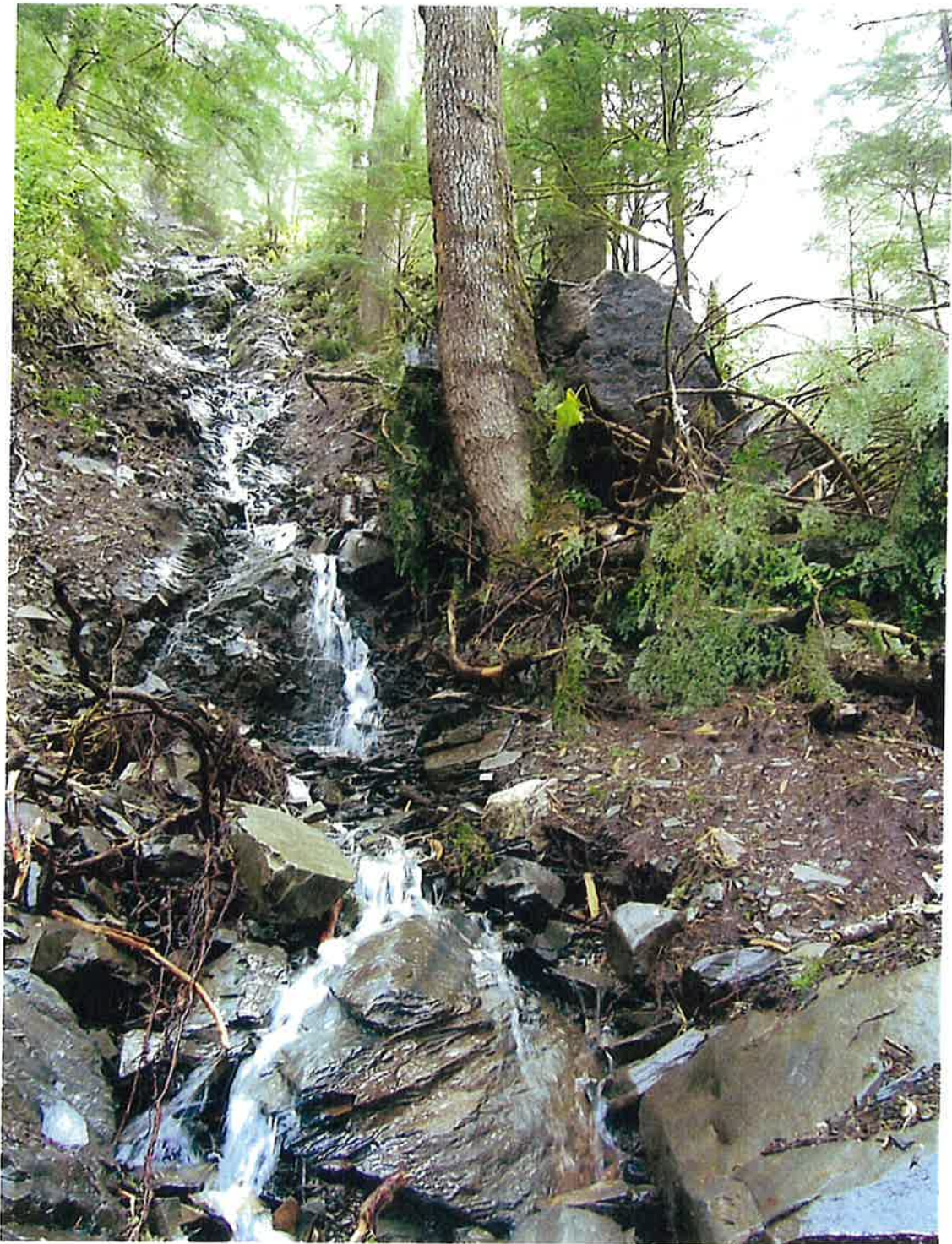
Photo: Suzanne West, 1 October 2009

September 20, 2009
6.2 Mile Mitkof Highway



"New" slide path – Trust property. Continuing upslope on "new" slide path (20 September 2009 event) shown in Photos 3-5. Organic debris in photo lower left obscures steep gradient. Increased volume of silt and rock along channel banks. Extreme slope gradient disappearing into fog with slide apex ahead.
 Photo: Ed Wood, 1 October 2009

September 20, 2009
 6.2 Mile Mitkof Highway



... **"New" slide path – Trust property.** Continuing upslope with organic debris and sediment from 20 September 2009 event just below apex (1200-1400 foot elevation) perched precariously on banks of channel. Note the 5- to 6-foot diameter boulder wedged on the backside of a *Western Hemlock* on very steep slope gradient. This parcel, above Mitkof Highway (State Highway #7) corridor represents a continuing liability to the Trust..

Photo: Ed Wood, 1 October 2009

September 20, 2009
6.2 Mile Mitkof Highway



6.2-Mile culverts, Mitkof Highway (State Highway #7). Two new 4-foot culverts, installed in mid-2009 by the Alaska Department of Transportation, were clogged and damaged during the 20 September 2009 landslide that originated on Trust property at 1400 foot elevation. The ADOT cleanup of this storm drainage and culverts lasted for 12 days. The culverts were installed during the State funded repaving of Mitkof Highway.

Photo: Suzanne West, 22 September 2009

September 20, 2009
6.2 Mile Mitkof Highway



Photo 23. 5.3-Mile, Mitkof Highway (State Highway #7) - "new" slide area. The Alaska Department of Transportation cleared debris off the highway right-of-way following the 21-22 September 2009 midnight slide, but prior to the cleanup of culvert (barely visible in hillside runoff), shoulder and ditches. Mitkof Highway had been closed to through traffic north and south of the Goudima residence. Note debris flow sediment and organic material still on the driveway, and nearness of slide area to their residence.

Photo: Suzanne West, 22 September 2009

September 21-22, 2009
5.3 Mile Mitkof Highway



FOR IMMEDIATE RELEASE
Sept. 22, 2009

Sept. 22, 2009

Southeast Region Crews Continue Battling Mudslides

(JUNEAU, Alaska) – Maintenance and operations crews from the Alaska Department of Transportation & Public Facilities' Southeast Region are doing battle with Mother Nature this week in Petersburg following mudslides.

Petersburg experienced a mudslide Sunday at mile point 5.4 of the Mitkof Highway. That mudslide littered the highway with trees and other debris. Crews cleared the road after only a few hours.

An additional slide covered part of the Mitkof Highway this morning some time after midnight at mile point 4.5. Responding crews found a 36 inch cross culvert buried under about three feet of rock and trees, along with almost six inches of water washing over the road.

A second slide struck Mitkof Highway at about 5 a.m. today at mile point 17.5. There, crews came upon a slide covering about a 50-foot section of highway that was three feet deep. The crews cleared the road and reopened one lane to traffic within two hours and both lanes by 9 a.m.

-more-

September 21-22, 2009
5.3 mile Mitkof Highway

Cleanup operations are expected to last throughout the week.

The Petersburg area has received a reported three inches of rain since Sunday.



A DOT&PF crew clears debris from Petersburg's Mitkof Highway Tuesday morning following several days of rainfall-caused slides. (Official DOT&PF photo courtesy Doug Jenny, Southeast Region)

For more information please contact Roger Wetherell at (907) 465-8994, or by email to roger.wetherell@alaska.gov.

Landslide covers Highway in debris

By STEPHEN KNIGHT
Pilot writer

A substantial landslide covered a stretch of Mitkof Highway in mud, trees, rocks and other debris on Sunday night during a heavy and wind-whipped rainstorm. DOT Foreman Ted Sokol reported receiving a police call at about 6:30pm on Sunday evening concerning a mudslide across an area around the 6.2-mile point of Mitkof Highway. He and his four-man crew were assisted by PMPL and Petersburg police who were first on the scene.

In addition to the clearing of the highway itself, one primary concern was stabilizing a utility pole that had been pulled over by the slide. PMPL also provided emergency lighting for the DOT crew to operate under during very treacherous conditions of high winds, heavy rain and darkness. Sokol estimates he and his crew worked on the cleanup for a total of five hours, not wrapping up for the night until 11:30pm. Mitkof Highway remained blocked for close to two hours but was cleared of everything but a veneer of mud by the time the crews packed up for the night. Fortunately, no houses or vehicles were damaged nor were any injuries reported.

Sokol described the mudslide itself as being approximately seven feet tall and 125 feet wide and suggested it began about 1,000 feet up the hillside. "It went clear across Mitkof Highway to the pullout on the opposite side of the road," he

said. He estimated about a dozen or so trees were taken down in the slide, some of which measured as large as 30 feet in length and four feet in diameter.

"It's happened right in that area a couple of times. I think it probably happens about once every ten years or so."

— TED SOKOL
DOT FOREMAN

After securing the utility poles, the next step was clearing the highway of debris, according to Sokol. "We pulled all the trees out," he said. "And then we started baling out all the mud into the pullout area so we could reopen the lanes to traffic." Finding the culvert heads on the side of the road where the landslide occurred proved a difficult task as the culvert heads were twisted and severely damaged by the sliding debris. But locating and clearing the culverts was essential as the water from the swollen creek was diverting onto the roadway itself. "We needed to get the water to drain properly," he said. "The water was pretty much spreading across the road for a couple of hours

Continued on page 2



STEPHEN KNIGHT / Petersburg Pilot

A huge amount of mud and water along with around a dozen trees crashed down the hillside near 6.2 mile Mitkof Highway on Sunday evening.

Landslide

Page.2 Pilot September 24, 2009

Continued from page 1
Sunday night."

Sokol indicated that the twin 48-inch culverts which run from the creek beneath the highway at that point usually do the job very effectively. "They can really hold a very high water volume," he said. "But they can't hold all the rocks and mud and the trees and branches and all the stuff that came down there Sunday night." Sokol remains undaunted by the damage to the culverts, which will need to be cleaned out and repaired adding, "It's nothing we can't handle. We can clean up the area and get things put back together."

Considering the massive amount of debris to be cleared, the highway was reopened quickly, though Sokol cautioned, "People just need to drive with caution out there, because there's still a little bit of mud left on the road in that area." Sokol had to chuckle when he pointed out that the area affected was part of the newly paved stretch of highway that ADOT had worked on all summer, having just completed their work about two or three weeks ago. "Fortunately, there was no dam-

age to the road or the paintwork or the guard rails," he said. "We'll have to do some shoulder dress-up but that's just part of the job when this kind of thing happens."

When asked how commonly such massive mudslides occur out the road, Sokol replied, "It's happened right in that area a couple of times. I think it probably happens about once every ten years or so." As to what causes the situation, beyond the obvious heavy rainfall accumulation, he said, "I don't know what the deal is up in the mountainside there. It must hold back a bunch of debris and once it gets the earth dam bulging behind it, it just blows it all down the hillside — and it seems to hit right in that same area."

Aside from the work on the culverts and the removal of the massive debris pile in the pullout area across the road, the only other work remaining to be done is ditching work. Sokol went out of his way to point out that the police department was very helpful in controlling traffic in the area during the massive cleanup operation and that PMPL were equally helpful in

getting them set up with lighting and other assistance. He estimates that all of the cleanup will be completed within a week. The rain, ironically, will clean off the remaining mud on the road surface.

Two additional, smaller mudslides occurred overnight on Monday and early Tuesday morning at the 5-mile and 19-mile points of Mitkof Highway. No injuries or damage to private property were reported and DOT crews were able to clean up both sites in a few hours.



6.2-Mile, Mitkof Highway (State Highway #7). Debris from 23 September 2011 slide which originated above the 1700 foot elevation level, 500 feet above the 1986 and 1988 slide apex. We were unable to reach this new slide's apex due to saturated soil and an extreme vertical climb. Petersburg received four inches of rain over Labor Day 2011, followed by continued high precipitation. Hurricane force winds occurred for several hours on 23 September 2011 at sea level, with the sound of trees snapping and slide activity audible on Mitkof Highway. Ground-truthing on 24 September 2011 found a large amount of newly snapped trees, root wads, mid-slope slide activity, erosion caused by continuous hillside runoff, and channel debris overflowing its banks depositing soil and debris across the slope.

Photo: Suzanne West, 23 September 2011

September 23, 2011
6.2 Mile Mitkof Highway



6.2-Mile, Mitkof Highway (State Highway #7). Debris from 23 September 2011 slide oozed out on Mitkof Highway around 7:30 a.m. closing it to through traffic until around 2:00 p.m. Alaska Department of Transportation equipment is visible beyond (north side) debris. Photo: Suzanne West, 23 September 2011

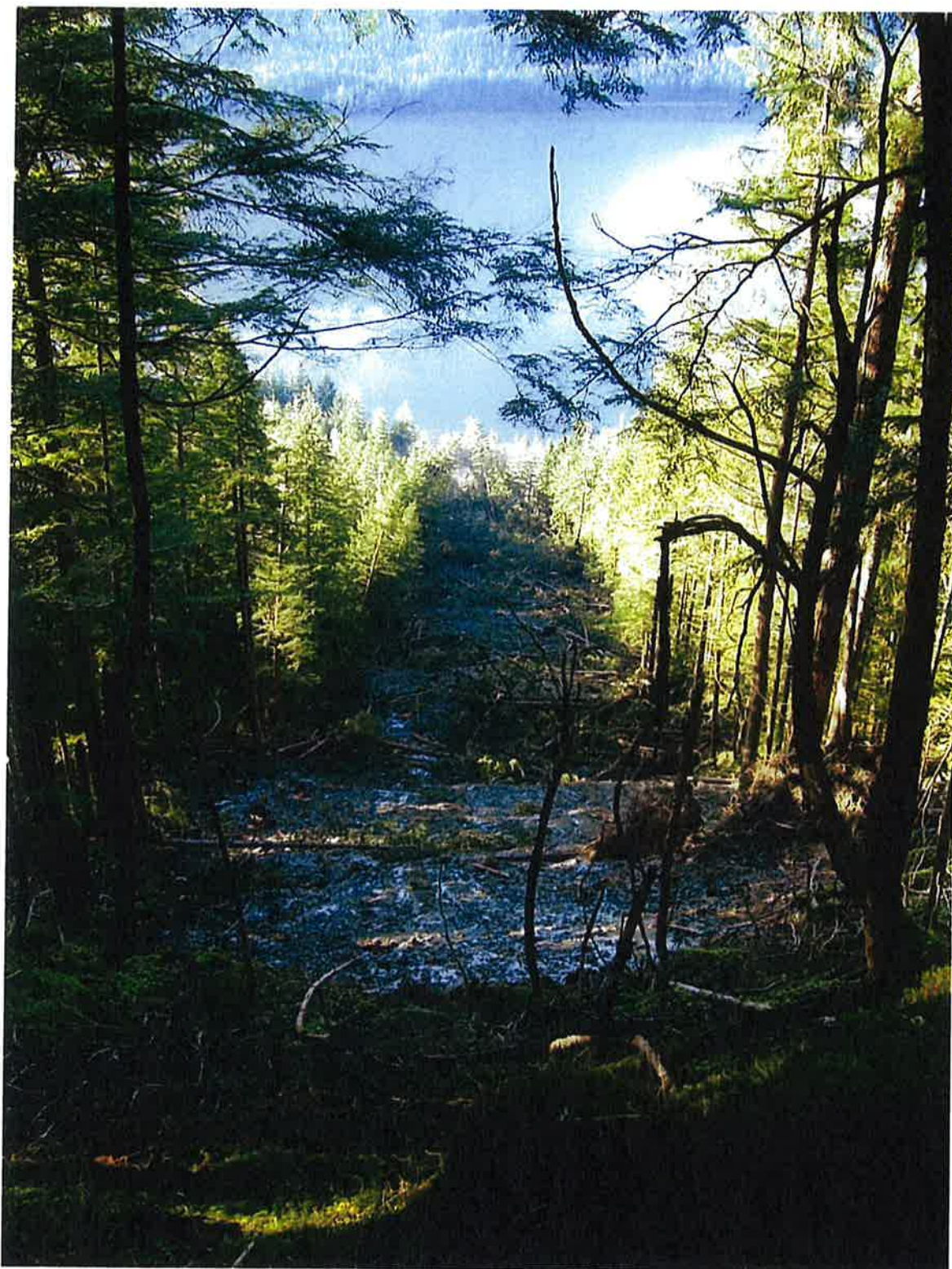
September 23, 2011
6.2 Mile Mitkof Highway



5.2-5.3-Mile Mitkof Highway, 28-29 October 2011 unchanneled slide. Slide apex at photo top center at approximate 1000-foot elevation level. Portion of storm blowdown in foreground. Small “speed bump” bench is visible beyond blowdown. Transiting the slide path was made especially difficult by the overly saturated soil often knee-deep.

Photo: Ed Wood, 3 November 2011

October 28-29, 2011
5.2-5.3 mile Mitkof Highway

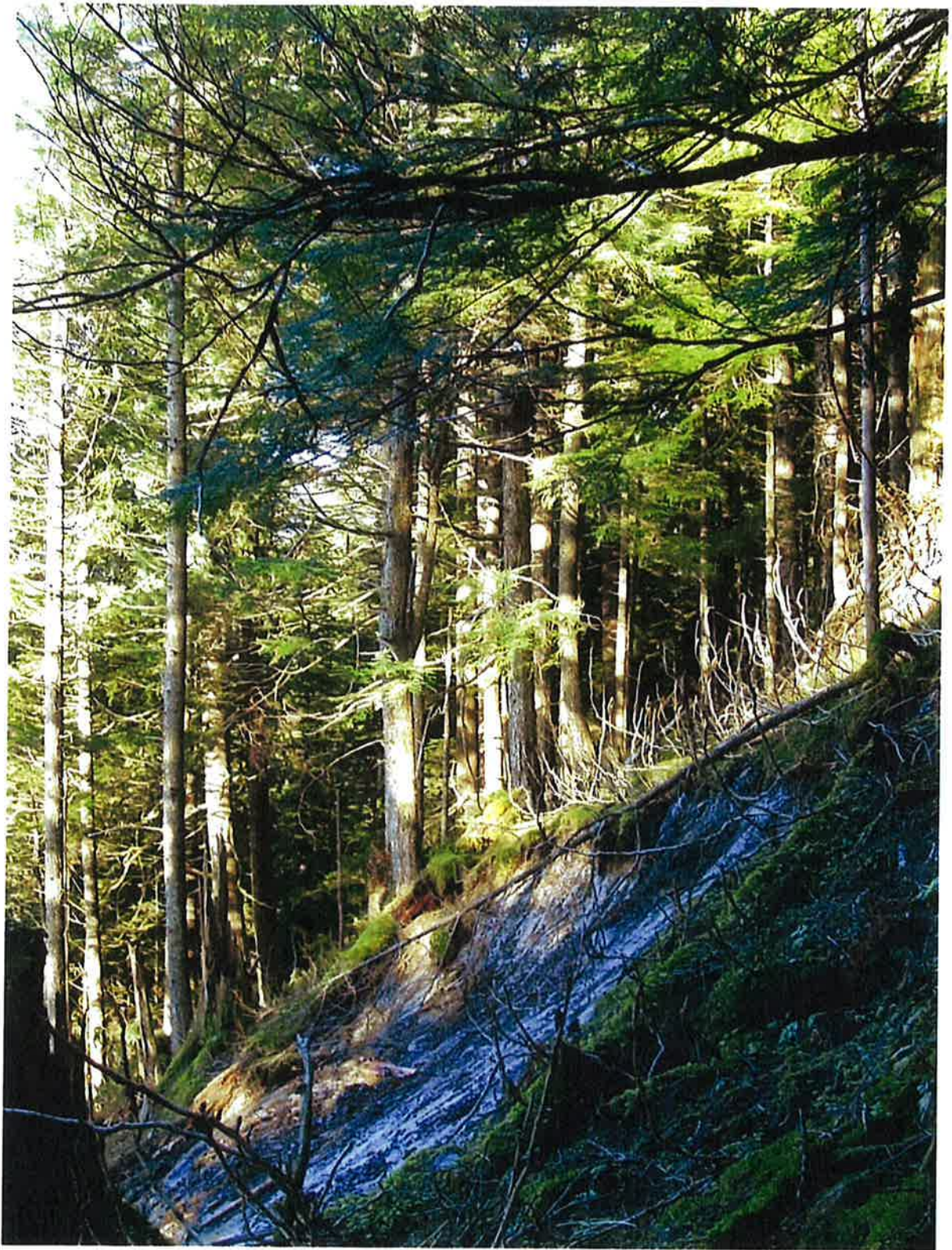


5.2-5.3-Mile Mitkof Highway, 28-29 October 2011 unchanneled slide. Looking downslope from top edge of slide apex (approximate 1000-foot elevation level), note approximate 50-60 yard swath with slide terminus beyond tallest leaning conifer (above photo center) in resident's rock quarry, destroying storage vans and equipment. The Wrangell Narrows is visible beyond tree line. Of particular interest is the absence of incised channels. Photo: Ed Wood, 3 November 2011



5.2-5.3-Mile Mitkof Highway, 28-29 October 2011 unchanneled slide. Telescoping out further downslope from Photo 2 towards the slide terminus just beyond the Alder trees (note "X" formed by conifers at photo center). Slide path includes blowdown in varying forms caused by strong winds and torrential rains. Note Tyee hydroelectric transmission line is visible in background level with farthest tree tops.

Photo: Ed Wood, 3 November 2011



5.2-5.3-Mile Mitkof Highway, 28-29 October 2011 **unchanneled slide.** Looking cross slope at incline of slide apex. Photo: Ed Wood, 3 November 2011



5.2-5.3-Mile Mitkof Highway, 28-29 October 2011 unchanneled slide. Although the slide moved a major portion of large woody debris downslope, volumes of saturated gooey sucking mud remain along the slide path, sometimes knee-deep. Photo: Ed Wood, 3 November 2011



The 3 November 2011 *Petersburg Pilot* story "Landslide levels buildings at Mile 5 Mitkof Highway" included the above captioned slide scene photo, "A Sunday landslide took out two warehouse structures on property owned by Gloria Ohmer at mile 5.1 Mitkof Highway. High winds and heavy rains over the weekend are believed to have triggered the slide. Damage was estimated at \$170,000."

Photo: *Petersburg Pilot*, 3 November 2011

October 28-29, 2011
5.1 mile Mitkof Highway

ASSESSMENT OF LANDSLIDE RISK TO THE URBAN CORRIDOR ALONG
MITKOF HIGHWAY FROM PLANNED LOGGING OF MENTAL HEALTH TRUST
LANDS

By

Douglas N. Swanston Ph.D. CPG



ASSESSMENT OF LANDSLIDE RISK TO THE URBAN CORRIDOR ALONG MITKOF HIGHWAY FROM PLANNED LOGGING OF MENTAL HEALTH TRUST LANDS

This assessment has been prepared as a response to the Trust Land Office request for an assessment of the risks of logging in this area. The assessment is based on extensive field experience in southeast Alaska; site-specific measurements and sampling of the slope and gullies along the highway; pertinent geologic, soils and topographic map examination; and aerial photo analysis of the terrain. A review of the Alaska Mental Health Trust parcels currently being considered for logging in the Petersburg area indicate a major stability hazard to the urban corridor from Scow Bay to the Twin Creeks valley, if logging of the parcels above and adjacent to Mitkof Highway is to occur. Field work was performed by Dunn Environmental Services. A map and report showing the location of field data points and a log of findings is contained in Appendix A.

SITE CONDITIONS

Mitkof Highway, from Scow Bay to the mouth of Twin Creeks valley lies near the base of steep, glacially scoured mountain slopes that are currently being considered by the State of Alaska Trust Lands Office for selective logging by helicopter. The entire ridge adjacent to the highway corridor and below approximately 1000 feet is underlain by interbedded schists and minor phyllite. Above approximately 1000 feet a locally foliated dioritic intrusion (described by Brew 1997, as a Biotite-Epidote-Hornblend Quartz Monzoniorite) is exposed in gullies and bluffs below the ridge crest and is a major material source for extensive shallow colluvial soil development, local talus cones and large bedrock blocks lodged temporarily on the slope. Above an elevation of between 500 and 600 feet, the terrain consists of bedrock slopes covered by a shallow veneer of overburden soil with slope gradients frequently at or above the minimum angle of stability of the materials on them. Below this elevation and extending to the highway is a steeply sloping terrace of silty, sandy, cobbley glacio-marine materials similar to those underlying the City of Petersburg. Beginning above and within the steep slope sections there are a number of shallow, spring-fed depressions and larger structurally controlled gullies (gullies formed by erosion along faults and fractures in the bedrock) that lead to deeply eroded, steep-gradient channels that pass through the lower terrace materials before reaching Mitkof Highway. These steep slopes are highly unstable naturally and have been repeatedly subject to both historic and pre-historic debris avalanche and debris flow activity initiated during periods of storm rainfall and strong winds. It is these historic and pre-historic landslide processes, coupled with periodic high storm flows that have carved the deeply eroded channels through the lower terrace deposits. There is a high risk of renewed debris avalanche and debris flow activity on these unstable slopes if disturbed by the proposed helicopter logging activity. If these landslide processes reach a channel, the resulting volumes of soil, water, rock and organic debris (expanded by secondary channel erosion and mobilization of stored debris) would likely be carried directly to Mitkof Highway and the shore of Wrangell Narrows as highly damaging debris flows or debris torrents.

The undisturbed, unstable slopes above the Highway north of Taain Creek (within Sections 10 and 15) display a low level of instability at the present time and exhibit no evidence of recent large-scale natural landslide activity. Terrain conditions are prime, however, for possible re-initiation of debris torrent activity if logging disturbance were to

occur. At least 7 dormant vegetated channels or gullies begin within or cross through the unstable slope sections and are down-cut through the lower terrace. Four of these reach Mitkof Highway directly. They provide ready paths for transport of water-charged landslide debris to Mitkof Highway, if the slopes become destabilized by logging (Figure 1). In addition to the Mitkof Highway corridor and dwellings/development down slope slope, at least two homes constructed adjacent to the channel outlets on the upslope side of the Highway (at field data points 59 and 78, Appendix A, figure 1a) would be in severe danger if debris torrents were to develop.

The undisturbed, unstable slopes above the Highway from Taain Creek south to the mouth of Twin Creeks valley (within Sections 23 and 26) display high levels of active instability, and at least 13 recent debris avalanches and debris flows have entered channels as temporary debris dams or are lodged on the slope as temporary deposits. Eight major actively eroding channels or gullies begin within or cross through the unstable slope sections. Five reach Mitkof Highway. The remaining gullies are tributary to the channels reaching the Highway. Between 1986 and 1988 two of these, at Mile 6.2 and Mile 6.5, have produced a total of 5 debris torrents and floods that have reached or crossed Mitkof Highway (Figure 2). At least one home, at the mouth of Taain Creek, is in severe danger if a debris torrent were to develop.

Selective logging by helicopter is the proposed method for harvesting these slopes. From a slope stability point of view, the primary reason for logging by helicopter is the elimination of the destabilizing affects of logging road construction. If done carefully, it could also reduce the level of ground disturbance normally associated with cable yarding and with extra effort, it allows removal of accumulated slash on the slope and in gullies.

Helicopter logging and the use of selective harvesting techniques are methodologies that may *reduce* the number and severity of landslides generated during or after logging of unstable slopes. They are most applicable in rural and forested areas where damage is primarily limited to site productivity and fish habitat, and there is little potential risk of fatalities and damage to public and private structures. They do not *eliminate* all landslides or the possibility of landslides if the right conditions are present on the slope. It only takes the initiation of a few landslides large enough to mobilize soil and organic debris stored on the slope, and in the channels draining the slopes, for a damaging and potentially fatal torrent flow to reach Mitkof Highway.

Apparently, Alcan Forest Products hopes that helicopter logging and selective harvest techniques will assure stability by localized cutting at stable sites, reduction in site disturbance and maintenance of a viable root anchoring and reinforcing network across the slope. The controlling variables are the total area maintained in forest cover, the selective techniques used (e.g. group selection or single tree selection), the percentage of timber removed, the cleanliness of the yarding operation and the ability of the person or persons marking trees, laying out units or performing the logging to recognize and avoid areas of potential instability. There is very little quantitative information to demonstrate the real value of this approach. The in-exact nature of these



Figure 1. Aerial photo of the northern half of the Mitkof Highway corridor below TLO holdings. At least 7 potential debris torrent gullies, marked by red arrows, are visible on the slope between the ridge summit and Mitkof Highway. These are currently dormant, but field investigations indicate considerable debris loading including debris dams in many of the incised channels. Four of these reach Mitkof Highway directly and present a severe hazard to homes and the utility corridor if debris torrents develop.



Figure 2. Aerial photo of the southern half of the Mitkof Highway corridor below TLO holdings. At least 8 major debris torrent gullies (marked by red arrows) can be seen on the slope. Five reach Mitkof Highway directly and present a severe hazard to homes and the utility corridor if debris torrents develop. At least 13 recent debris avalanches and flows (marked by yellow stars) are lodged on the slope. The linear patches in the timber and parallel to the slope are from blowdown. Some of the torrent channels, such as Taaia Creek are fed by numerous side-channel gullies as well as minor snow avalanching in the headwater areas.

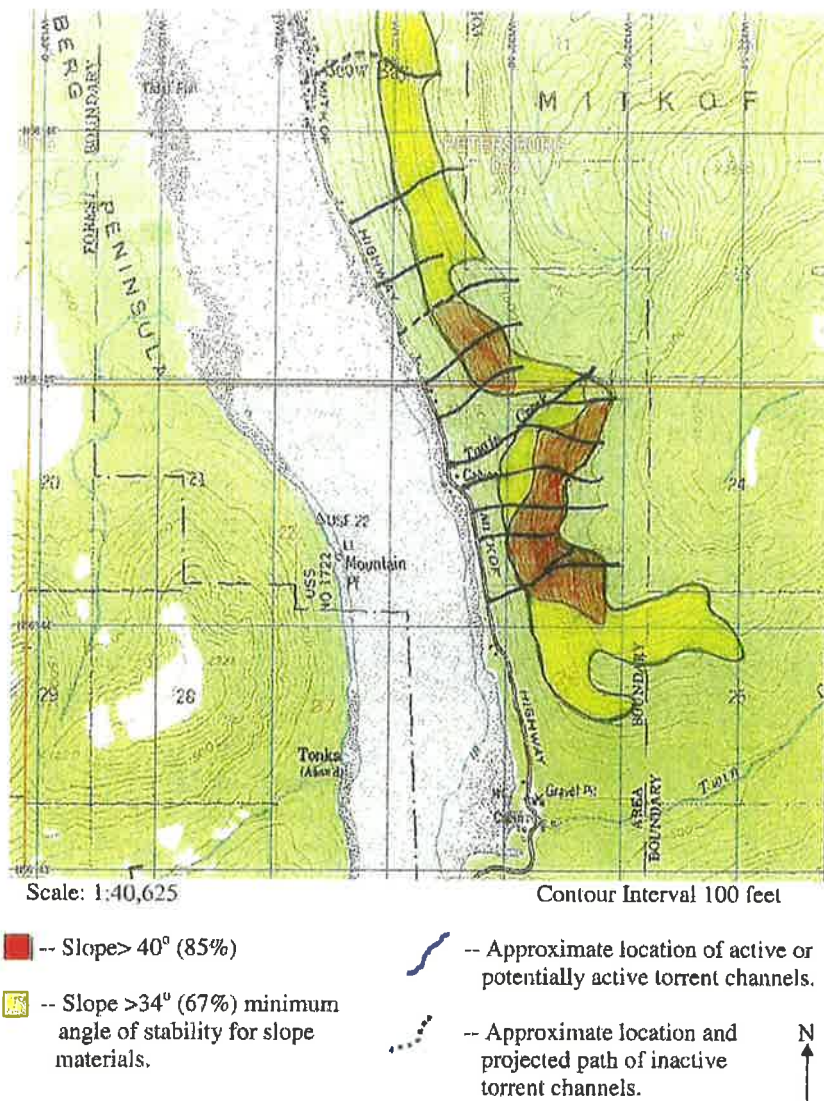


Figure 3- Preliminary Stability Hazard Map of the slope above Mitkof Highway, Scow Bay to Twin Creeks Valley. Boundaries are approximate based on horizontal scaling of distance between contour intervals on USGS Petersburg C-3 and D-3 Quadrangle Maps.

variables and their application virtually assures that even low levels of helicopter logging and selective harvest could miss-identify sites and cause losses of the anchoring and reinforcing effect of root systems with associated loss of stability. A recent comparison of landslide rates following helicopter and conventional, cable-based, clear-cut logging in the Southwest Coastal Mountains of British Columbia indicate that total landslide rates are not significantly different following helicopter and conventional logging, although there is a slight decrease in rates for helicopter logging due to elimination of logging road construction (Roberts, Ward and Rollerson, 2004). No matter what technique is used, helicopter logging and selective harvest are unlikely to assure complete stability and retention of a viable root-anchoring system across the slope, particularly if groups or single trees are selected in areas of critical gradient or ground water concentration where landslides commonly initiate. Recent data from Portage Bay indicate significant increases in maximum soil saturation (water height/soil depth) following 100%, 75% and 25% helicopter harvest (Johnson, A.C., Edwards, R.T. and Erhardt R. 2006). Increases in maximum soil saturation increase the potential for landslide initiation at unstable sites. In this area known for strong winds funneled down Wrangell Narrows and down Twin Creeks valley, selective logging also opens up non wind-firm cut boundaries, timber blocks and single trees to blowdown. The resulting uprooting destabilizes the soil mass locally and may be an important landslide-triggering event in poorly drained shallow swales and linear depressions where landslides typically initiate.

EVALUATION OF LANDSLIDE RISK

Terrain Characteristics

Like most of the mountain terrain in Coastal Alaska, the slopes adjacent to and upslope of Mitkof Highway in this area are characterized by geomorphic and climatic conditions that foster the development and dominance of debris avalanches, debris flows and debris torrents (debris floods) as the major processes of erosion and material transport to the slope base. Principal among these are:

1. shallow, semi-cohesionless soil overburden, predominantly colluvium derived from gravitational transport of chemically and mechanically weathered bedrock. Above between the 500-foot and 600-foot elevations, the soil overburden through most of the unstable slope sections is predominantly shallow, semi-cohesionless silty sands and gravels which classify as GM-SM materials according to the Unified Soil Classification System. These have been mapped and described as the Helm Series (Kupreanof and Mosman Soil Types) (USDA Forest 1993, 2001) and are recognized as "landslide hazard soils" along this slope. Detailed engineering characteristics for these soils can be obtained from Schroeder and Swanston (1987).
2. excessive slope gradient (slope gradient at or above the minimum angle of stability of the soil overburden). Large portions of the slopes above Mitkof Highway, beginning at an elevation of between 500 and 600 feet, and extending to the ridge summit, have gradients at or above the minimum angle of stability of these overburden materials. For these overburden materials, the minimum angle of stability lies between 34 and 36 degrees (approximately 67%-72%) (Schroeder and Swanston, 1987). These values correspond to the mean angle of internal friction for GM-SM materials characterizing the unstable slope sections. Near the ridge summit and above about the 1000-foot elevation, gradients approach or exceed 40 degrees (84%). A stability hazards map (Figure 3) was constructed using slope gradient as a prime indicator based on field measurements and scaling of slope gradient changes on USGS topographic maps (Petersburg C-3 and D-3),

- to define areas with gradients at or above the minimum angle of stability of the overburden materials above the highway.
3. High seasonal precipitation occurring during the fall and winter rainy seasons (September-February) characterized by high-intensity, long duration (>2 day) storms. Research in southeast Alaska indicates that in these types of materials, rainfall intensity of 6 inches per 24 hours is adequate to completely saturate the overburden and thus develop a temporary water table with a destabilizing piezometric surface at or near the ground surface (Schroeder and Swanston 1987, Sidle and Swanston 1982, Swanston 1967). An Isohytal map of 5-year, 24-hour rainfall occurrence in southeast Alaska (Miller 1963) indicates storms approaching this intensity (4 to 5 inches in 24 hours) with a 5-year return interval in the area around Petersburg and Wrangell Narrows (Figure 4).
 4. controlling topographic features, which are particularly conducive to initiation and transport of debris avalanches, debris flows and debris torrents. These include:



Figure 4. Five year, 24-hour rainfall occurrence in southeast Alaska (adapted from Miller (1963). Note that the Petersburg area including Wrangell Narrows lies in an intensity zone between 4 and 5 inches in 24 hours.

- a. numerous shallow linear channels and depressions (swales and hollows) on steep, unstable slopes, which serve to concentrate surface and ground water flow during storms. Temporary surface

water flows accelerate surface erosion and mobilize and transport accumulated loose debris in these features. Increased ground water flows cause formation of temporary water tables and development of positive pore water pressures which decrease stability of overburden materials;

- b. deep structurally controlled and erosion-formed gullies and channels that reach from the unstable slopes to Mitkof Highway. These features have steep, unstable side slopes and steep channel gradients in which both debris and storm flows are concentrated. These features are the principal transport paths for delivery of debris flow and debris torrent materials to the urban corridor along Mitkof Highway.

Failure Type

On the open slope above the Highway and within these shallow swales and linear depressions the primary failure type is a debris avalanche, defined as the failure of a shallow finite mass of water-charged overburden material along a more-or-less planar or



Figure 5. Debris avalanche in timber at Hobart Bay, Alaska. Failure began in linear hollow or depression where ground water was concentrated during a high-intensity storm.

flat surface (Fig. 5). The mechanics of this type of failure are presented in detail in the literature (Swanston 1967, 1969, 1970, 1974, 1997; Schroeder and Swanston 1987; Wu and Swanston 1980; Wu, McKinnell and Swanston 1979). These failures occur at a shallow depth (1 to 3 feet) and develop entirely in the soil overburden. Few involve bedrock failure. Failure generally occurs along a well-defined plane marking the

boundary between soil overburden and underlying bedrock. Initial movement is predominantly translational (all particles of the soil mass move with the same velocity along parallel paths) with displacement along and parallel to the failure surface. Because of the shallow nature of the soil overburden, the gradient of the potential failure surface is approximately equal to the slope gradient. Once movement begins, the initial mass rapidly breaks apart owing to internal stresses. Because of the high water content, it is transformed into a mixture of water, soil, rock, and organic debris that rapidly moves down-slope. This type of secondary failure is called a debris flow (Fig. 6). Debris flows move downslope along linear depressions and minor gullies and may lodge temporarily behind intervening trees, downed logs, on local bedrock benches, or in larger channels as debris dams. At least 7 of these failure types are indicated by debris dams and scattered landslide debris stored in gullies and channels north of Taain Creek identified in the field at data points 32, 33, 42, 56, 70, 73 and 79 (see Map 1a, Appendix A). Fifteen more of these failure types are identified in the field and on 1998 aerial photos by debris dams in lower Taain Creek and 6.2 Mile Creek and by scattered landslide debris stored on the slope between Taain Creek and the Twin Creeks Road (see Appendix A, figure 1a, and figure 2).

Debris avalanches and flows that reach incised gullies and perennial channels, coupled with high channel flows and mobilization of temporarily stored debris, produce high velocity, high-volume debris flows called debris torrents (Figure 7). At least 15 such channels begin within or pass through unstable slope sections and reach Mitkof Highway. Two of these, draining the actively unstable slopes above the Highway between Taain Creek and Twin Creeks valley (at approximately 6.2 Mile and 6.5 Mile) have produced recent debris torrents and floods in 1986 and 1988 that reached the Highway, resulting in Highway blockage, injury and death to Highway travelers and damage to inhabited dwellings.

Such processes can be particularly damaging and deadly. Over a 41-year period 1913-1954, the Juneau urban area has experienced 17 debris torrents resulting in 17 deaths and 14 homes destroyed or badly damaged. In October 1979, following heavy rain in the Wrangell Area, a combined debris flow and debris torrent was initiated on the slope above Zimovia Highway (Figure 8). The resulting debris was channeled through an old clearcut along several different debris-charged gullies on the lower slope, damaging a mobile home park, flowing between a home and an apartment above the highway and blocking the highway (Figure 9). Over the 25-year period 1958-1983, the section of Highway 99 between Whistler Ski Area and Vancouver, British Columbia has been subjected to at least 14 debris torrents which have damaged the community of Lyons Bay, destroyed several highway and railroad bridges and caused a number of deaths within the village and along the Highway (Figure 10).



Figure 6. 2004 Portage Bay debris flow. Note shallow depth of material, exposed bedrock in the failure zone and the channeling of debris below the failure zone.



Figure 7. Torrent flows at Hollis, Prince of Wales Island. Flows began as debris avalanches on slopes greater than 34 degrees. Avalanches were then channeled into shallow gullies and carried to the bottom of the slope. Slopes cut in 1959, debris avalanches occurred in 1963.



Figure 8. 1979 Debris flow/debris torrent above Zimovia Highway south of Wrangell. Failure initiated in October following record rains (>4"/24 hr.), in shallow overburden similar to that found above Mitkof Highway. Gradient in the failure zone exceeded 40 degrees. It began as a debris avalanche in uncut timber at the upper right. It split into two main paths damaging a mobile home park to the north and passing between a home and an apartment at photo center before reaching the highway.

Logging Risks in the Initiation Zone

Helicopter logging of steep slopes along the Mitkof Highway corridor has a high potential for initiating and accelerating debris avalanches, debris flows and debris torrents. Slope areas above the 500 to 600-foot elevation with gradients at or above the minimum angle of stability of the overburden materials are in a delicately balanced state relative to stability. They are highly susceptible to any activity that might upset the balance of forces acting to maintain the overburden materials in place. Factors affecting their stability include:

- Destruction or reduction of stabilizing root systems through timber cutting, yarding disturbance, and increased blowdown activity in cut units during fall storm periods.
- Reduction in resistance to sliding along the bedrock failure surface by the rise of a temporary water table (active pore-water pressure development) during fall storms and reduction in weight of overburden by tree removal. In essence, during a storm the soil mass becomes even more unstable.



Figure 9. Automobile and large woody debris from the October 1979 debris torrent lodged on the beachside of Zimovia Highway. Note log resting on power line.

- Increasing downslope stresses by a) increased soil water content resulting from tree removal (increased rainfall reaching ground and decreased evapotranspirational withdrawals causing increase in weight of soil mass); b) temporary increases in overburden weight at critical sites by surcharging during windthrow events and during felling and yarding; and c) dynamic loading of the soil mass by increased wind stresses (swaying) on non wind-firm trees and by external stresses such as earthquakes and blasting.

Swanston and Marion (1991), in a study of over 1374 landslides in southeast Alaska initiated during the 21-year period 1963-1983 found that the occurrence rate in logged areas is 3 1/2 times greater than in undisturbed areas. In particular, a number of studies have demonstrated the effects of logging on degradation of anchoring and reinforcing root systems (Sidle 1991, 1992; Sidle and Swanston 1982; Swanston 1969, 1970; Wu, McKinnell and Swanston 1979; Wu and Swanston 1980; Ziemer and Swanston 1977). In-situ shear tests over widely scattered areas in coastal Alaska and the Pacific Northwest (Wu, McKinnell and Swanston 1979; Ziemer and Swanston 1977) indicate that as much as 25% of the effective overburden strength may result from the anchoring and reinforcing effect of roots. On steep slopes with shallow overburden, this is a critical factor in maintaining the balance of forces at potentially unstable sites. The anchoring and reinforcing effect of roots is temporarily lost when the trees are harvested.

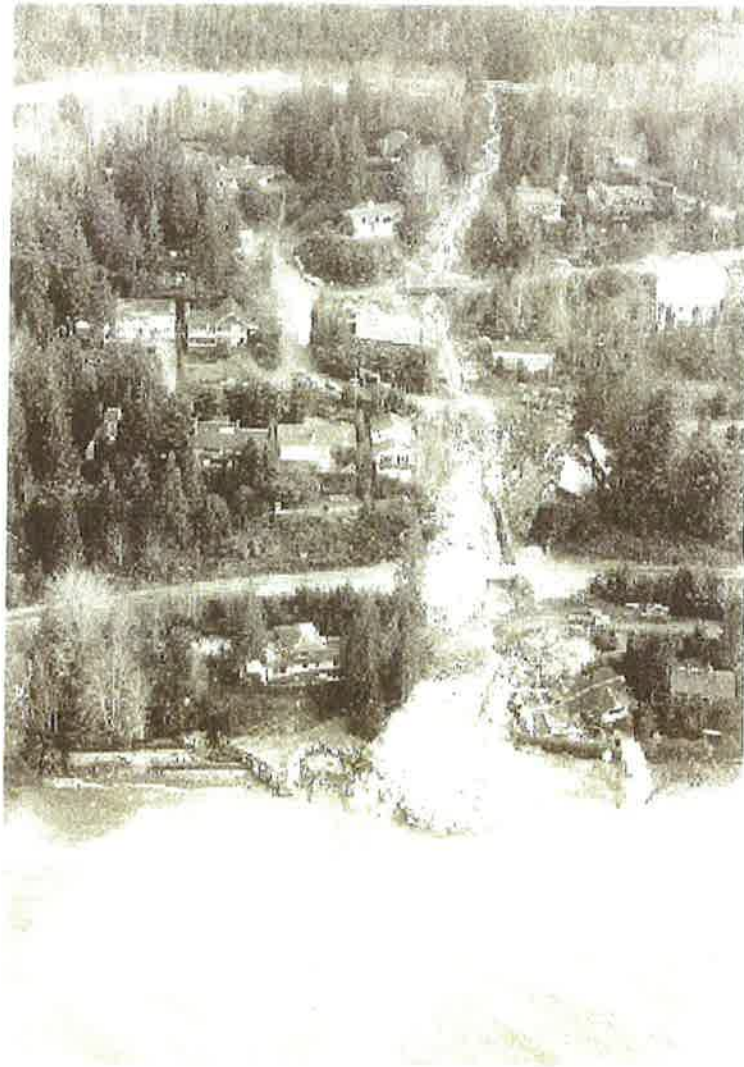


Figure 10. 1983 Alberta Creek debris torrent, Lyons Bay, British Columbia. The failure was initiated during a February storm of >4 inches in 24 hrs. It began as a debris avalanche at and below a logging road crossing with a gradient in excess of 30 degrees. Accompanying high volume flows produced a debris torrent that occurred in 6 separate surges, destroying the Highway 99 Bridge, a railroad bridge and passed through the village of Lyons Bay and into Howe Sound. Two people were killed and five homes were destroyed.



Figure 11. Natural and logging debris accumulated in debris torrent gulley on Prince of Wales Island. Part of it accumulated during the yarding process, producing a temporary dam. The majority was carried in by small debris avalanches and flows during high-flow periods and lodged behind the dam.

Logging activities also increase the loading of slopes and gullies with organic debris during the felling and yarding process, thus increasing the quantity and volume of material added to gullies and mobilized during debris torrent initiation (Fig. 11). The result is an increase in the volume of material delivered to the base of the slope and an increase in impact forces applied to any structures in the path of torrents and flows.

It is difficult to quantify landslide risk as the result of logging because the various parameters that affect slope stability are difficult to measure with precision, even with extensive field measurement. A rational method that takes into account these uncertainties is the use of probability theory to assess risk. Wu and Swanston (1980) developed such a method for slopes with shallow semi-cohesionless overburden where the anchoring and reinforcing effect of vegetation has been reduced or eliminated by timber harvest. Slope gradient and predicted piezometric response to rainfall are the primary variables. Using this methodology, the risk of landslides due to logging in shallow semi-cohesionless soils subject to maximum piezometric rise during fall storms approaching 6 inches in 24 hours is about 30% on slopes of 34 degrees. As slope gradient increases, the risk increases and at about 39 degrees the risk of landslides is about 75%. This is about a 9% increase in risk per one-degree increase in slope gradient. These values can be used to approximate the levels of risk inherent along Mitkof Highway.

The unstable slopes above Mitkof Highway have a high probability of accelerated landslide occurrence. Large portions of the unstable slopes in Sections 10 and 15 are above the minimum angle of stability of the overburden soils (34-36 degrees) and exceed

40 degrees locally, particularly in the southeast corner of Section 15. The estimated risk of a landslide or landslides following logging disturbance on these slopes ranges from 30% to about 60% and increases to more than 75% where slope gradients approach or exceed 40 degrees. The unstable slopes in Sections 23 and 26 are also above the minimum angle of stability of the overburden soils with the gradient rapidly approaching 40 degrees at the 600 to 700-foot elevation. Above the 1000-foot elevation gradients greatly exceed 40 degrees. The estimated risk or probability of a landslide or landslides following logging disturbance on these slopes ranges from over 30% at the lowest elevation to over 75% above the 1000-foot elevation.

Downslope Effects

The effects of debris torrents generated on the slopes above Mitkof Highway can be substantial. Once a debris avalanche or flow enters a gulley, or a gulley failure occurs, the resulting mixture of water, rock, soil, and organic debris are transported at varying but rapid rates to Mitkof Highway and below where the materials are deposited. Velocities in the headwall area of debris torrents have been estimated between 52 and 70 ft/sec, with greatest velocities occurring in confined, steep-gradient channels (Curry, 1966; Swanston and Swanson, 1976; Thurber Consultants, 1983). These estimates are based on eyewitness accounts and back-calculation from maximum design loads of collapsed structures in the flow path.

As velocities decrease downslope with decreasing gradient, and flows leave the gulley and spread out, depositing characteristic debris fans and broad, shallow run-out zones (see Figures 7, 9 and 10). These are composed of lenses of incoherent soil, rock, and organic debris (old landslide deposits) inter-layered with stratified fluvial material. These features are constructed by repeated deposition of channelized materials transported by debris torrent discharge from the unstable slope sites. Velocities in this run-out zone are much lower and have been estimated for a number of occurrences along the north Pacific coast at between 7-30 ft/sec (the lower velocity approximating a fast walking speed) (Nasmith and Mercer, 1979; Thurber Consultants, 1976, 1983; Swanston and Swanson, 1976). For design purposes, velocities of debris torrents entering the Juneau urban area have been estimated at about 20 ft/sec (Swanston, personal communication). The mouth of Taa'in Creek flows across a large debris fan that has been constructed by repeated deposition of torrent debris. Debris fans and associated run-out zones are prime areas for recurrent debris torrent impact resulting from natural landslide activity and from accelerated activity resulting from logging and associated disturbances on the overlying unstable slopes.

Impact forces generated by these debris torrents as they enter and spread across the deposition zone are large. If an average bulk density of 124 lbs/ft³ is assumed, moving across the deposition zone at a velocity of 13 ft/sec then the uniform load applied to any structure at right angles to the flow is a little over 10 tons/ft². If an individual boulder or log strikes the structure, point loads may be two to three times higher and may exceed 30 tons/ft². These loads are sufficient to seriously damage or destroy utilities, transportation structures and individual dwellings along the Mitkof Highway corridor.

EVALUATION OF RISK FROM DEBRIS TORRENTS ALONG THE HIGHWAY North of Taa'in Creek

The high-gradient undisturbed slopes above the Highway from Taa'in Creek north to Scow Bay (within Sections 10 and 15) are in an equilibrium state at the present time with the forces acting to initiate failure balanced by a mature timber cover and a

combination of lower overall gradients ($>34^{\circ}$ but $<40^{\circ}$) shorter slope sections and local structural benching in the underlying bedrock. These slopes display only minor evidence of large-scale recent natural landslide activity. They do however, display large woody debris accumulations and local debris dams in incised channels and possess all of the necessary slope characteristics and attributes for debris avalanche and debris flow initiation and acceleration following disturbance. There is probably at least a 30% and possibly as high as a 75% chance that debris avalanches, flows and associated torrents will be initiated following timber harvest. There are at least 7 potential debris torrent channels draining these unstable slope sections, four of which reach the Highway. Most are partially clogged with large woody debris and local debris dams. If a large enough debris torrent develops, these channels are likely to have substantial organic and inorganic material mobilized resulting in significant damage in the Mitkof Highway corridor and to homes adjacent to and down stream of the torrent paths.

The risk or danger to the utility corridor, structures and residents along the Mitkof Highway corridor from debris torrents initiated by logging in this zone is moderately high. It is strongly recommend that all of Unit 6, as described in the Alcan Forest Products Operating Plan, not be harvested. Unit 6 incorporates all of the identified high hazard slopes and associated torrent channels above Mitkof Highway north of Taain Creek.

South of Taain Creek

The undisturbed slopes above the Highway from Taain Creek south to Twin Creeks valley (within Sections 23 and 26) are highly unstable and currently active. Gradients exceed 40 degrees over large portions of the slope. At least 13 recent debris avalanches and debris flows are identifiable on the slope from the air and on the ground. Eight major steep-gradient, actively eroding gullies begin within or cross through the unstable sections. Five carry these steep gradients all the way to Mitkof Highway. Two, at Mile 6.2 and Mile 6.5 have recently produced five debris torrents and floods that have reached or crossed the highway. The high probability of debris avalanche and debris flow development over much of the slope area ($>75\%$) following disturbance, current natural landslide activity, the recurrence of debris torrents reaching the highway and the presence of short, active, steep-gradient incised drainages and debris torrent gullies virtually assures increased numbers of debris torrent events if logging is allowed to occur.

The risk or danger to structures and residents along the Mitkof Highway corridor from debris torrents initiated by logging in this zone is extremely high. It is strongly advised that Unit 7 and Unit 8, as described in the Alcan Forest Products Operating Plan, not be harvested. Unit 7 extends into highly unstable terrain, will be shovel logged using heavy machinery rather than helicopter logged and straddles one of the most active debris torrent gullies leading to Mitkof Highway. Unit 8 encompasses some of the most actively unstable terrain along Mitkof Highway.

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APPENDIX A

**Report on Field Investigations,
Mitkof Hwy. Area,
Petersburg, AK**

**For
Dillon and Finley, PC**

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**By Art Dunn
May 22, 2006**

Report on Field Investigations, Mitkof Hwy. Area, Petersburg, AK
By Art Dunn, May 8 – 11, 2006

Introduction

This investigation and report of geomorphic conditions on the mountain slope east of Mitkof Hwy, Petersburg, Ak., are intended to provide raw data for a subsequent report on the stability of soils and possibilities of mass wasting, including debris torrents, on those slopes and in existing streams.

Methods

Instruments used in the field investigation included: Garmin XL 12 GPS; Brunton compass and clinometer; Pentax digital camera; Munsell soil color charts; and a tile shovel for soil investigations. (Note: possibly because of heavy rains, the elevations recorded by the GPS are suspect, several times the GPS stuck on one elevation while I was climbing or descending.) Notes were taken on all data points in a "Rite in the Rain" notebook.

The general study method was to climb up a stream from the highway to approximately 1,000 ft. elevation, then traverse sidehill to the next major stream, and descend on that stream back to the highway, taking notes of all major geomorphic changes along the way. The 1000' elevation was chosen because available topographic maps show a grade change at that elevation, and this proved to be approximately the case on the ground.

Meteorological conditions for most of the field investigations were wet and cold, slowing progress somewhat.

Findings

A. General observations

Two types of bedrock were encountered: a metasediment at lower elevations, including the several rock pits; and what appears to be a granodiorite at higher elevations, and as rounded boulders and cobbles lower in stream courses and talus slopes. The metasediment is typically angular, but the granodiorite seems to be very erosive and forms round boulders and cobbles.

Three soil types were found, the most prevalent being an apparent glacio/marine deposit, as typified by a silty Wadleigh soil (Data Pt. 4, Photo 10). The second most abundant is a folist on steep talus slopes. The third most abundant is a partially developed soil resembling a silty Kupreanof soil, but showing particles of the underlying granodiorite described above (Data Pt. 51, Photo 41).

The entire area has steep (>70%), soil covered slopes scattered throughout, including short pitches and long slopes. Most of these slopes are heavily forested.

There are several recent active landslides in the area, including at Data Pt. 1 (top of clearcut on Taain Cr.), and Data Pt. 14, on "6.2 Mi. Cr."

There are two types of streams in the area: those that originate on the slopes in seeps at approximately 1000' el, in or below talus slopes (Data Pt. 7); and those that originate on top, or above the talus slopes (Data Pts. 1-4, 14, 54, 69, 80). The lower streams are typically dendritic, and apparently low volume, while the streams that originate higher are typically incised, usually show active bank erosion, may contain debris dams, and may show evidence of past alluvial action and deposition.

B. Specific Observations

Debris dams and recent landslides were found in: Taain Cr., "6.2 Mile Cr.", and the creeks at Data Points 32, 33, 42, 56, 70, 73, and 79.

Slopes equal to or in excess of 70% were found at Data Pts. 1, 2, 6, 7, 13, 14, 15, 17, 18, 19, 21, 26, 27, 28, 29, 31, 51, 54, 55, 57, 62, 63, 64, 65, 66, 67, 68, 69, 70, and 71.

Data Pts. 50 – 53 were on a sidehill depression zone that I believe marks the boundary between the metasediment downslope and the granodiorite upslope. Several vertical caves were found in this area.

Data Points 54 – 56 define a slide zone and fan (sketch 1)(Photos 45 – 52). The rock in the slide zone and fan appear to be granodiorite. A stream entering the top of the slide zone fall into apparent talus at the bottom of the falls and emerges approximately 700 slope feet below at the toe of the fan. There is a large debris dam at the toe of this fan. Although this slide and fan appear to be stable, a pile of talus rock against a living tree on the S side of the fan (Photo 46) shows that there is still some activity.

Large spruce trees that appeared to be marketable were frequently found in groups of 6 – 20, in areas of approximately 1 – 2 acres on steep slopes (Data Pts. 17, 36, 70).

At least 3 houses on Mitkof Hwy. are constructed directly in the paths of steep, incised, and debris-laden streams that flow from the top of the ridge.

**Log of Field Investigations 5/8 – 5/11,
Upslope of Mitkof Hwy, Petersburg AK
(Data points located on figure 1a)
(Referenced photos on file a Dunn Environmental Services)**

Taain Cr.

1. 56-44.700, 132-56.144, el 335

head of clearcut, slide area s. of Cr.

Active erosion slope, has slid into creek bottom, diverting cr. to n., will soon erode into old channel, now approx. 10' lower than active channel. Alders on lower slide are 6-8 yrs by section. Upper slope 95%, sand, lower slope 55%, gravel, cobble, silt, sand. 275' from top of slide to creek slope dist.

Photo 1, up slide

Photo 2, upslope from apex

Photo 3 downslope toward creek

Photo 4, soil at top unconsol sand, gravel, cobble

Photo 5, erosion bank of creek, slide at creek.

2. 56-44.732, 132-56.006, el 464'

top steep slope above clearcut, 70% slope down to last point, bench above

3. 56-44.854, 132-55.765, el 835'

debris dam in main stem. Face of dam 8'H, W = 50', L = 150', dam top 25%, stream 45%

Photo 6, lower end of debris dam, rt.

Photo 7, lower end of debris dam, lt.

Photo 8, surface of debris looking up

Banks of stream unconsol. Cobble, gravel, silt, mostly stable, 25-30'H

4. 56-44.826, 132-55.731, el. 930'

debris in S fork Taain cr. unconsolidated silt, gravel banks actively eroding, 40% cr.

Photo 9, upstr at woody debris

Photo 10, active unconsol banks

Traverse to S. of Taain Cr.

5. 150' S last

typical slope down, 60%

6. 56-44.773, 132-55.690, el. 955'

slope up 90% in lg. Forest soil unconsol and talus

7. 56-44.728, 132-55.755, el. 965'

Devil's Club seep, 70% up and down

8. 56-44.659, 132-55.730, el. 1020'

small cr., 45% grade down, 60% up, bedrock and talus, many large trees in cr.
Photo 11

9. 56-44.651, 132-55.761, el 1012'
debris dam on sml cr., cr 6'W, 6' H banks, larg rock bottom, 55% up, down
Photo 12, debris from below
Photo 13, mtl above dam

10 56-44.562, 132-55.769, el 994'
brow of slope, 60% down, large trees, unconsol soil on break

11. 56-44.512, 132-55.761
stream, large talus bed material, vegetated w moss, not active

12. approx 400' sideslope last point
67% slope

13. 56-44.486, 132-55.745, el. 1,062
slope 87%, Photo 14

14. 56-44.361, 132-55.772, e. 1060
large slide at "6.2 Mi. Cr." 342' from dam to top of erosion face
Photo 15 upslope, 16 dam, 17 downslope, 18 v. silty w angular rock, 75% slope on
erosion face

15. 600' S of last pt. Forest at 78% grade below rock outcrop talus

16. 56-44.216, 132-55.665, el 941
major creek, al lot of lg wood in creek but no dams, lg angular rock in bed, steep
bedrock sideslopes, little recent reosion 67% gradient, photo 19 upstr.

17. 56-44.055, 132-55.583
grade above carlson's clearcut 95% talus, large spruce

18. 56-43.916, 132-55.508, el 940'
grade s of carlson's clrcut 80%

19. 56-43.700, 132-55.396, el 756'
steep slope between benches 120%

20. 56-43.622, 132-55.335
grade 50% down, 95% upslope, break in talus slope grade edge of windthrow area

21. below last pt 56-43.585, 132-55.315, el 522, grade 72% downslope.

Area at N end of study with crew from TLO

22. Photo 20, top of Burrells pit, rock fracture face similar to seen s of Taain
Cr.unconsol. glacio-marine sed on top of rock, 0' – 6' depth. Grade upslope 42%
23. above adjacent pit to N, 55%, unconsol soil
24. 56-46.684, 132-57.165, el 692
creek at N side pit, incised 15', mostly rock slopes, photo 21, bedrock /talus bed
grade of ground S of stream 55%
25. just N of last stop, small st. 55% grade
26. 56-46.761, 132-57.167, el 577 .grade 75% up
27. 56-46.799, 132-57.107, el 808
72% grade in devils club seep occasional spruce, this seep 300' top to bottom
28. 56-46.854, 132-57.025, el 1060'
Photo 23, small rockslide 85%
29. 56-46.743, 132-56.945, el 1110'
slope at 70% grade
30. 56-46.675, 132-56.930, el 1050'
deeply incised str. Few big logs in str, no dam, rock sideslopes, ground slope 60%
down
31. S of last pt. Grade of 70%
32. 56-46.583, 132-56.883, el 960'
gully, small str. 15' sloopes, granodiorite sides, bottom, lots of wood in cr, start of
debris dam, photo 24, 65% in stream, photo 25
33. 56-46.561, 132-56.892, el 1000'
Photo 26, debris at head of str, steep, deeply incised below, area approx 75'
diameter.
34. 400' s of last. 55% slope talus, open forest, granodiorite
35. about 600'S of last, 55%, open forest, a few large spruce, photo 27
36. 56-46.387, 132-56.815, el 1007'
55%, 6 large spr. In 120' dia. Area
37. 56-46.075, 132-57.014, el 705'
bench ridge parallel to slope with small drainage behind

38. 56-45.950, 132-57.194, el 477'
small inactive creek, 55% upslope, 45% downslope
39. 56-45.967, 132-57.271, el 303'
grade break to 27% down
40. Lower stream from pt.33, el. 300' photo 28 looking down, 6' -8' banks, unconsol. Mtl.

Central Northern Section

41. 56-46.226, 132-57.562 el.
Lower stretch of small cr above Pfundt house and old reservoir stream bed at 15%, gravel, cobbles Photo 29, stream, Photo 30, small reservoir.
42. 56-46.078, 132-57.433
Photo 31, debris dam 4'H X 30'L X 6'W
Photos 32, 33 wood debris in cr. 100 upstr from last pt.
43. 56-46.085, 132-57.389
grade change in cr., Photo 34, several small debris dams, trib from rt., 30% grade stream Photo 35 active erosion str. Bank, 200' upstr.
44. 56-46.096, 132-57.314
grade change in cr. 46% upstr. Photo 36, equal tribs Rt and Lt.
45. 56-46.116, 132-57.277
str below this pt. Ove series of 6-8' bedrock falls, str. Splits here, dendritic pattern.
46. 56-46.122, 132-57.256
bedrock sill, 47% down
47. 56-46.126, 132-57.160
top of devils club seep on cr. 62% grade down, Photo 37, looking down, Photo 38 same area. Photo 39, lg. Boulder talus slope
49. 56-46.123, 132-57.017
on str.
50. 56-46.056, 132-57.008
Photo 40 shallow depression across slope
51. 56-46.030, 132-56.822 el. 942
grade 75%, Photo 5, 18" soil on granodiorite talus
52. 56-46.030, 132-56.822 approx 1000'
vertical hole found, approx 4' dia. Photo 42

53. for next 500', parklike slope 80%, 18" soil
Photo 43, sidehill depression, 75'L, 6'D, 12'W, vert hole 2' dia at S end
54. 56-45.796, 132-56.657 approx 1300' (see sketch of this area)
large gully Photo 44 grade 52%, ground outside gully on N side 70%
Photo 45 stream falls at head of gully into hole, granodiorite rock
55. 56-45.884, 132-56.667
at grade break on likely alluvial fan below gully, grade 72% up, 90% down
Photo 46, talus rock against tree on s edge of fan
Photos 47, 48, spring on lower slope of fan
Photo 49, upslope from lower edge of fan 56-45.786, 132-56.820
56. 56-45.757, 132-56.857, el 776
Photo 50, debris dam in stream, looking down
Photo 51, debris dam from side
Photo 52, stream below debris dam, 50%
57. 56-45.725, 132-57.026, el ?
on stream, grade 75%
Photo 53, debris dam 10'L, 4'H, 8'W, 200' N of clearcut
58. 56-45.729, 132-57.198
creek just below clearcut, grade 27%, GLO monument 1936 cor lot D
59. 56-45.622, 132-57.351
creek at road, side of "Miller Mansion" this creek appears to lose flow through lower reach (clearcut down)

Southern Central Section

60. 56-44.834, 132-56.537
small stream at road, str. Gradient 55%
61. 56-44.884, 132-56.417
start 32% grade, small debris dam at break
at 200' above this point, confluence, rt branch most water
62. 56-44.880, 132-56.321, el 420
break in slope, bedrock in cr. foliated metased, grade 58% up, 75% down for 100'slope dist Photo 54, active slope 76%, 300' above this point
63. 56-44.901, 132-56.252,
Photo 55, soil pit, unconsolidated metased, silt, organics 18" deep on 120% grade
64. 56-44.967, 132-56.163,

Photo 56, soil pit on break, 85% up, 65% down 18"+ silty angular metased, 2.5Y54
Munsell

65. 56-44.945, 132-55.955
long forested slope, soil at least 2' deep, v. silty, grade 75%
66. 56-45.116, 132-56.047, el approx 1,000'
stream in gully from top, 78%, Photo 57 mixed rock and soil on banks, frequent
small debris dams, bottom 8' W
67. 56-45.092, 132-56.086, el approx 1,045'
100% slope, Photo 58 active soil where root was upended
68. 56-45.092, 132-56.086
Photo 59, large spruce on 75% slope, soil on slope, water seep 50' below
69. 56-45.159, 132-56.150
Photos 60, 61 creek in V notch from top, lots of loose rock in bottom, banks 12'H,
grade 85%
Photo 62 str 150' N of last coord., lots of debris, loose rock shallow bank cr. at
95%, adjacent forest ground 75%
70. 56-45.184, 132-56.189, el approx 1,000'
Str, bed 12'W, banks 10 - 15"H, combo rock, soil, talus, bedrock shelves,
metased & small debris dams, grade 65% Photo 63 upstr.
Photo 64, deer trail eroded upslope N side of cr, 77% grade
Just upslope of these coords, est. 10-12 spruce and 8-10 cedar in one acre on 75 -
80% slope
Just down from coords, Photo 65, erosion on S bank, Photo 66, debris dam
71. 56-45.161, 132-56.265
Steep grade in str, 70% up, 80% down, Photo 67, erosion on slopes, debris dams
above
72. 56-45.109, 132-56.325, el 655'
Numerous small debris dams, grade flattens on small bench, Photo 68, upstr grade
60%
73. 56-45.101, 132-56.397
Photos 69, 70 debris dams up and down here, dams 6'H X 10' W, on survey line
74. 56-45.056, 132-56.512
Lots of debris in str, unconsolidated sorted gravel, cobbles, trees, Photo 71 downstr,
stumps here with springboard notches
75. 56-45.043, 132-56.617
Photo 72, stream grade 35%, bed is boulders, cobbles, surrounding terrain broken

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August 30, 2006

**Critique of: "Geotechnical Forestry Practices Evaluation Petersburg Slope Stability
Assessment Petersburg, Alaska File Number 5342-004-00"**

**By
Dr. Douglas N. Swanston**

General Review Comments

This report provides an adequate discussion of the geologic setting and a reasonable assessment of geomorphic features and conditions relevant to the unstable nature of the slopes adjacent to Mitkof Highway from Scow Bay to the Twin Creeks valley. The report conclusions on the overall instability of these slopes and the location of hazardous sites and potential transport corridors are essentially the same as those developed in the report: "Assessment of Landslide Risk to the Urban Corridor along Mitkof Highway from Planned Logging on Mental Health Trust Lands" and strongly support the designation of these slopes as "high risk" for initiation and acceleration of landslide processes capable of reaching and crossing Mitkof Highway.

Unfortunately, the focus of the report is primarily on logging and ways to limit the destabilizing effects of timber removal on the upper slopes rather than the real danger of downslope debris flow and debris torrent impacts on life and property along the Mitkof Highway corridor resulting from logging disturbance. The general concerns of the City of Petersburg and residents along the Highway were noted but minimal analysis and assessment of effects of proposed logging on public safety and water supply were provided. The authors have failed to recognize or address the importance of the climatic and terrain conditions that prevail throughout much of southeast Alaska and particularly in the area of concern (shallow cohesionless soils, steep gradients, strong winds, high rainfall, rapid snowmelt), as they influence the magnitude and frequency of these dominant slope erosion processes above Mitkof Highway. There is a wealth of information on controlling variables and the adverse impacts of logging on slope stability in southeast Alaska and along the North Pacific Coast in professional journals and in USFS Alaska Region and research publications.

There is undue emphasis on effectiveness of helicopter yarding and limited tree removal on maintenance of stability at these steep slope sites. While helicopter yarding and selective harvest are less damaging than clear cutting and high-lead cable yarding, there is still a high probability of significant disturbance and damage to sensitive slope conditions. The inherent stability of colluvial and residual soils on steep glaciated slopes in coastal Alaska is determined by, and controlled by, the angle of internal friction of the soil. Overburden soils on slopes at or above

their angle of internal friction (approx. 34° to 36°), are in a state of incipient failure and are maintained in place largely by external variables such as: 1) the anchoring and reinforcing effects of tree roots in underlying bedrock and compact till, 2) the tying together of lateral roots from tree to tree across the slope, 3) the buttressing effect of massive lateral and sinker roots developed on the downslope and leeward side of trees to resist overturning due to wind forces and the pull of gravity and 4) by the surface roughness and minor benching in the underlying bedrock. Such forested slopes are in delicate equilibrium with the various natural forces acting on them and are highly susceptible to any disturbance likely to upset that equilibrium such as earthquake, windthrow, high intensity-long duration storms, rapid snowmelt and logging. Trees protected by surrounding trees do not develop significant buttress roots to resist wind loading and when exposed by even limited tree removal are highly susceptible to wind throw and its associated disturbance and destruction of the anchoring and reinforcing root network. The effects of even limited timber harvest on slopes above the angle of internal friction or in "sensitive" areas of concentrated subsurface drainage (such as seepage zones on the open slope and broad shallow liner depressions or "swales" leading to established drainages) are highly likely to result in development of debris avalanches and debris flows. Without adequate training and experience, it is unlikely that the logging contractor can consistently recognize and avoid such "sensitive" areas. Because of the natural variability in local gradient and subsurface drainage, even the most experienced geologist or "geotechnical professional" would be hard pressed to identify and recognize all of the critical sites necessary to guarantee that no landslides or subsequent debris torrents will occur as the result of the planned logging disturbance.

There is undue emphasis on the presence of bedrock benches to reduce the potential for landslides to extend downslope. I agree that small debris avalanches (i.e. less than about 100 cubic yards) with low water content and traveling short distances (i.e. 100 feet or less) are likely to deposit at or just below an intervening bedrock bench. If the failure volume is great enough (i.e. 200 cubic yards or more), the material is saturated and the runout is great enough (i.e. more than about 200 feet) then the momentum of the mass will carry it over the bench at the point of impact or divert it, with substantial momentum remaining, into linear gullies and depressions downslope. Also, as the report notes, these benches do not extend into confined channels where damaging debris flows and debris torrents are transported to the highway.

The report has seriously underestimated the significance of the numerous active and dormant debris flow and debris torrent channels that reach the highway. Large portions of the slopes above Mitkof Highway are either actively unstable or are in a delicate state of equilibrium balance between forces acting to cause a landslide and forces acting to resist a landslide. Slope gradients are steep, soils are coarse grained and shallow and there are numerous swales and zones of seepage where ground water is concentrated, particularly during high-intensity storms and rapid snowmelt. In addition, the slopes are dissected by a number of steep-gradient, incised gullies that extend to the highway and whose drainage areas encompass most of the unstable slope portions. During high-intensity, long-duration storms and/or rapid snowmelt which frequently occur in this area, the entire drainage area of each of these gullies, and not just the "headwater areas" as defined in this report, are source areas for landslide debris which can either:

1) pass through the channel system immediately as debris flows or debris torrents, or 2) lodge temporarily in the gulley forming a debris dam that can accumulate additional material over time ultimately failing and producing an even larger and more destructive debris torrent.

The report provides minimal analysis of downslope effects, no constructive suggestions on reducing these effects and only limited recommendations to avoid the adverse impacts of logging on the steep slopes above Mitkof Highway. Application of certain Alaska State Forestry Best Management Practice BMPs and several additional suggestions are made by the authors. These are minimal recommendations and are entirely inadequate to seriously limit landslide activity. Most are designed to reduce channel disturbance and limit impact to streams. Of the State Forestry Practices Act BMPs recommended, only the fifth one addresses unstable terrain in a minimal way. Of the additional BMPs recommended, only the first item addresses unstable ground and recommends a 30 foot leave-strip of timber around sensitive areas. This is a questionable recommendation since it opens up the leave-strip to extensive disturbance by windthrow.

Logging disturbance of any sort along the steep, unstable slopes above Mitkof Highway, particularly on slopes that drain into the gullies and channels reaching the highway, is **extremely reckless and irresponsible** above such an important transportation corridor and an area of known permanent occupation and planned urban expansion. **The risk is simply too high** considering the demonstrated unstable conditions along the slopes, the presence of numerous active and dormant debris torrent channels reaching the highway and the clear and demonstrated danger to the utility corridor and residents along the highway.

In the last section of the report, the authors make the following statement that defines one of the principal reasons for not logging above the highway and essentially summarizes the concerns of MHHA members and the City of Petersburg: *"However, all management activities on slopes involve risk, only part of which can be mitigated through qualified geologic, engineering and forestry practices. Favorable performance of slopes in the near term does not imply a certainty of long-term performance, especially under conditions of adverse weather or seismic activity"*.

The GeoEngineers report clearly does not guarantee that disturbance by helicopter logging or any other logging method can or will prevent accelerated landslide activity and associated damage and potential loss of life along Mitkof Highway.

Douglas N. Swanston, Ph.D., CPG

“Dr. Swanston has more than 46 years experience in applications of engineering geology to land use planning and analysis and mitigation of the effects of geologic processes on urban and rural land use, a major portion of it gained in western Canada and coastal and interior Alaska. For 35 years (1962-1997), Dr. Swanston led a United States Forest Service engineering geology and slope stability research program. This program established goals, set priorities, and guided research on the influence of road construction, facilities development, and federal management practices on mass erosion and sediment transport in the Pacific Northwest and Alaska. From 1983 to 1988, Dr. Swanston served as a member of the Committee on Ground Failure Hazards Mitigation, National Academy of Sciences, National Research Council. This committee developed criteria and recommendations for identification, control, and correction of ground failure hazards (landslides and subsidence) in urban areas of the United States. From 1998 to 2002, Dr. Swanston was a partner in BRD Consultants, L.L.C. providing civil and geological engineering services and stability hazard analysis to central and southeast Alaska and the North Pacific Coast. He retired in 2003. Dr. Swanston has published more than 80 scientific articles in books and professional geology and engineering journals.”