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857168/bpl.rep/PS/cs
14 August 1990

157 Queens Road.

Brierley Properties Ltd
P O Box 737
AUCKLAND

Attention: Mr John Lander

Dear Sir

re: **PROPOSED PANMURE POST OFFICE REDEVELOPMENT**
QUEENS ROAD, PANMURE
SITE INVESTIGATION REPORT

As part of our brief for this development proposal we have carried out a site investigation to ascertain foundations conditions and report as follows:

1. The Site

The site has a legal description of Lots 8 and 9 DP 122995 with an area of 2706 m^2 and is situated in Queens Road, Panmure in the City of Auckland.

The site is near flat, has frontage to Queens Road, and is occupied by 5 shops and the Post Office building with a sealed area at the rear for carparking. A service lane adjoins the rear of the property.

The western corner of the property is elevated above the adjoining properties by approximately 1.5 metres indicating that this corner of the site may have been filled in the past.

A catchpit located in the existing loading dock is drained by way of a pump which discharges stormwater up onto Queens Road. We understand that the pump has malfunctioned on numerous occasions causing a flooding nuisance.

The condition of the existing buildings appears sound with no obvious indications of distress through settlements or other foundation movement.

2. Proposed Development

We understand that it is proposed to demolish the existing shops and replace them with a new building as well as extending the existing Post Office building. The new buildings would be single storey construction.

Resident Principals: William H. Barker Andrew Brickell Keith H. Gillespie Paul P. Knight Norman W. Lea Robert J. Nelligan Rodney R. Oehlers Kenneth C. Pirie David H. Stewart
Resident Associates: Keith F. Benton Graham E. Cooper Ivan A. Fraser F. Selwyn Green John Greenough Philip G. Grieve Colin J. Kennedy Andrew C. Mortimer Warren K. Thomas

The proposal is detailed on preliminary drawings by Craig Craig & Moller, Architects reference Job No. 1930 dated 31 May 1990.

3. Geology and Subsurface Exploration

New Zealand Geological Survey (DSIR) records show the site to be underlain by volcanic tuff from the Panmure Basin eruption. These soils generally provide good foundation conditions. However owing to their moderately sensitive nature they are prone to softening if disturbed.

Investigations on nearby sites for other building projects have generally encountered stiff silts of volcanic origin suitable for shallow building foundations.

In order to investigate subsurface conditions on the site, three 50 mm diameter boreholes were hand augered to depths of up to 3.8 metres at the locations shown on the Site Plan. Logs of the soils encountered are attached to this report.

In summary the boreholes encountered stiff, moist silts with some fine scoria. Borehole 3 was drilled near to the west corner of the property in order to ascertain the quality of the fill material placed there. This borehole encountered relatively high soil strengths with no indication of buried organic or loose debris.

4. Recommendations for Development

Based on the above information we consider that:

(a) shallow strip or pad foundations with a minimum confinement of 500 mm would be suitable for the proposed buildings. We recommend that an allowable bearing pressure of 150 kPa (under service loads) can be used for the design of these foundations, increasing to 200 kPa under seismic conditions.

(b) due to the moderately sensitive nature of the soils, care should be taken during excavation of footings to minimise ground disturbance as this could lead to localised soil softening.

(c) while borehole 3 did not encounter any organic or loose debris there is still the possibility that some may be present in the fill located in the west corner of the property. Footing excavations should be reported for inspection by a soils engineer and if any such material is struck it should be removed down to more firm natural soils.

(d) consideration should be given to installing a new stormwater outlet for the property in order to prevent the flooding problem in the loading dock area.

This opinion is given to Brierley Properties Ltd for the purpose of the current development proposal only and should not be used out of context without further reference to the undersigned.

Yours faithfully
RANKINE & HILL LTD

Andrew Brickell

Enclosed:
- Drawing 857168-1 "Site Plan"
- Borehole logs (3 sheets)

Copies to:
- Craig Craig & Moller (Attention: Gordon Moller)
- Rankine & Hill Ltd Structural (J Jonassen/G Bird)

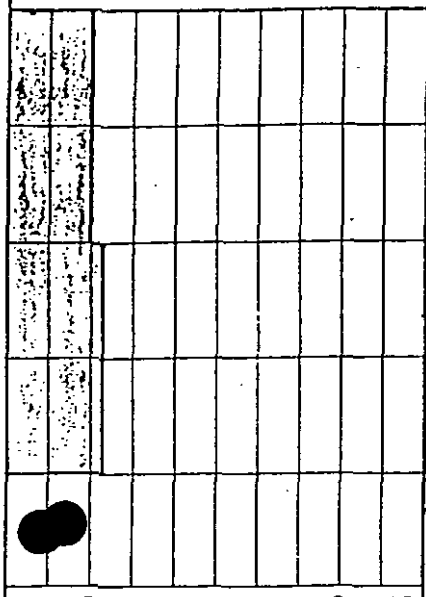
BOREHOLE LOG.

LOCATION OF BOREHOLE: See site plan

ELEVATION:

SURFACE CONDITIONS: Chip Seal

CLIENT:	SITE:	JOB No.:
Brierley Properties	Panmure P.O.	857168
METHOD: 50 ϕ Auger	LOGGED BY/DATE: PS DK 8.8.90	BOREHOLE No.: 1



SCALA PENETROMETER (Blows Per 75mm)

SAMPLE No.	LOG	DEPTH (m)	DESCRIPTION OF MATERIAL	GWL
		0.0	Chip Seal + Basecourse	
SU 160			Brown SILT (ML) stiff, moist	
SU >260		1.0	Dark Brown SILT (ML) very stiff, mod. cemented, moist limonite chips and staining.	Groundwater Encountered
SU >260		2.0	Brown clayey sandy SILT (ML) moist, mod. cemented	
SU >260		3.0	Brown SILT (ML) moist, very stiff	No Free
		4.0	E.O.B.	
		5.0		

ABBREVIATIONS:

- GWL = Ground Water Level (where measured)
- SU = Undrained Shear Strength (kPa) (using miniature shear vane)
- w = Water Content
- LL = Liquid Limit
- PL = Plastic Limit
- PI = Plasticity Index
- ● Linear Shrinkage

Where shown, laboratory tests are generally in accordance with the methods of NZS4402. Soil classifications are to the 'Unified' (USBR/C of E) method.

RANKINE & HILL LIMITED.
Consulting Engineers, Surveyors and Planners.

BOREHOLE LOG.

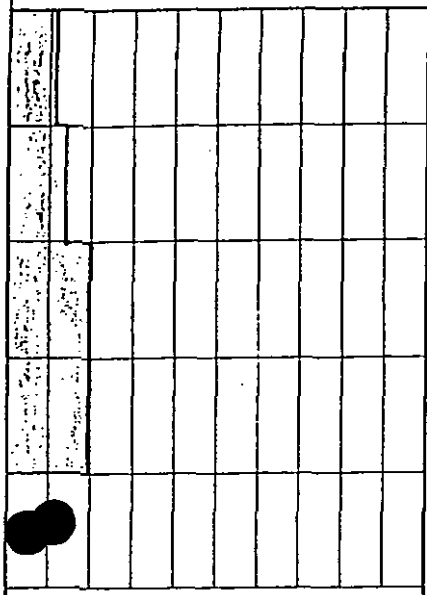
LOCATION OF BOREHOLE: See Site Plan

ELEVATION:

SURFACE CONDITIONS: Garden

CLIENT:	SITE:	JOB No.:
Brierley Properties	Panmure P.O.	857168
METHOD: 50 ø Auger	LOGGED BY/DATE: P.S. DK 8.8.90	BOREHOLE No.: 2

SAMPLE No.	LOG	DEPTH (m)	DESCRIPTION OF MATERIAL	GWL
		0.0	Dark Brown SILT Topsoil	
SU 130		1.0	Light Brown SILT (ML) moist, stiff, mod. sensitive becomes darker limonite chips	Groundwater Encountered.
SU 90				
SU 140		2.0	Light Brown clayey sandy SILT moist, firm, mod. sensitive (ML) limonite staining becomes stiff wet layer	Free No
		3.0	E.O.B.	
		4.0		
		5.0		



SCALA PENETROMETER (Blows Per 75mm)

ABBREVIATIONS:

GWL = Ground Water Level (where measured)

SU = Undrained Shear Strength (kPa) (using miniature shear vane)

w = Water Content

LL = Liquid Limit

PL = Plastic Limit

PI = Plasticity Index

[redacted] = Linear Shrinkage

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BOREHOLE LOG.

LOCATION OF BOREHOLE: See Site Plan

ELEVATION:

SURFACE CONDITIONS: Asphalt

CLIENT:	SITE:	JOB No.:
Brierley Properties	Panmure P.O.	857168
METHOD:	LOGGED BY/DATE:	BOREHOLE No.:
50 ø Auger	P.S. DK 8.8.90	3

SAMPLE No.	LOG	DEPTH (m)	DESCRIPTION OF MATERIAL	GWL
		0.0		No Free Groundwater Encountered.
su 125			Dark Brown Sandy SILT (ML) moist, stiff.	
su 180		1.0	Light Brown SILT (ML) moist stiff	
su >260		2.0	Reddish Brown clayey SILT (ML) moist, stiff limonite chips	
			Dark Brown SILT (ML) moist, very stiff scoria chips difficult to penetrate	
		3.0	E.O.B.	
		4.0		
		5.0		

0 2 4 6 8 10

SCALA PENETROMETER (Blows Per 75mm)

ABBREVIATIONS:

GWL = Ground Water Level (where measured)

SU = Undrained Shear Strength (kPa) (using miniature shear vane)

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[redacted] Linear Shrinkage

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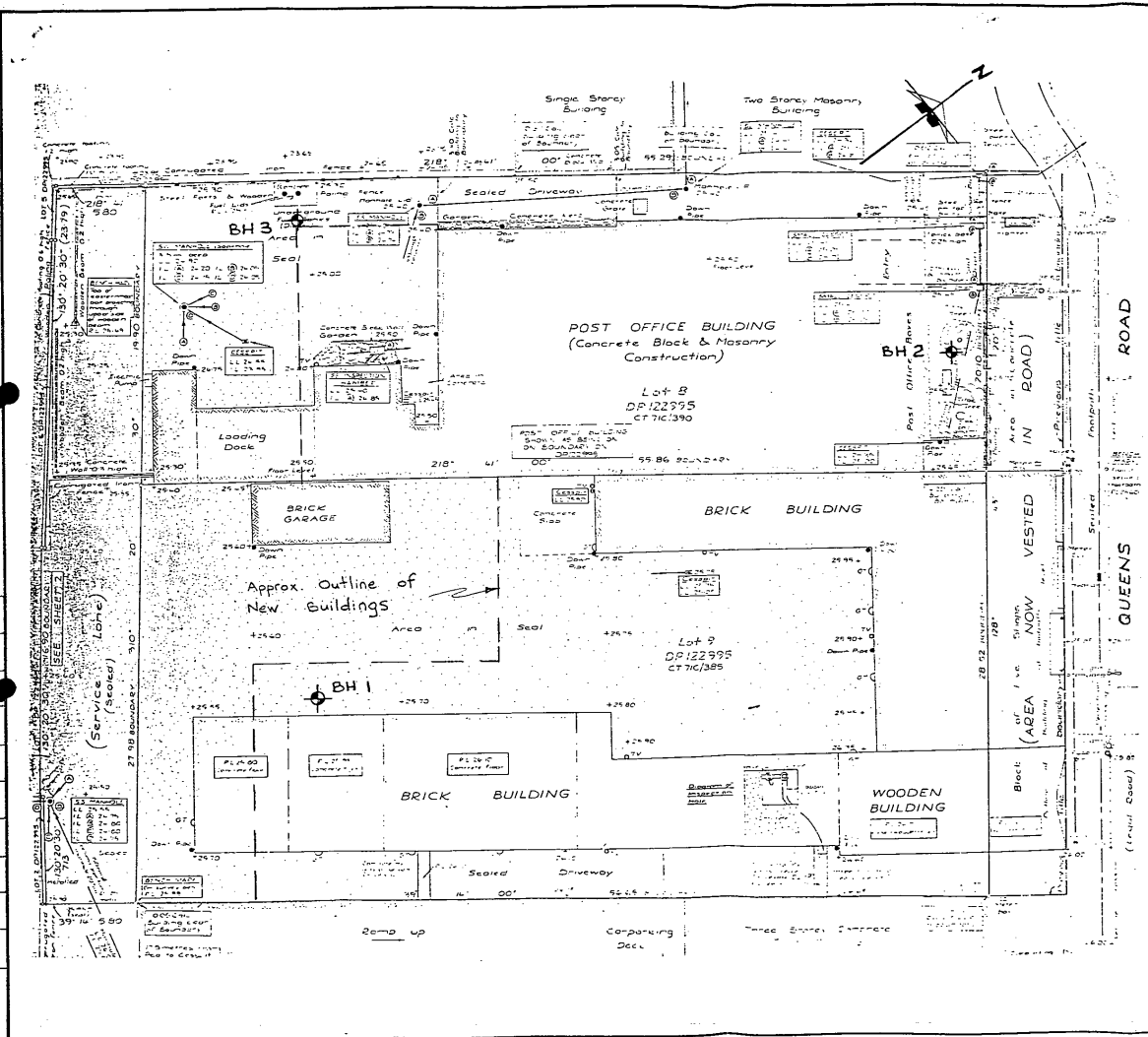
Single Storey Building
Two Storey Masonry Building
N
Sealed Driveway
BH 3
POST OFFICE BUILDING
(Concrete Block & Masonry Construction)
Lot 8
DP 122995
CT 71C/390
BH 2
Loading Dock
BRICK GARAGE
BRICK BUILDING
Approx. Outline of New Buildings
Lot 9
DP 122995
CT 71C/385
BH 1
BRICK BUILDING
WOODEN BUILDING
Sealed Driveway
Ramp up
Carparking Deck
Three Storey Concrete
Service (Sealed) Lane
SEE SHEET 2
QUEENS ROAD
(Trust Road)
AREA OF VESTED IN ROAD NOW
Block
Footpath
Sealed
Post Office Boxes
Entry
Area in Seal
Area in Seal
Concrete Slab
Down Pipe
Concrete Floor
Concrete Block Garden
Steel Posts & Masonry
Fence
Rainwater Pipe
Fuel Tank
Underground Tank
Boundary Beam
Building Line
Footprint
Building Line of Boundary
Concrete Wall
Concrete Floor
Concrete Slab
Concrete Block Garden
Area in Concrete
Floor Level
Concrete Wall
Concrete Floor
Concrete Floor
Concrete Floor