December 2, 2021

TO: Planning Commission Chairman
KPB PLANNING DEPARTMENT
144 NORTH BINKLEY STREET
SOLDOTNA, ALASKA 99669

FROM: Michael and Ann Gravier
34540 Marcus Street
Soldotna, AK 99669

RE: Condition Land Use Permit Application Modification, River Resources, KPB Tax Parcel ID# 135-243-13 & 135-243-29T

I have previously stated some of my concerns in a letter to the KPB Planning Commission dated April 7, 2021.

In addition to those concerns I would add the following and request this project be stopped or a significant increase in the bond be set for my property for the reasons below – especially the possible destruction of my property due to aquifer and ground water changes caused by this project.

1. Air Pollution. As the activity increases at the gravel pit there will be an increase in the possibility of air pollution on my property due to PM10 dust particulate and PM2.5 from diesel vehicles. .
2. Noise. Noise pollution has already been a problem. This summer (2021) there were days of almost constant beeping from the backup warning system on equipment. There were also days when noise from either heavy equipment, generators, pumps, or some type of motor was constant from early morning to late at night. 12 – 14 hours of constant noise. The noise was loud enough that to talk to a person outdoors you had to raise your voice. I raised this concern in my letter to the borough in 2019 when River Resources first sought an application for this gravel pit.
3. Destruction of wetlands on my property as well as the publicly owned wetlands due to increased water levels. State owned wetlands property is adjacent to my land on the downriver side. The increase water table does not stop at my property line but continues into that State owned wetland. See property description below.

Description of my property and water level change.

Currently a large portion of wetlands (approx. 2 acres) of my property at 34540 Marcus Street has an elevated water table to a point that there is standing water. This has happened gradually throughout the late spring and summer of 2021. This has not previously occurred in the 20 years we have owned it.

Fig 1. Above: Purple outline is 34540 Marcus St boundary; Red is approx. gravel pit.
State owned land is between the two outlined properties.

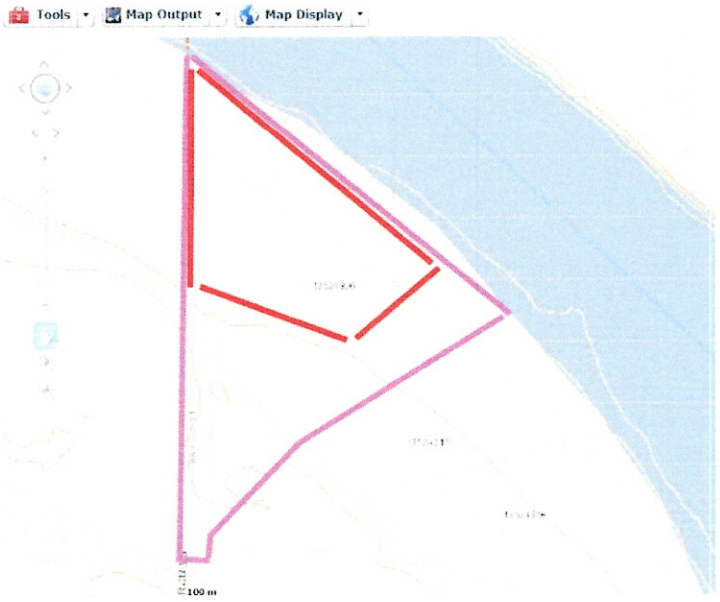

Fig 2. Above: Purple outline is 34540 Marcus St boundary
Red is area with increased water on the wetland portion of my property but that water level also extends downriver (left) in the State wetland.

There are three situations that could cause the increased water table. Greater than normal precipitation, high water flow in the Kenai River, or change to the ground water flow. Each discussed below.

First. Above normal precipitation. Data were analyzed at Kenai Airport from the National Weather Service. NOTE: Soldotna Airport data were not used for two reasons. First. The observation record for this summer is incomplete due to runway construction. Second. Climatological average precipitation data for Soldotna is unavailable. The Kenai Airport data is used as the closest representative meteorological proxy to the Soldotna Airport. Data used can be found at the link below.

https://www.weather.gov/arh/climate?wfo=afc

	2020	2021	Normal
May	0.5	0.5	0.79
June	0.76	0.47	1.2
July	1.69	0.83	1.98
August	2.11	1.29	2.68
September	1.88	0.86	3.57
October	1.3	0.72	2.56

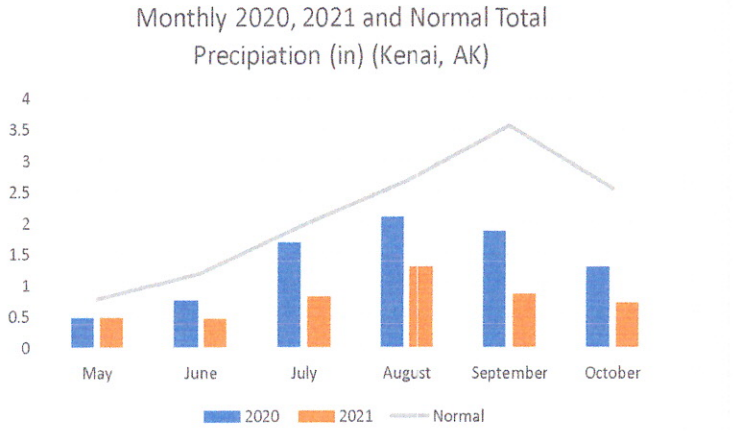

Figure 3. Kenai Airport precipitation data for summer 2020, 2021 and historical average (1991 to 2020)

The data above indicate precipitation was **below** average so an increase in precipitation was not the cause of the elevated water table.

Second. An increase in the water table could be caused by a large increase in the flow in the Kenai River. However, this was NOT the condition in the summer of 2021.

Flow in the Kenai River is measured at the water gauge located near the Soldotna Bridge. The official site is USGS 15266300 KENAI R AT SOLDOTNA AK. All data referenced are available at

USGS Current Conditions for USGS 15266300 KENAI R AT SOLDOTNA AK

As shown in the chart below, the flow in the river was slightly elevated until the beginning of July. After that the flow was 15% to 20% below the 55-year average. Despite this the water level in my wetlands continued to increase. The large spike in October was the Skilak Glacier Lake dam release that peaked on Oct 7, 2021.

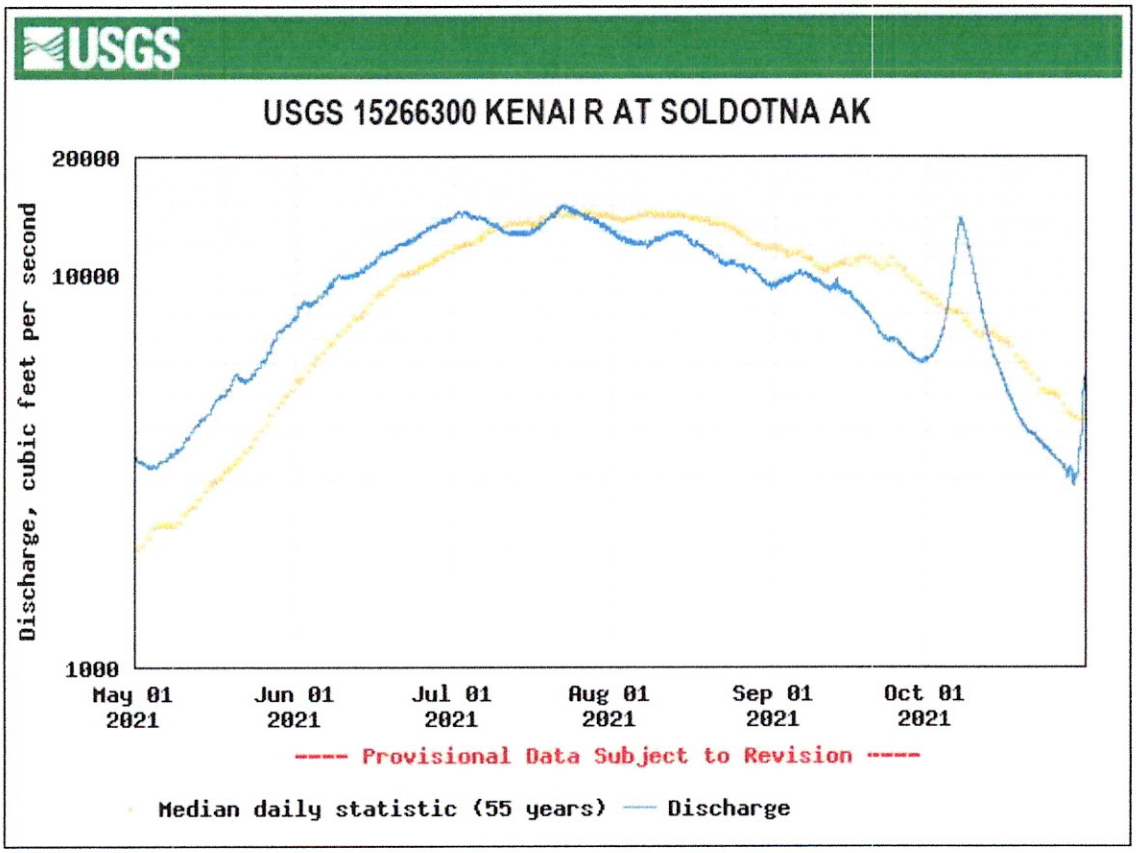

Figure 4. Summer 2021 and 55-year average Kenai River discharge

The third possible situation must be the answer to why the increase in the water table is occurring. That is a change in the ground water flow. Obviously, this suggests the one thing that is there now that was not there for the last 20 years – the River Resources gravel pit.

Throughout the spring and summer of 2021, I noticed increased water levels in the wetlands of my property. On 5 September 2021 I noted that the water was even deeper than before. In fact, the water now covers all the roots of the vegetation in the previous wet land and is standing water above the ground surface 1 to 2 inches deep. If the water level does not drop, all that vegetation will soon be dead. Without the vegetation the soil could washed down the river. If this happens, I could lose 2 acres and over 200ft of riverfront. This will also cause an increase of silt in the Kenai River.

I believe the gravel pit operators have taken action that has changed the hydrological gradient so either the water cannot drain from my property, or water can no longer flow freely away from my property. Previous borough documents for this project indicate ground water flows from my property toward the State land and gravel pit area. If the porous gravel is removed and replaced by less porous material or the water is blocked from entering the gravel pit it will back up into the wetland area. This is very different than it has been for the last 20+ years.

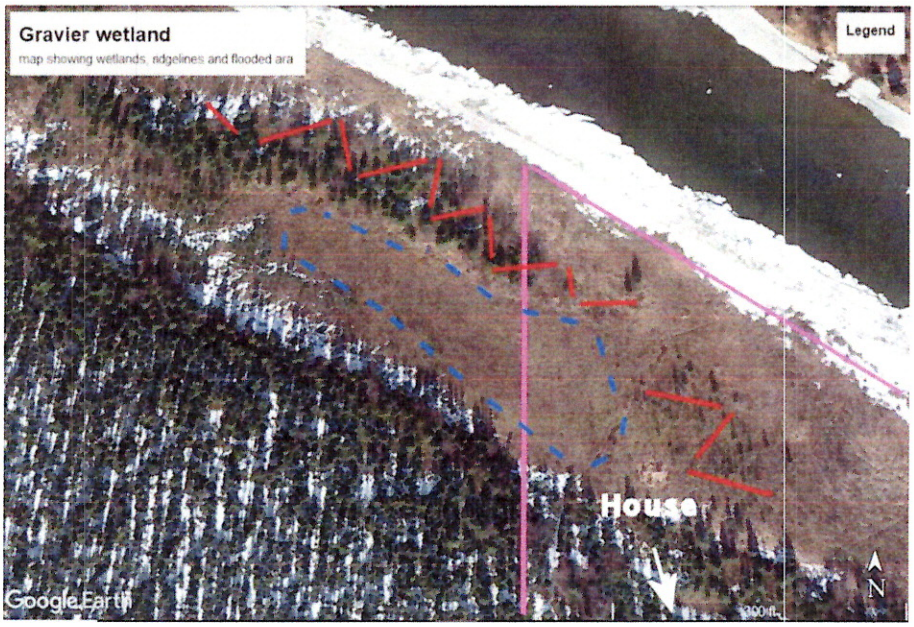

Figure 5. Purple line is the 34540 Marcus Street and State property boundary. Upstream of purple line is Gravier property. Downstream of purple line is State property. Blue hatched area is area of greatest water increase. Red line is small ridge

A further reason to believe that the change in ground water flow is caused by the gravel pit is because the greatest increase in the water level is 150 to 200 feet away from the river, as outlined in blue hatched area in Figure 5.

I have an established water table. The Corps of Engineers completed a wetlands survey of my property in 2016 and established a water table. See Corp of Engineers emails at the end of this document. The dig logs were not in the data they sent me so I submitted a FOIA request to the Corp for all data pertaining

to the wetlands delineation. I have not received this data at this time. The location of the holes the Corp dug as part of this project are known and can be relocated for changes in water level next spring or summer.

I believe the gravel pit developed by River Resources is responsible for significant damage to our wetlands and possible future destruction of 2+ acres and 200-250 feet of river front loss at my property at 34540 Marcus St, Soldotna Alaska. The gravel pit should cease operations immediately and be held responsible for current and future damage caused by them.

If the Borough allows River Resources to continue operations a significantly higher bond should be set for my property. Since increased water table damage will continue in the future, a bond value equal to 2+ acres and 200+ feet of Kenai River front should be established for my property.

Michael E Gravier

Ann Y. Gravier