

K-Beach High-Water Drainage Task Force  
c/o Jim Munter, 5701 Penny Circle, Anchorage, AK, 99516

April 23, 2015

Mr. Mark Myers  
Commissioner  
Alaska Department of Natural Resources  
550 West 7<sup>th</sup> Avenue, Suite 1400  
Anchorage AK 99501

Re: Request response to potential unauthorized diversions of more than a significant amount of water letter dated February 9, 2015

Dear Commissioner Myers,

There has been no discernable improvement in the Kenai Peninsula Borough's response to ongoing flooding issues. Considerable continuing misinformation and lack of data and engineering analysis from the Borough has also accumulated as described in this letter and attachments.

The K-Beach High Water Drainage Task Force has observed that KPB roads and ditches contribute to high water problems across a wide area and that the borough, despite specific invitations, has failed to come to the three most recent Task Force meetings to develop a better understanding and solution-oriented approach to addressing these problems. People are extremely frustrated and have turned to DNR in a letter dated February 9, 2015, to request relief under the authorities of the Alaska Water Use Act. Nothing else has worked. At the February 23, and March 23, 2015, meetings of the Task Force, Dave Schade indicated that DNR was not committed to enforcing the Act on Borough roads and road ditches (see attached minutes) even though the Act would be enforced on other ditch or diversion projects in the area. This creates an unlevel playing field.

**Level Playing Field**

In the early 1990's I co-chaired the Kenai Peninsula Groundwater Task Force in response to widespread groundwater contamination issues and concerns. The group was extremely successful in receiving industry participation and major financial support for several important studies, culminating in a major U. S. Geological Survey report by Glass (1996). At the outset of this effort, industry participation was conditioned by a request from the representative of Unocal that there be a "level playing field". The group adhered to that guiding principal and this was a key reason for the success of the group and its work.

Mr. Schade's approach to the current problems in the Kenai area is clearly not a level playing field and I believe this has contributed to the multiple dysfunctions we observe today as detailed in this letter. DNR currently appears to be presiding over an unequal and unfair selective enforcement of State rules. The Kenai Peninsula Borough should be treated as any other entity

with regard to the applicability of State laws and regulations and we request that this be remedied.

One of the reasons Mr. Schade provided to justify non-enforcement against Borough roads and ditches is that he thought that the Borough was not intentionally diverting water. Many people believe this is not true or even relevant. Mr. Schade's statement was directly contraindicated by comments made at the meeting by Mr. Carol Martin. The Borough's actions and statement are consistent with the interpretation that it intends to hold water in certain areas by means of its roads as dams. This held water causes damages to property owners and threatens groundwater quality and public health across a wide area from improperly treated septic system discharges. The Alaska Water Use Act is specifically designed and the DNR Commissioner is specifically empowered to provide remedies in this situation. On March 23, 2015, the Task Force passed a resolution (see page 6 of the draft minutes) requesting that DNR provide a formal response to the letter of February 9, 2015. That letter requested the following, and we now repeat and renew the request:

Short term, the Task Force is interested in cessation of potential unauthorized roadbed diversions managed by the Borough, by enforcement action from your department, if necessary. This can occur through authorization by your department for diverting a significant amount of water or by installation of drainage improvements to allow water to flow towards its natural discharge areas. In either case, we will be looking for professional engineering analysis, including calculation of storm design flows using standard methodologies.

To DNR and Mr. Schade's credit, Mr. Schade repeatedly and emphatically advised the Borough in a meeting on May 30, 2014, to retain drainage engineering expertise. The borough has refused to retain such expertise. As a result, local residents are now "living in the land of unintended consequences" stemming from the Borough's roads and drainage projects. At the first meeting Mr. Schade attended, he describe the work of his agency as working with private entities and agencies at all levels to comply with the terms of the Alaska Water Use Act. The KPBB should not receive special dispensation by DNR to opt out of compliance with DNR's regulations.

### **Buoy Avenue Project**

An extensive discussion of concerns stemming from the Borough's 2014-2015 Buoy Avenue ditching project occurred at the March 23, 2015, Task force meeting (beginning on Page 3 of the attached draft minutes). These concerns include ice damage, property washouts, coastal erosion, property flooding and the adequacy of the Dogfish culvert under (the State-owned) K-Beach Road. These potential problems (or "unintended consequences") can be traced to the KPBB not retaining hydrology and hydraulics (H & H) design expertise and DNR deliberately not requiring the KPBB to file a Temporary Water Use Authorization permit, which would have triggered an H & H analysis. While the Borough and DNR have commented at length about potential "unintended consequences" of other drainage projects, potential unintended consequences of the

Borough's Buoy Avenue drainage project go unengineered and unevaluated. This is a prime example of an unlevel playing field with potential consequences of further property damage.

### **Lori Jo and Scott Intersection**

Another example of the Borough's damming of water with roads and their lack of drainage engineering expertise is the intersection of Lori Jo Street and Scott Avenue. There are no culverts under or near the intersection. The Task Force was advised by KPB Assemblyman Wayne Ogle at an early meeting to find "low-hanging fruit"-type projects and bring them forward. Dave Schade recommended a similar approach at a later meeting. The Task Force concurred with this recommendation and has followed it. After a careful deliberative process at several meetings, the Lori Jo/Scott intersection was identified as the number-one-priority local drainage improvement project (the lowest of the low-hanging fruit) because:

- the roadbeds at the intersection block a mapped natural glacial-age drainageway that is the outlet for an approximate 200-acre drainage basin with many developed properties built near, not in, wetlands (see attached map of the drainage area);
- the KPB topographic map of the area shows a gradient between 0.05 and 0.1 percent down the thalweg of the drainageway. This is low, but would definitely allow flow, especially during and following significant rainfall events. The absence of culverts means that the backwater effects from a 3-ft-thick roadbed could extend 1500 to 3000 feet upgradient, affecting many residential properties.
- both streets are official Borough Road Service Area roads;
- the intersection was overtopped by backed-up surface waters during the 2013 flooding, which threatened roadbed integrity and caused significant damage from backwater effects. There is no doubt that more than "a significant amount of water" (per DNR regulations) was diverted by the roads-as-dams;
- a relatively simple and inexpensive installation of culverts at that location would allow water to flow into a multi square-mile wetland where there would be no measurable impacts on any close-in property owners (i.e. no identifiable, known, or suggested potential "unintended consequences"; and
- there would be significant relief provided to property owners upstream of the intersection by lowered water levels during and following flood events.

Since the Borough did not attend these meetings, they may be unaware of these conditions. Several Task Force members have attended multiple recent Road Service Board meetings to request culverts at Lori Jo and Scott. At the most recent meeting on April 14, 2015, a memo by KPB Project Administrator Henry Knackstedt (see attached) briefly analyzed the situation and concluded that "it does not appear that they (culverts) would be of much benefit". Stunningly, this analysis comes to a broad conclusion and is completely devoid of any hydrologic or basin runoff analysis, or even any acknowledgment that the intersection was overtopped with floodwaters recently. Mr. Knackstedt's report was accepted without question by the Road Service Area Board. This is an example of shallow KPB thinking and poor decision-making

occurring as a direct result of low-quality and inadequate technical information and analysis. It is exactly this kind of situation in which DNR can bring data and engineering to the table by either issuing a Commissioner's Order that they breach their dam (with one or more properly sized and placed culverts) or require that they submit a fully-engineered Temporary Water Use Authorization permit (and possibly a dam-safety permit application, as well) application to DNR to maintain their roads-as-dams as is. DNR has full authority to do this. Task Force Members have been diligently meeting monthly for five straight months and have followed the roadmap laid out by Mr. Ogle and DNR, only to find the number-one-priority local drainage improvement project has been repeatedly denied and cursorily dismissed for no good reason by the KPB without any effective recourse available. People are extremely frustrated and seek relief. We need DNR's help to turn this situation around.

### **Patrick Drive and Eastway Road Intersection**

A third instance of Borough roads-as-dams is the Patrick Drive/Eastway Road intersection, which also lacks culverts and which was featured in my February 9, 2015, letter. A local resident recently testified to the Road Services Area Board about this problem and followed up with additional details (see attached letter from Sherron Collins). There appears to be no efforts by anyone at the Borough to start planning for culverts at that location. Again, it appears that the only mechanism for resolving this problem is using the authorities of the Water Use Act via a Commissioner's Order to breach the diversion structure or undergo a TWUA permitting process to allow authorization of the structure as it currently exists.

### **Other Roads-as-Dams**

Other roads are identified in the February 9 letter and in subsequent Task Force meeting minutes that require action. Simply addressing the three roads identified above is insufficient; a change of attitude by the Borough and a better process for obtaining relief is needed for many road-as-dam situations.

### **KPB April 7 Bus Tour and Presentation**

On April 7, 2015, the KPB administration led a bus tour and the Assembly subsequently held a one hour work session at 2 pm. An audio recording and various graphics are available on the KPB website: [http://kpb.granicus.com/MediaPlayer.php?view\\_id=1&clip\\_id=76](http://kpb.granicus.com/MediaPlayer.php?view_id=1&clip_id=76).

The information presented was shockingly oriented towards fixing blame for the flooding and defending the holding back of water rather than seeking solutions to prevent or minimize future flooding. The following text details some of the lack of data and analysis and of the hydrologic misinformation presented. DNR's hydrologists are presented as supporting the KPB's position, which merits investigation and corrective action.

Following are excerpts in italics from the power point presentation made by Chief of Staff Paul Ostrander, followed by my comments:

*Slide 2: Previous attempts at ditching and diverting water from the wetlands have resulted in unanticipated downstream consequences while providing no measurable benefit.*

Comment: The Trawling Avenue ditch is prominently discussed here. While there were unanticipated downstream consequences (in the form of washouts), there were also benefits. Dave Yragui reported that the water level in the basin drained by the Trawling Avenue ditch dropped two to three feet as soon as the ditch was opened up. One residence had water nearly lapping at his slab-on-grade home and the water level dropped quickly by about 18 vertical inches when the ditch was opened up. The Borough's comment serves primarily to inform us that the Borough was not monitoring anything at the time and has performed no meaningful analysis since. The borough's statement is wrong and misleading and inappropriately appears to fix blame on digging of the ditch. The takeaway messages from this event that the Borough seems to have completely missed are that:

- 1) ditches need to be properly engineered;
- 2) ditches can move a tremendous amount of water with existing grades, and
- 3) ditches can provide partial and meaningful flood relief in this area.

*Slide 14: Both ADNR and Borough Hydrologists agree that development/activity in the wetlands in this area has reduced the ability of the wetlands to function properly and created impacts to surrounding properties.*

There are several problems with this statement:

1. This is in reference to equipment ruts in Dave Yragui's fields. The fields in question are agricultural parcels, not wetlands. Corps of Engineers approval was obtained for development of the property. DNR has previously been provided a copy of a letter from the Corps showing no jurisdiction over a project designed last year in one of the fields. The borough-published maps have major inaccuracies in their depiction of wetlands that were discussed and displayed on the wall at the March 23, 2015, Task Force meeting. DNR and the Borough seem to have disregarded the disclaimers associated with site-specific reliance on the published wetland maps and have inappropriately relied on the maps even though they are wrong.

2. This statement implies that flooding impacts were caused by activity on Mr. Yragui's property. This has been the Borough story line since flooding began and is complete nonsense. The flooding was caused by extreme precipitation over a 4- month period over a large area. The Borough seems to be ignoring its own 16-page report of flood-damaged properties extending from Soldotna to Kasilof. To be blaming 2013 flood damages on any single landowner with this type of persistent inuendo is ridiculous public policy, for both the KPB and potentially DNR.

3. To state that DNR is in concurrence with this finding raises serious questions about DNR's internal technical processes:

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- a. Is this correct? Have DNR hydrologists issued such a written finding, complete with data and analysis? I am not aware of any written technical reports, memos, or findings from the Alaska Hydrologic Survey (AHS). Does the AHS even know that the fields are not wetlands and the wetlands map is wrong?
- b. DNR received a 5-page technical letter from me dated February 23, 2014. To my knowledge, this letter never received a written review or response. Dave Schade recently told me that he didn't think that (in general) his hydrologists have necessarily agreed with my findings. Well, let's get together and talk about it. Last fall I asked the AHS for a technical meeting and they never got back to me.
- c. What has DNR told the Borough? In the absence of any reviewed technical report by the AHS, nobody really knows. People are inclined to take the Borough at face value that DNR agrees with what the borough is saying and doing.
- d. What does DNR think caused the flooding? In their presentation, the Borough referenced a 30-year return period. This is the first time I have seen a reference to such a finding. Is this DNR's finding? Does it fully consider the four months of high precipitation leading up to the declared flood emergency? There are many technical complications involved in this analysis.

From Slides 20-21: (item in bold is from KPB code 14.06.170):

***Roads shall be constructed to prevent ponding of runoff waters in the roadside ditches** - Long term ponding in ditches is not desirable. However ponding is inevitable to some degree. The intent of the code and the design of the roads that are borough maintained is to limit this ponding as much as reasonably possible.*

***Drainage ditches shall be constructed such that runoff waters will be conveyed to natural drainage courses, ditches or waterways, or other man-made drainage courses.** - Drainage ditches should convey water to natural drainages courses. Natural drainage courses include both above ground drainages and underground aquifers. Draining all drainage ditches to above ground natural drainage courses is virtually impossible. Installing underground storm water drainage systems where above ground drainage systems are not possible would be so cost prohibitive as to make many rural developments unfeasible.*

This is a case of bizarre orwellian doublethink that "no drainage" is "drainage". The code is clear that runoff water **shall** be directed through ditches to acceptable outlets. Underground aquifers do not work to drain water during flood events, or even afterward when water tables persist at a high levels for months at a time. The KPB's contorted interpretation of a simple, straightforward, and well written ordinance is a poor and transparent attempt to defend the Borough's inexcusable lack of drainage engineering. The Borough's reference to "economically feasible" rural road construction should be evaluated in the context of the high costs of damages from the recent flood and future floods stemming from the lack of proper drainage infrastructure.

Regarding specific points:

1. Ponding is not "inevitable to some degree". In cases where ponding is designed into a project, full H&H analysis should be performed. The old lakebed is not flat but has a fairly consistent slope of 8-10 feet/mile, which is adequate for ditches and culverts to function in most places. Residents of the area are very familiar with borough roads that block drainage even though properly designed and installed culverts would drain water and would not generally present a hazard to downstream properties. This is a normal development practice throughout the country.

2. I have never heard of anybody ever considering an underground aquifer to be a "drainage course". Consider this definition derived from a quick internet search from the Brookfield, Wisconsin, Municipal code:

(<http://www.codepublishing.com/wi/brookfield/html/Brookfield12/Brookfield1212.html>)

12.12.060 (A): Drainage Course Defined. A "drainage course" means any creek, ravine, gully, channel, hollow, swale or depression or any unofficial ditch, drain culvert or pipe through or over which surface water periodically flows in its natural course.

An underground aquifer in Brookfield, and probably in most other jurisdictions, would not appear to meet the definition of a drainage course. I would be interested to hear the Borough hydrologist's explanation of the Borough's definition and DNR's opinion on the matter. This would be a good topic for a Technical Work Group meeting.

### **Conclusions and Recommendations**

Why is this important? One of the consequences of high water conditions is the likelihood that septic systems across a wide area are creating plumes of contaminated groundwater as a result of high water tables. This creates a very real potential for contaminated aquifers and wells and a public health hazard because:

- Almost everyone in the area relies on a well;
- Some large residential developments have only half-acre lots, wells and septic; and
- The vast majority of wells are ungrouted.

As you know, once done, groundwater contamination is very difficult or practically impossible to undo. From my observations and discussions with numerous individuals, many dozens of septic systems are likely operating (at least when they are not backing up) with far less than four feet between the bottom of the leach field and the water table (which is the State code). Some systems are likely partially inundated by groundwater. This causes incompletely treated wastewater to flow directly into groundwater. The frequency of mound system retrofits being constructed is an indicator of the problem. Improved local and intermediate scale drainage through ditches and culverts is only a partial solution, however a partial solution is better than no solution at all.

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People in the area affected by 2013 and 2014 flooding in the K-Beach, West Poppy Lane and Gaswell Road areas have suffered a long time and are not receiving sufficient services from the KPB to reduce future flooding potential. Rather, they are met with obstructions, blaming, and poorly defended decisions at every turn. The threat of recurring major flooding is still very real. People who live in this area pay property taxes and want basic drainages services from their local government to safeguard their property and health and they are not getting it.. The Borough owns, maintains, and improves facilities that are not managed based on sound hydrologic science and engineering and many of their roads and ditches are in potential violation of the Alaska Water Use Act. Because these facilities present real and present hazards to local residents and private property, investigation and action by DNR is needed to provide relief. Many events have occurred that have demonstrated the need for a level playing field and more forceful DNR intervention to incentivize the KPB to do a better job of mitigating damages from the next flood as much as possible.

As a means in improving communication on these issues, we would also suggest that DNR consider convening a Technical Working Group of hydrologists and engineers to discuss and hopefully come to consensus on key technical findings and recommendations. The Borough's recent actions and presentations have illustrated this need. Such Technical Work Groups facilitate peer review and are a common element of controversial development activities. DNR has historically led or been part of many of them. Broad technical representation at Task Force meetings would be a potential start to such conversations.

If you have any questions, comments or concerns, please call me at 345-0165.

Sincerely,



Jim Munter, CPG, CGWP  
State of Alaska Hydrologist IV (retired)  
Co-Chair, K-Beach High-Water Drainage Task Force

**Reference Cited**

Glass, R.L., 1996, Ground-water conditions and quality in the western part of Kenai Peninsula, south-central Alaska: U.S. Geological Survey Open-File Report 96-466,66 p. + appendix

cc

Ed Fogels, Deputy Commissioner, DNR  
K-Beach High-Water Drainage Task Force Members:  
Sherron Collins  
Peggy Dye  
Colleen Bass



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Ted Scroggins  
Dave Yragui  
Toby Burke  
Mike Ruffridge  
Mark Jonas  
Scott Mobley  
Debra Brown  
Carol Martin  
Kelly Wolf

**Attachments:**

Henry Knackstedt letter  
Draft minutes from March 23, 2015, Task Force meeting  
Final minutes from February 23 2015, Task Force meeting  
Letter from Sherron Collins to Pat Malone  
Lori Jo/Scott drainage basin  
selections from April 7, 2015 KPB presentation  
February 9, 2015, letter to DNR (w/out attachments)