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Water Investigations Branch

Gravel pit, United Contractors,
Surrey Municipality

E. Livingston, Geological Engineer

August 21,

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I visited the above operation on August 20th as you instructed, to investigate the claim by Boughton, Anderson, McConnell & Dunfee in their letter of August 3rd that artesian wells had gone dry because of drainage by the gravel pit operators.

The new pit is located between Townline Road and the C.N. Track east of Latimer Road in the north east corner of Surrey Municipality. The west boundary of the operation is about 1000' east of Latimer Road. At least part of the pit is on the site of a former gravel pit operation. From the size of alders growing in the old pit, I estimate it to be at least 5 and more likely 10 years old. Material from the present operation is being hauled to the new Trans-Canada Highway which is about 2(?) miles to the south.

The land slopes from Townline Road gently northward to the Fraser River. It is covered with poor second growth bush with a few small farms along the roads. There is no natural surface drainage as one might expect in an area underlain by permeable gravel.

I did not see the foreman of the operation so I do not know what is planned for this operation. Neither did I interview any well owners in the area. Since we do not have on hand a plan of the subdivision, I do not know the exact location of the land described by the barristers in their letter.

The northern part of the property along Townline Road has been exploited first. Stockpiles in this area are being removed at present. The northern part of the area near the C.N. Track is being prepared for exploitation. A rigged tree and large donkey are being set up so this will probably be a slusher or scraper operation. A portable screening plant is being assembled.

The best exposures are in the recent south diggings near Townline Road. Here, there is about 12' of cross bedded sandy gravel, sand and fine gravel. This is overlain by about 1' to 2' of dark peaty forest soil. The cross bedding seems to face south westward. The gravel is rusty in part and is locally cemented with Fe oxides. The material below the gravel is not exposed because of water. There is, however, a large pile (about 1000 yd.³) of grey and brown silt which was apparently dug by a drag-line from one of the pits now filled with water. From this and from the behavior of the ground water, I believe that the gravel (about 12') overlies silt. All these materials are probably recent deposits of the Fraser River.

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Drainage ditch about 12' deep has been dug on the east side of the pit northward from the south diggings. This leads into the old north diggings and carries about 50 to 100 gpm. A smaller ditch on the west side near the weigh scale carries about 1/3 as much water. In the south diggings the water level is about 15' below Townline Road; in the north diggings it is probably not more than 1' lower. The level of water in the old north diggings has not as far as I can see been changed by the present operations. Any plan to drain the whole area would involve putting a low drain in under the C.N. Track. There is no evidence that this is being done.

There is an old ditch along the south side of the track eastward to a small culvert located 400' east of the point where the road on the north side of the track turns northward to the river. This culvert is dry at present. The part of this ditch north of the track which runs from this culvert westward to the road leading to the river has been recently cleaned out only as far as the culvert under this road. It picks up in 400' about 50 gpm. I cannot see how this could have had a significant effect on the water table.

Natural drainage here is northward to the river in gravel probably perched on silt. The effect of the present gravel pit operation may have been to create a short channel down the slope of the water table. The south end of this channel acts as a sink lowering the water table locally near Townline Road. Thus the saturated zone in the gravel, which may never have been thick, would become very thin so that deepening wells into the silt would not be particularly effective. I would guess that this effect would be quite local and would not extend far northward. I can see no evidence of plans for major drainage in this area.

It seems to me that operations will cease in this pit as soon as the present highway construction is completed. Blocking of the present drainage ditches with silt would probably help to restore the water level near Townline Road if indeed it has been lowered by the present operation.

If we wish to further investigate this situation we should locate and interview well owners and obtain more information about the material underlying the gravel pit.

For more information^{re} the gravel pit I would suggest that you contact by phone Mr. Stan Leaming of the G.S.C. in Vancouver Ma 3-9638. He is making a continuing study of gravel operations especially in the Lower Fraser Valley and Vancouver Island. He might have drill results in the pit area.

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