VERNMENT OF BRITISH COLUMBIA

MEMORANDUM

J. C. Foweraker. Head ndwater Section 10gy Division

W. S. Hodge FROM Technician Groundwater Section

Water Investigations Branch

August 22 ₁₉ 77

SUBJECT.....

Saltspring Island Field Investigations OUR FILE 0183613-B

YOUR FILE.....

Introduction:

Field investigations were carried out on Saltspring Island on Monday, August 15, 1977 and on Wednesday, August 17, 1977 to establish observation wells in strategic locations, sample deep bedrock wells in regions where water chemistry is lacking and to investigate an earth slide on Isabella Point Road.

1. Observation Well

An Observation Well has been established in the Stowell and Weston Lake Region, Saltspring Island. The well is located on the Maple Grove Resort Property, north of Beaver Point Road between Beaver Point Road and Stewart Road on Lot A, SE 4, Section 72, Plan 5317 and at an elevation of approximately 400'-425' above mean sea level. Note the attached location maps showing well location in detail.

Well History and Construction

The well is 8" in diameter and was drilled around 1975 by Ken's Drilling of Victoria to a depth of 110' in bedrock. The only water bearing fracture occurred at approximately 55' and estimated yield was determined as 6 gpm. The well was drilled in order to supplement Mr. Stewarts' other well and spring but has never been used because of pump cost and installation and relative low yield. A water level was taken on August 15, 1977 and found to be 14.69' above top of casing (casing stick-up above ground is 1.5').

Monitoring Schedule

Mr. Stewart has agreed to take monthly water level readings on this well in the future, and for the first week or so will take daily readings in order to obtain a short history of water level fluctuation. These readings will be submitted to our Department every month. He has been given one years supply of cards and envelopes (self-stamped).

If necessary a more detailed water level record can be obtained by installing an automatic recorder on this well.



Mr. J. B. Stewart
Maple Grove Resort
Beaver Point Road
Saltspring Island, B.C.

Phone: 643-4340

Mr. Stewart has been given a 100' Eslon measuring tape for monitoring water levels and will not charge our department for services rendered.

2. Water Well Sampling:

On August 15, 1977 six bedrock wells were sampled for complete chemical analysis. These wells ranged in depth from 80' to 400' and were collected in groundwater regions where water chemistry is questionable or lacking.

3. Isabella Point Road Investigations

On August 17, 1977 investigations were centered around Lot 3, Plan 6643 on Isabella Point Road, where a reported earth slide had occurred and presented a potential hazard to the adjacent roadway. The immediate slide area was located and investigated. Results of this investigation are below:

- 1. The slump or depression is located on Lot 3, Plan 6654 off Isabella Point Road.
- 2. The major portion of the slump is approximately 20' wide by 50' long and borders on Isabella Point Road.
- 3. Mr. Archer's spring is approximately 8' west of the immediate slump area and water is gravity fed to a holding tank on the other side of Isabella Point Road.
- 4. The material in the immediate slump area consists of dark silty sand and sand with some sand and gravel interbeds. Some cobbles and large boulders were noted. Some clay was present near the centre of the slump retaining some water.
- 5. The material above the area is mainly rotting logs lying on sandy topsoil with some large boulders present. The area behind the slump area is heavily treed with Cedar and Alder and beyond this area is open pasture land (Lacy Property)?

Probable Causes of the Slump on Lot 3

1. The material present in and around the study area consists of mainly very permeable dark sand and silty sand, permitting considerable infiltration and subsurface runoff.

. . . 3

- 2. The area surrounding the study area slopes considerably towards Isabella Point Road promoting rapid surface and subsurface runoff.
- 3. In the process of widening Isabella Point the Highways Department excavated the toe of the highway at the area where the slump occurred (June 1977?). Removal of material here can be assumed to be the major cause of the area slumping.
- 4. Many large trees have been removed from the slump area on Lot 3. Disturbance of root growth has undoubtedly been another major cause of the slumping noted.
- 5. The sloping open pasture land behind the heavily treed area on Lot 3 contributes rapid surface runoff towards the slump area.

4. Other Investigations

Areas surrounding the study area were also investigated. Water levels and field chemistry including conductivity were taken on nearby wells and creeks. Results have been entered on well and spring cards.

The conductivity of Lyla Creek which supplies Lot A and B, Plan 9722 and Lot 2, Plan 13772 was recorded as 110 at a temperature of 16°C.

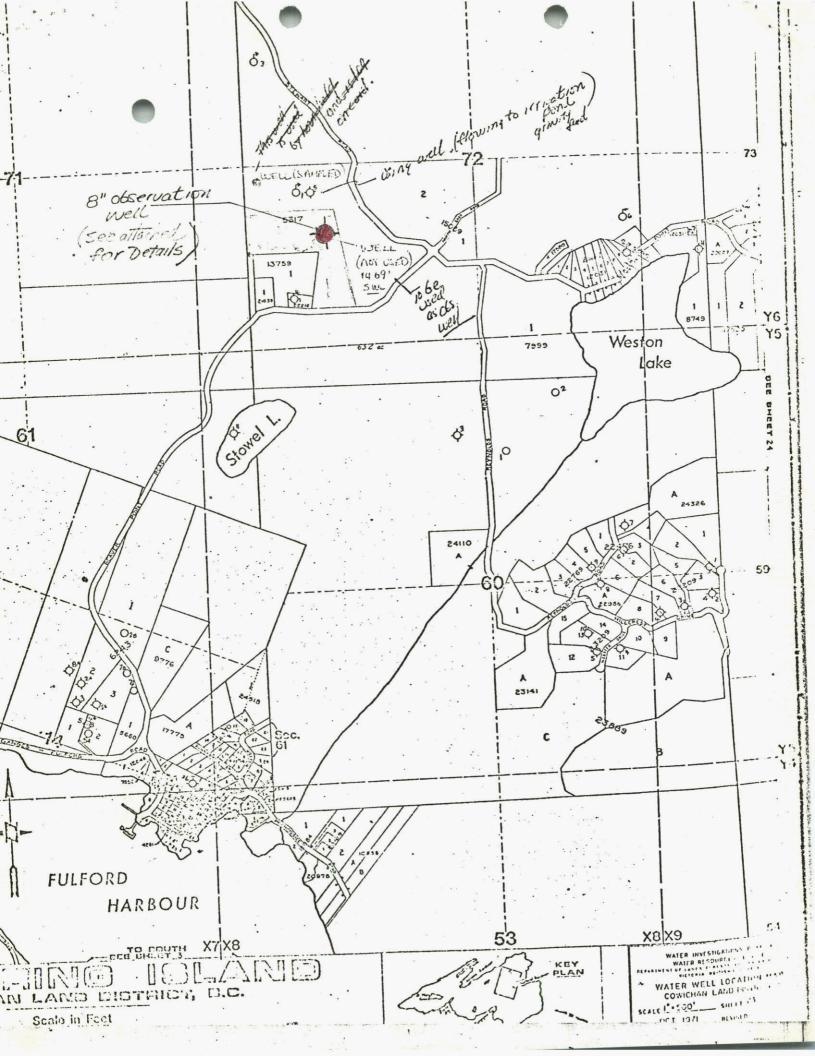
A major complaint of residents near the study area is erosion along water-front property caused by wave action from the B.C. Ferries entering Fulford-Harbour.

W. S. Hodge.

W. S. Hodge

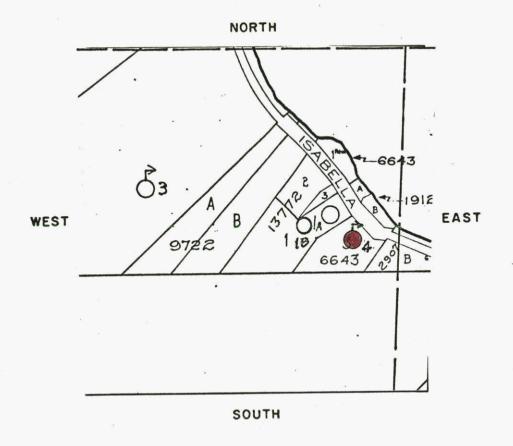
WSH/dmc

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CHLORIDE (CI) POTASSIUM (K)		
NO2 • NO3 (NITROGEN)		
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PHOSPHORUS (P)		
* TKN - TOTAL KJELDAHL NITROGEN CHEMISTRY SITE NO.		
NO2 = NITRITE NO3 = NITRATE		
CHEMISTRY FIELD TESTS		
TEST BY DATE EQUIPMENT USED		
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☐ DRILL LOG ☐ PUMP TEST DATA ☐ CHEMICAL ANALYSIS		
☐ SIEVE ANALYSIS ☐ GEOPHYSICAL LOGS ☐ REPORT		
OTHER SALTSPRING ISLAND OF THENTHAN WELL (ESTABLISHED AUGUST		
15,1977) - Sec Remarks Colomn Inside folder	.	
SOURCES OF INFORMATION_FROMETY CONET		

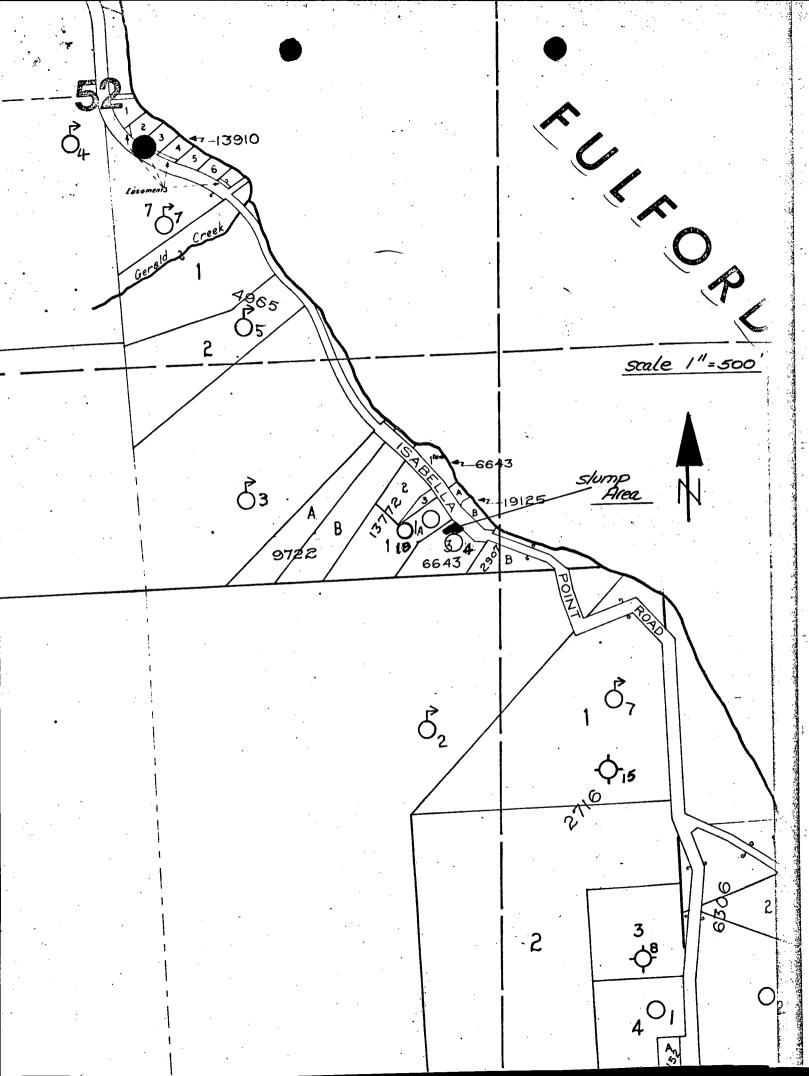


OBSERVATION WELL IN DETAIL. WELL Ġ, small "Keep Out; sign Coal 40 POSTACK TURNIN AT MAPLE EROVE OFF BEAVER POINT ROAD

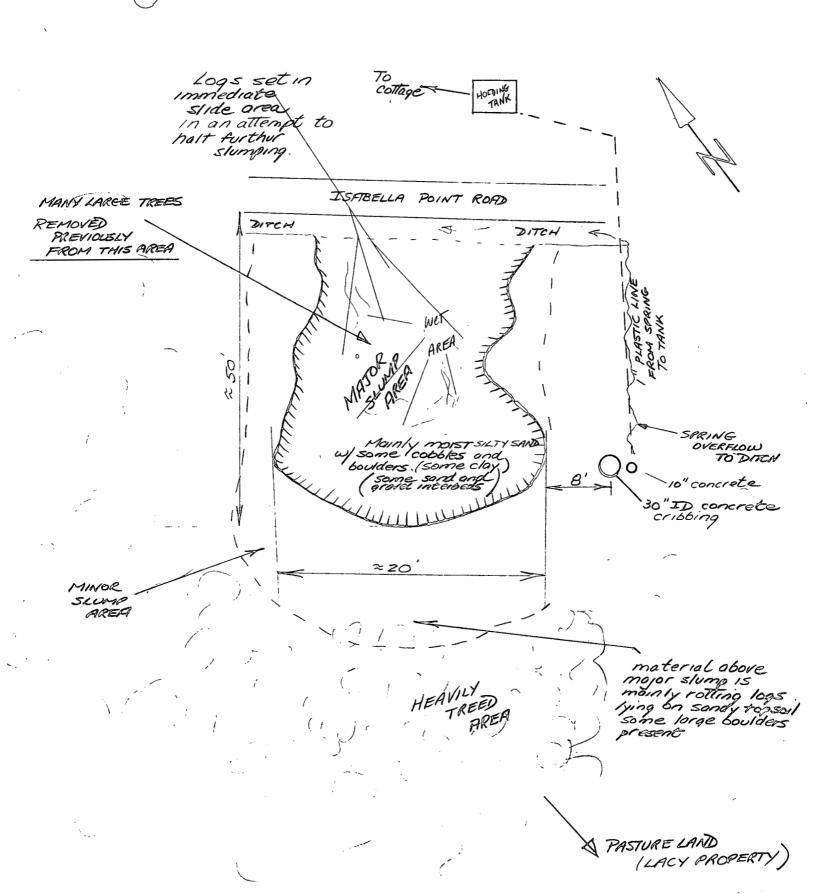
WATER WELL RECORD DEPT. OF ENVIRONMENT, WATER RESOURCES SERVICE, WATER INVESTIGATIONS BRANCH VICTORIA LEGAL DESCRIPTION: LOT 3 SEC. TP. R. D.L. LAND DISTRICT CONNECTION LEGAL DESCRIPTIVE LOCATION WELL 40 SEC. TSABELLA POINT RD. LICEN	PL.	AN 66	43	E
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☐ DRILL LOG ☐ PUMP TEST DATA ☐ CHEMICAL ANALYSIS				
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CAPD BY	W. Hodgie	DATE Alig 22/77	
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ADDITIONAL	DATA ADDED BY		



Isobella Point Road Slide Area



Leture to George ducter

Mr. J. W. G. Kerr Director, Geotechnical and Materials Engineering y of Highways & Public Works BUIL

Isabella Point Road Landslide -Saltspring Island

0239013 August 15, 1977 Your File 11-62-01

In reply to your memorandum of August 8, 1977 on the above, please be advised that one of our technical staff is scheduled to be working on Saltspring Island the week of August 15, 1977 at which time he will conduct a preliminary site examination of the area of your concern. Following his report our engineering staff will contact Mr. Kern of your Branch regarding any recommendations we may have at that time and whether additional field work will be necessary. In the interim Mr. H. Choy, Geological Engineer with the Groundwater Section, will review all available hydrogeologic data and air photographs of the area.

Should you require any clarification on the above, please contact the Groundwater Section directly at 387-5730 or 387-3428.

> P. M. Brady, Director Water Investigations Branch

APK/1=1 APX-16/8/77
-APX-16/97

FILE

MEMORANDUM

To Mr. P.M. Brady, P. Eng. Director of the Water Investigation Branch Ministry F Environment Parliament Buildings VICTORIA, B.C.	FROM Geotechnical and Materials Engineering Ministry of Highways and Public Works BUILDINGS August 8 19 77
subject Isabella Point Road Landslide	OUR FILE 11-62-01

There is a small landslide on Isabella Point Road about 1.4 miles from the Fulford - Ganges Road on Saltspring Island. Our usual procedure with this type of slide is to dewater it with horizontal drains, however adomestic water well is in the middle of the slide area and we do not want to unnecessarily inconvenience the householder by interfering with his water supply.

Could someone from your branch evaluate this water supply and give me some idea of how much drainage the area can tolerate.

The legal description of the property is:

Part 3 Plan 6643 S.E. ½ Section Lot 52 South Saltspring

I am available to accompany your field man and can be reached at local 3345.

Sugan ten C.B. Kern, P. Eng. Geotechnical Engineer

for:

Director of Geotechnical and Materials Engineering

WATER INVESTIGATIONS BRANCH

DISTRIBUTION	DATE	INITIALS
BRAOY	Reg 10/74	75
Hunten	12/8/17	THEY.
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CBK:dd

Saltspring Island

GROUNDWATER ENQUIRY

Date Au6.5/77 Source: Personal Visit Telephone
Enquirer BRIAN KERN Phone No. 3345
Affiliation HIGHWAYS GESTECH AND MAT. BR.
Address
Area of Enquiry SACTSPRING ISLAND, ISABELLA PT. ROA
Nature of Enquiry WEW IN SCIDE AREA, WILL WE
AFFECT WELL IF DEALNS ARE INSTALLED
Summary of Information Supplied
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Lot 3, Plan 6643 SE /4 Blk 52
-log on file, Searles Well, 12' deep W.L. 3', dug well
-log on file, Searles Well, 12' deep w. L. 3', dug well -seepage in area, small creeks flowing to harbour
- drains could oblect well, depending upon elevation
diff. etc, would require Beld assessment
-he would have to unite to Director to request
our assistance, field inspection, comments etc.
Follow-up Communication Required? Yes No 🔀
If yes, nature of follow-up (letter, phone call, etc.)
Handled by Alk, B.H.



Looking northeast along toe of Isabella Point Road



Looking directly into slump area



Looking northwest towards Isabella Point Rd. Standing on West Bank of slump



Concrete Cribbing (30") Retaining Spring water 8' west of slump- 40' from Isabella Point Rd



Looking southeast behind slump area.



Material on east bank of slump area.