

MEMORANDUM

TO J. C. Foweraker, Head
Groundwater Section
Hydrology Division

FROM W. S. Hodge
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 $\frac{1}{4}$, 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. Stewart's 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 year's 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.

Observer:

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

Phone: 653-4340

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.

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.

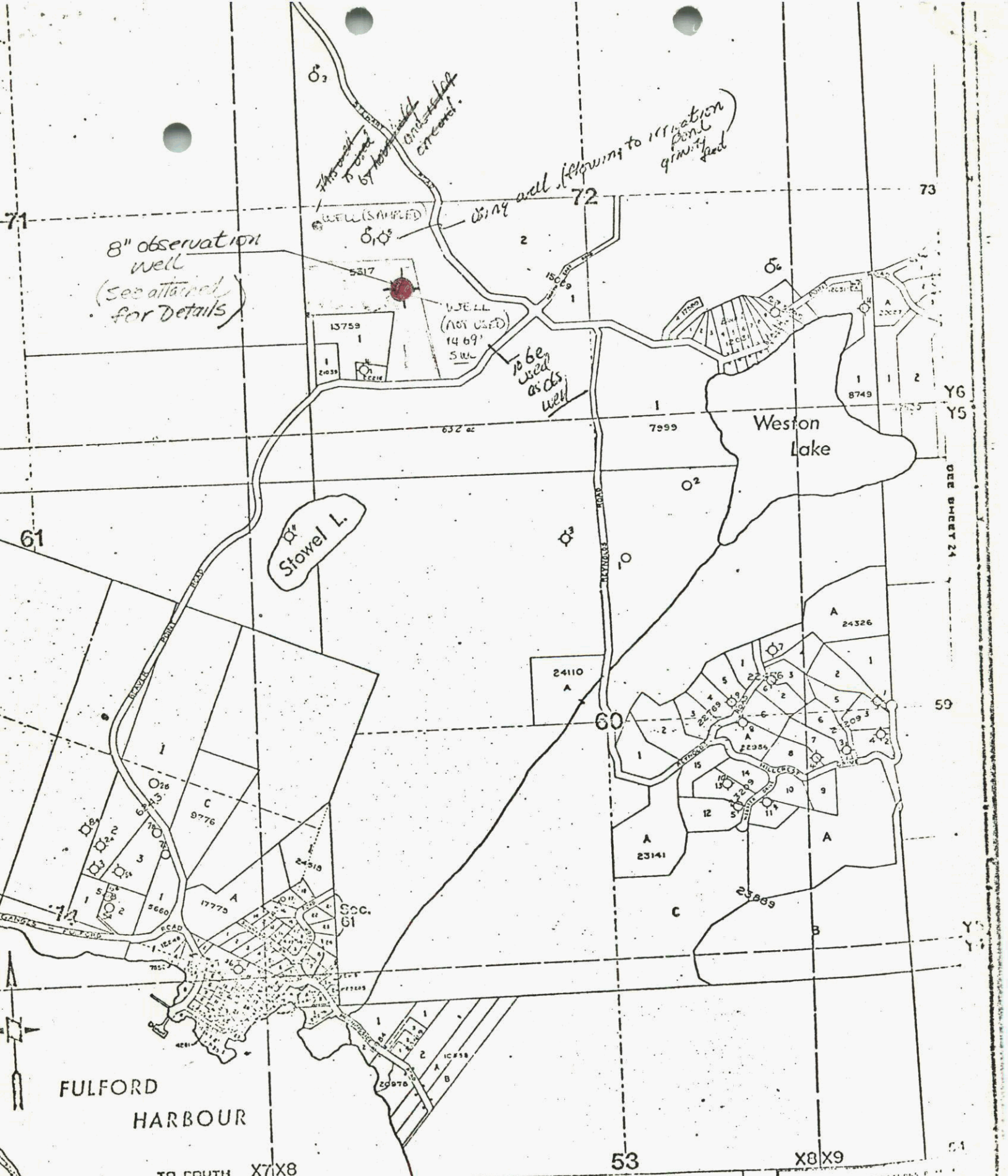
4. Other Investigations

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 waterfront property caused by wave action from the B.C. Ferries entering Fulford Harbour.

W. S. Hodge.
W. S. Hodge



8" observation well
(see attached for details)

Proposed to be used by hydrofracturing and sealed in cement.

dry well following to irrigation from gravity feed

to be used as ds well

FULFORD HARBOUR

Weston Lake

Stowel L.

TO SOUTH X7X8
DEPT. DIST. 3
PRINCE ISLAND
LAND DISTRICT, B.C.

Scale in Feet

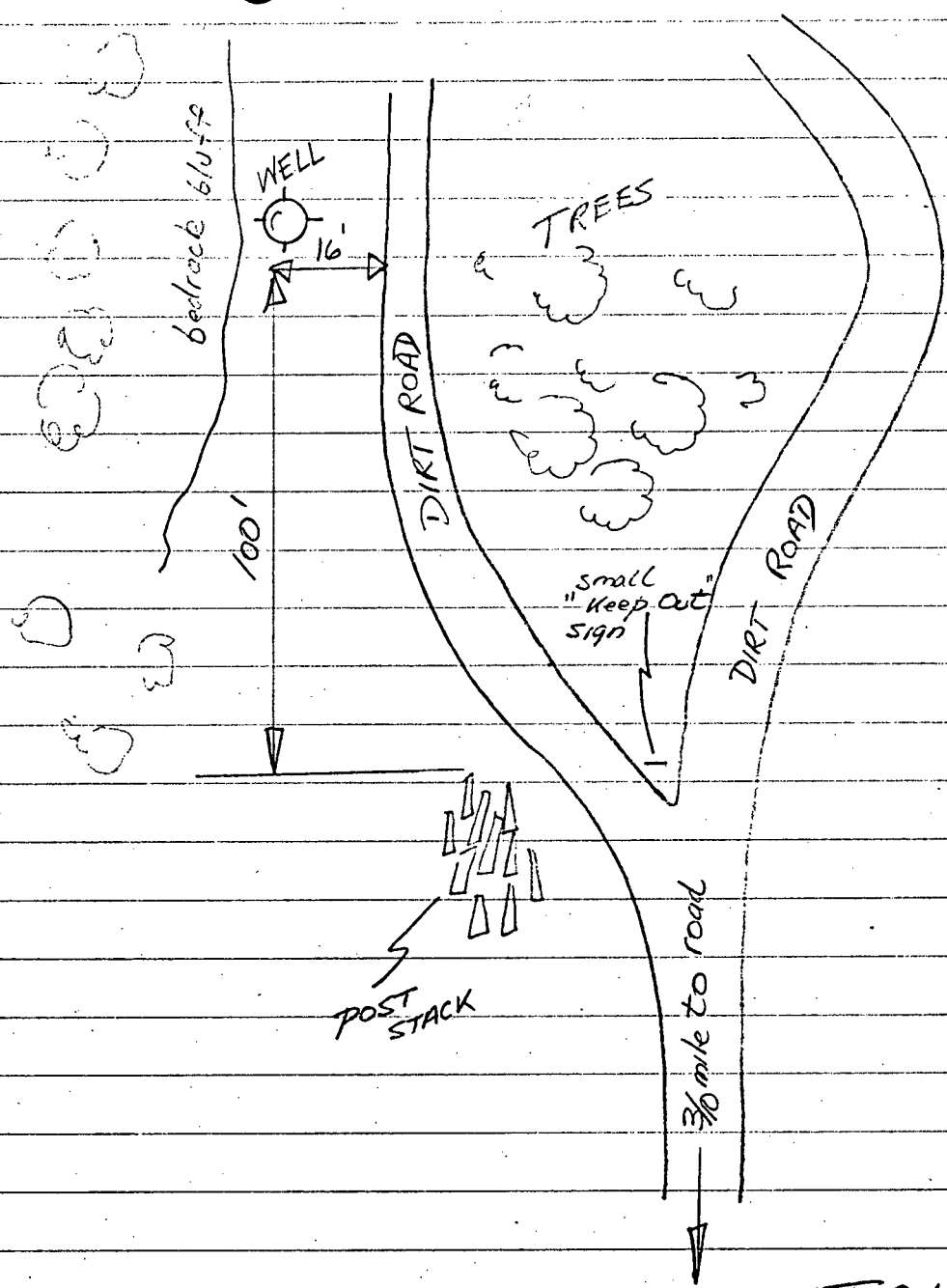


KEY PLAN

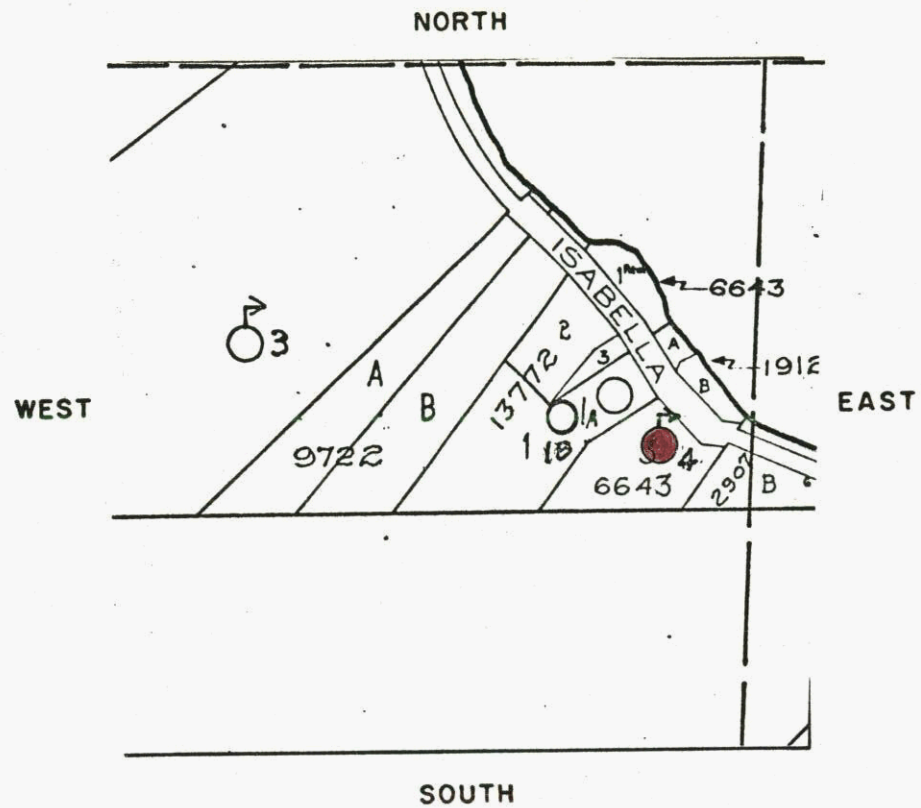
WATER INVESTIGATION
WATER RESOURCES
DEPARTMENT OF LANDS, FORESTRY AND WATER
VICTORIA, BRITISH COLUMBIA
WATER WELL LOCATION
COWICHAN LAND DISTRICT
SCALE 1" = 500'
OCT. 1971 SHEET 15
REVISED

COTTAGES

OBSERVATION WELL IN DETAIL



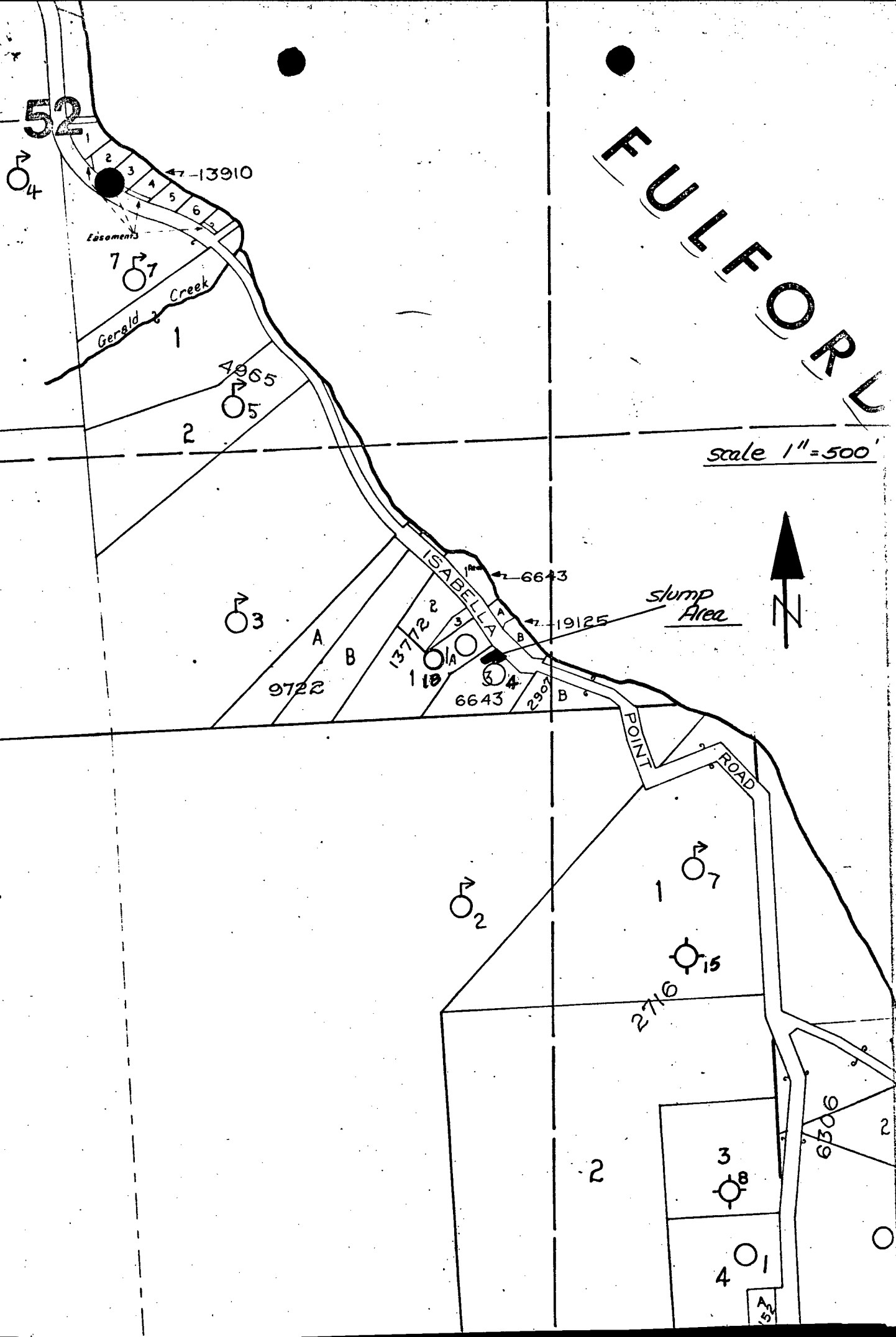
TURN IN AT MAPLE GROVE
RESORT SIGN OFF BEAVER POINT
ROAD



CARD BY W. Hodore DATE Aug 20/77
 ADDITIONAL DATA ADDED BY _____

FULLFORD

scale 1" = 500'



52

Easements

Gerald Creek

ISABELLA

slump Area

POINT ROAD

13910

4965

9722

13772

6643

6643

19125

2716

6306

4

7

1

2

3

A

B

2

3

A

1

B

4

B

2

1

7

15

2

3

8

4

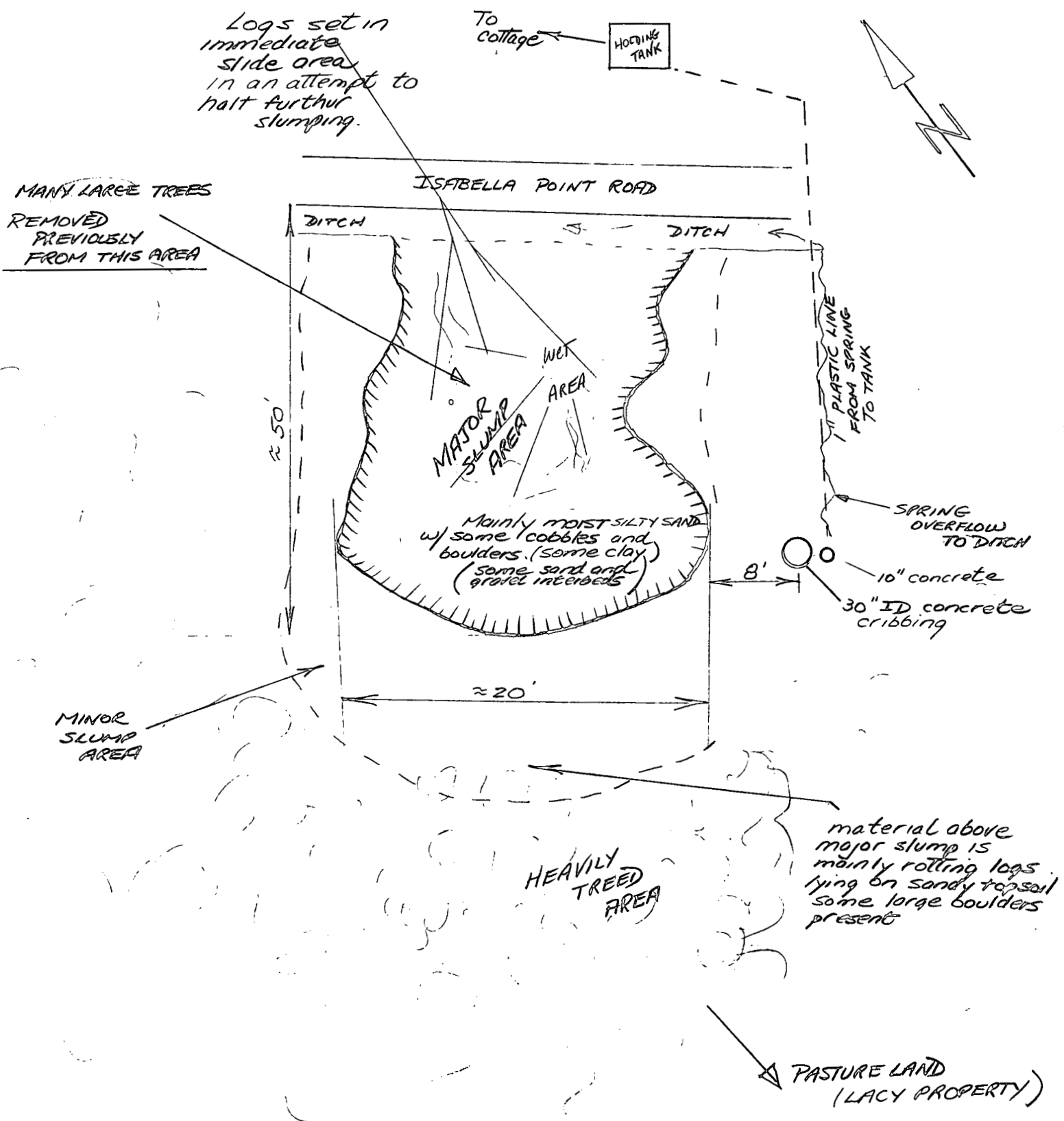
1

52

2

Aug. 17, 1977

Isabella Point Road Slide Area



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

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/lml

APK 16/8/77

APK 16/8/77

H. CHOY HC

J.C. FOWERAKER

FILE

MEMORANDUM

TO Mr. P.M. Brady, P. Eng.
 Director of the Water Investigation Branch
 Ministry of 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
Saltspring Island

OUR FILE 11-62-01

YOUR FILE

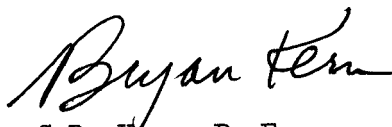
There is a small landslide on Isabella Point Road about 1.4 miles from the Fulford - Ganges Road on Saltspring Island. Our usual procedure with this type of slide is to dewater it with horizontal drains, however a domestic water well is in the middle of the slide area and we do not want to unnecessarily 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. $\frac{1}{4}$ Section
 Lot 52
 South Saltspring

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



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

for:

Director of Geotechnical
 and Materials Engineering

CBK:dd

WATER INVESTIGATIONS BRANCH

DISTRIBUTION	DATE	INITIALS
Req 10/77	11/8/77	JB
BRA07		
Kern	12/8/77	

GROUNDWATER ENQUIRY

Date Aug. 5/77 Source: Personal Visit Telephone

Enquirer BRIAN KERN Phone No. 3345

Affiliation HIGHWAYS GEOTECH AND MAT. BR.

Address _____

Area of Enquiry SALTSPRING ISLAND, ISABELLA PT. ROAD

Nature of Enquiry WELL IN SLIDE AREA, WILL WE AFFECT WELL IF DRAINS ARE INSTALLED

Summary of Information Supplied _____

Lot 3, Plans 6643 SE 1/4 Blk 52

- log on file, Seales Well, 12' deep w.l. 3', dug well
- seepage in area, small creeks flowing to harbour
- drains could affect well, depending upon elevation diff. etc, would require field assessment

- he would have to write 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 APK, 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.