SHRIMPTON & LIPINSKI

MAYFIELD

RESIDENTIAL SUBDIVISION STAGE 2

WESTMORLAND RISE, RAUKAWA DRIVE BETHLEHEM

REPORT ON SUBDIVISION EARTHWORKS & RECOMMENDATIONS FOR BUILDING

Our Ref: 16530
May 2003

S&L CONSULTANTS LTD - SURVEYORS - ENGINEERS - PLANNERS
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CONTENTS

Appendices

1.0 Introduction

The earthworks, roading construction and services installation were completed on 30 April 2003 for Stage 2 of the Mayfield Subdivision in Bethlehem North. 54 residential lots were created in an extension of Westmorland Rise from the Stage 1 area and the construction of the long cul de sac of Raukawa Drive.

The locations and sizes of the 54 lots created are shown on DP 320267 (seven sheets). Lots 48, 89, 101, 108, 196 and 197 contain existing houses. Lots 96 and 196 are original large properties which have been altered slightly by boundary adjustment so that the new residential lots around the cul de sac head of Raukawa Drive can be created.

This report describes the earthworks undertaken in the formation of this stage of subdivision including the relevant standards adopted for the placement of filling to support residential buildings and recommendations for building including building restrictions where relevant.

During the report reference is made to drawings 16530-51 and 52 which are included in Appendix I to this report. These drawings show the relevant road and lot locations, areas of cut and filling and subsoil and fill compaction test locations.

2.0 Scope of Earthworks

The earthworks undertaken in the Stage 2 area comprised:

- The formation of the road subgrade in cut from Lots 79 and 107 northwards with the areas of cut extending into the front areas of Lots 76 to 79 and encompassing the total areas of Lots 65 to 69 and 71 to 73 inclusive. Some of the cut soils were used for localised filling in Stage 2 but most were transported to future development areas on Westmorland Rise to the north of Stage 2. The maximum depth of cut made was 3 metres on the road subgrade opposite Lots 68 and 117. Elsewhere depths of cut were generally not more than 1.0 to 1.5 metres.

- Minor areas of cut along the road frontage of Lots 99 to 103 and within the rear areas of Lots 104 and 107 and extending into Lot 105.

- The placement of filling to the standards contained in NZS 4431:1989 and the Tauranga District Council Code of Practice for Development:

    - At the cul de sac head of Raukawa Drive.
    - To infill a depression left on Lot 83 where a swimming pool was removed.
    - To infill a depression left where a tennis court was removed on Lots 74 and 78 (up to 1.5 metres deep).
    - To raise the general ground levels on Lots 111, 112 and 116 to 121 (up to 0.9 metres deep).
    - To infill a silt pond required during the earthworks, on Lots 113 to 115 (up to 1.0 metres deep).
    - In general localised recontouring behind retaining walls erected on the road boundaries of Lots 71 to 73.

The depths of filling shown on drawings 16530-51 and 52 were derived from surveyed contours of the finished surface taken on the completion of the earthworks for this stage compared with the topographical survey undertaken by Connell Wagner Ltd for Mayfield Ltd prior to the subdivision construction.

The earthworks for Stage 2 development were undertaken by A & R Partnership subcontracted to Higgins Contractors Bay of Plenty Ltd during the 2002-2003 earthworks season in compliance with consent 61698 issued by Environment BOP.

3.0 Pre Subdivision Investigations

Prior to obtaining subdivision approval a geotechnical assessment of the development area was undertaken by Connell Wagner Ltd on behalf Mayfield Ltd. The Connell Wagner report is referenced 7073-SH-04 and is dated June 1999. A copy of this report is present on the District Council subdivision file.

Their investigation determined (as quoted from the Connell Wagner report with their lot numbering modified to the numbering as shown on DP 320267) that:

(a) The soils over the higher ground generally comprise typical ash deposits for this region with approximately 3 to 4 metres of younger ash overlying older Hamilton ashes, which in turn overlie the Tauranga formation.

(b) The soils underlying the low lying ground below R.L 2.0 comprise very stiff marine silts to varying depth (these conditions were not present in the Stage 2 area).

(c) The topsoil varies in depth but is generally 0.1 to 0.5 metres in thickness comprising dark brown sandy silt.

(d) The younger ashes consist of firm to stiff light brown sandy silts and silty sands. These soils are underlain by the older Hamilton ashes which often comprise a dark brown silty clay layer overlying a series of interbedded brown and orange silty clays, clay silts and sands. The underlying Tauranga formation mostly comprises a series of light grey or white pumiceous sand and silts.

(e) In the area of Lots 111 to 121 horticultural filling was identified from test pits. This area was in an extension of the narrow increased gully (extending south west). The soils in this area are stiff and overlie natural ash deposits at a depth of 2 metres. The undrained shear strengths measured in the old filling exceed 100kPa but are generally less than 150 kPa.

(f) Within the upland head of the incised gully (now following Raukawa Drive) the land had been broadened into natural contoured landform. Some past earthworks is expected in the areas on Lots 102 to 109, 82 to 87, and 73 to 80 with least thickness in the areas of Lots 84, 85, 86 and 102.

The Connell Wagner report recommended that where the past horticultural filling had been poorly compacted and overlaid original organic soils within the old gully floor the filling and organic soils should be removed and be replaced. This recommendation was made for the "northern one third" of the gully which is north of Lot 121 and within the future stage of Mayfield as an extension of Westmorland Rise. The report recommended in the "Central and Southern portions" of the old gully and drainage depressions where the filling is less than 1 metre thick and had been placed over natural silt soils after topsoil stripping, that the filling could remain in place after an on site review or partially or totalling removing it and re-compacting back in place.

Additional site investigations in the Stage 2 area were undertaken by S & L Consultants Ltd to determine the type and extent of the horticultural filling. These comprised the excavations of test pits numbered TP3 on Lot 120, TP4 on Lot 117, TP5 on Lot 11, TP6 on Lot 74, and TP7 in front of Lot 79. The pit locations are shown on drawings 16530-51 and 52 and the pit logs are contained in Appendix IV to this report.

The pre-subdivision investigations identified the presence of horticultural filling along the road alignments and within the lots to the east of the roads. In these areas the filling was either removed as cuts were made to the road subgrade or for the silt pond on Lots 113 to 115 or was examined when topsoil was stripped prior to placement of filling. It was found unnecessary to undertake the removal of the existing filling because soils strengths were seen to be uniformly high and there was no evidence of old topsoil being present under the filling (refer to the post subdivision test results described in Section 5.0 below).

The initial subdivision walkover inspection identified the presence of non structural filling present behind a wall constructed of tyres now present on Lot 109. The tyred wall and filling placed in a garden were part of the yard development around the house which is on part of adjacent Lot 108. No subdivision earthworks were undertaken in Lots 108 or 109 to modify the ground including the non structural fill or tyre wall. The extent of the non structural filling is shown on 16530-51.

4.0 Earthworks Standards

The performance specification required of the Contractor for the earthworks was based on the guidelines contained in NZS 4431:1989 "Code of Practice for Earthfill for Residential Development". Enforcement of the compaction requirements listed below satisfies the standards listed in Section 7 of NZS 4431.

Air voids percentage (as defined in NZS 4402: Part 1: 1980)
Structural Fill - average value less than 10% (any 10 tests)
- Maximum single value 12%

Undrained shear strength (measured by insitu vane)
Structural fill - average value not less than 150kPa (any 10 tests)
- Minimum single value 100kPa

The calculation of air voids percentage requires the input of a value for the specific gravity of the compacted soil. It was found that some of the soils used in the filling were derived from the pumiceous sands present at the lower depths of the younger ash soils. Because of the angularity of these soils compaction densities were found to be lower than when cohesive soils were worked and compacted to the same degree. Where pumiceous sands were identified in the samples taken at the test sites by the testing laboratory the permissible air voids percentage maximum value was increased to 15.

The earthworks were observed by an engineering technician from this office and compaction and strength control testing was undertaken by local IANZ accredited soil testing laboratories in Tauranga both on site and in the laboratory.

19 compaction tests were undertaken within the areas of filling at locations shown on 16530-51 and 52. The compaction test results are summarised in the tabulation contained in Appendix III. The tests were generally taken after 0.5 metres of filling in the deeper fills had been placed and 0.3 to 0.4 metres below the completed surface in other areas.

All test results fall within the acceptance criteria with most developed shear strengths being so high that the probe could not be pushed in or the readings exceeded the dial capacity.

5.0 Post Construction Testing

Post construction handaugered boreholes were put down on each lot at locations shown on 16530-51 and 52. These boreholes were generally 1 metre deep and were intended to confirm ground bearing conditions for shallow building foundations that were identified in the pre-subdivision boreholes and pits and during observations of services trench cuts and exposed soils prior to the placement of topsoil and grassing.

As the boreholes were being drilled undrained shear strengths were recorded with a hand held shear vane pushed in advance of the auger.

Summary logs of these boreholes and the shear strengths recorded are contained in Appendix IV.

6.0 Summary & Recommendations

6.1 Subdivision Construction Filling

Structural filling as shown as shown on drawings 16530-51 and 52 was placed in accordance with the methods and standards quoted in NZS 4431 under the supervision of S & L Consultants Ltd. Compaction testing on site confirmed that a high and uniform degree of compaction has been achieved suitable for the support of buildings. Post construction boreholes also confirmed this suitability.

Our statement in support of the suitability of the filled areas for the erection of buildings in terms of NZS 3604 is appended in Appendix II of this report.

Within areas of structural filling on which buildings may be erected, however, the possibility of variation of soil type and strength may exist away from our observation or compaction test locations. The normal inspection of foundation conditions during construction of buildings by competent tradesmen as described in NZS 3604 and by building certifiers should therefore be undertaken. If for any reason areas of low soil strength are found professional geotechnical advice should be sought.

6.2 Areas of Cut

In areas of cut the subsoils present on these lots will be ash derivative soils typical of those found in the Tauranga area.

The varying depths of cut have however exposed a variety of different soils types immediately below the topsoil overlay. This is because the more recent ashes which extend below the original ground level and which comprise a stiff upper mantle of light brown friable silt overlying bands of yellow or light grey pumiceous sand have been partially or totally removed.

Post construction handaugered boreholes were put down on all lots at locations shown on 16530-51 and 52 and logs of the soils found in these boreholes are contained in Appendix IV.

Each soil type identified had varying undrained shear strengths or degrees of compaction. The tests showed that undrained shear strengths in the insitu soils are sufficient for the construction of shallow building foundations.

For all lots located in areas of cut the post construction boreholes indicate that ultimate ground bearing pressures for foundation design may be taken as 300 kPa in the limit state. This capacity meets the definition of "good ground" as defined in NZS 3604. In situ and as tested, the soils present in the cut areas are of adequate strength for bearing capacity of 300 kPa. However if they are disturbed or are found to be variable during construction, foundations detailed in accordance with NZS 3604 may have to be deepened or widened accordingly.

6.3 Areas of Undisturbed Ground

Areas of ground not altered by the subdivision earthworks exist generally at the rear of lots away from the road carriageway, berms and some front yards to the lots. Pre and post subdivision investigations indicate that insitu soils or minor depths of horticultural filling would exist in the areas not modified during the subdivision construction. Tests taken during these investigations indicate that shallow building foundations can be constructed and that ultimate ground bearing pressures for foundation design may be taken as 300 kPa in the limit state. This capacity meets the definition of "good ground" as defined on NZS 3604.

As the subdivision area was previously developed as an orchard with some trees having been removed it is possible that near surface soils may have been disturbed during the removal of trees or possibly from root pruning along the orchard shelter that is still present along the eastern boundaries of Lots 111 and 121. Any area cleared for building by the removal of topsoil on the areas not modified by the subdivision earthworks as seen on 16530-51 and 52 should be inspected for evidence of such disturbance or possibly the presence of deeper topsoil or horticultural filling. Minor excavation with a spade could determine what depths of disturbed ground are present. If such disturbance or soft or loose or organic filling is found to extend deeper than the proposed building foundation geotechnical engineering advice should be sought.

If building development on Lot 109 is to utilise the area of the filling behind the rubber tyred wall additional site investigations should be undertaken to determine the extent and depth of this filling. The post subdivision investigation borehole on Lot 109 showed the presence of 0.4 metres of topsoil being present. As this lot was not modified by subdivision earthworks it is possible that such a topsoil depth may exist over the remainder of the lot or it may be thicker. The investigation to determine the stability of the non structural fill behind the tyres should also be extended to identify the topsoil depth and continuity of the natural ground found in the post construction borehole.

Houses exist on Lots 48, 89, 101, 108, 196 and 197. No specific tests have undertaken on these sites. It is assumed that adequate foundation conditions existed at the time of construction of these houses. Should extensions or modifications to these houses be contemplated in the future the building designer or owner should at least review any site records kept on the property file at the Tauranga District Council. If required additional site tests could be undertaken to confirm the presence of "good ground" in any redevelopment area on those lots.

No specific investigations or tests have been undertaken in large lots 96 and 196 because any further development would be subject to a separate consent in the future. Anecdotal information indicates that natural undisturbed ground exists on these properties.

6.4 Land Stability

Most of the area on the lots contained in Stage 2 at Mayfield comprises near flat or gently sloping ground. In these areas no global stability issues exist that may restrict or prevent buildings being erected.

Restrictions due to possible localised stability issues are recommended on the following lots:

Lot 48

A house is present on this lot which was formerly Lot 48 DP 307712. A consent notice on the title for Lot 48 DP 307712 refers to advice given by Connell Wagner Ltd for any further development of this lot. This consent notice is to be carried forward to the new title of Lot 48 DP 320267. During the construction of Westmorland Rise timber retaining walls were constructed along the road boundary in accordance with a building consent issued by the Tauranga District Council on 21 March 2003. Geotechnical advice should be sought if it is intended to place additional filling or construct an accessway or building within 7 metres of these walls. Such advice should also be sought if it is intended to undertake similar development above the unretained batters along the driveway or the southern boundary or above the rock walls along the eastern boundary. A copy of the approved and constructed timber wall details is contained in Appendix I.

Lot 69

A cut and grassed batter face was formed on the northern boundary as part of the subdivision earthworks. A building restriction line is shown on DP 320267 and is intended to set buildings away from the batter. The clearance provided is to allow access for maintenance of the batter and to permit a retaining wall to be constructed if required along the length of any future building. If the wall is constructed with a building consent the restriction on building close to the retained batter may be waived.

Lots 71, 72 & 73

Unretained cut batters exist at the rear of Lots 72 and 73. It is unlikely that buildings would be erected close to these batters and so no formal building restrictions are necessary. The batter faces, while grassed, may still be vulnerable to long term erosion and a retaining wall or some form of erosion prevention facing may be required in the future to maintain long term stability. Retaining walls have been erected along the roadside boundaries of Lots 71, 72 and 73 at batters cut when the road was formed. A building consent was issued for the walls by the Tauranga District Council on 21 March 2003. The walls have been designed to resist a modest surcharge but not loadings imposed on the ground directly above from additional filling even behind retaining walls, and other buildings. No additional filling, retaining walls or other buildings should therefore be located closer than 3 metres from the top of these walls. A copy of the details of the timber walls that were approved and constructed is contained in Appendix I.

6.5 Topsoil Thickness

During the subdivision earthworks areas of cut or fill were initially stripped of topsoil and this was then replaced to depths of up to 300mm. Outside of the earthworks areas where the ground was not disturbed it is possible that topsoil depths may be deeper than 300mm where the topsoil depth was developed naturally or where it was deepened due to past horticultural activities. No guarantee is implied or given that the topsoil on any part of any lot is 300mm deep or less and it is recommended that future owners or builders check topsoil depths when preparing site development plans and cost schedules.

7.0 Professional Opinion

Our statement in the format of Council's Code of Practice for Development (Form G2) that all lots are suitable for building is contained in Appendix II. This statement is accompanied by form G2A which summarises the information and recommendations within this report.

8.0 Applicability

Recommendations contained in this document are based on data from borehole and pit data, observations of soil exposures, and test results. Inferences about the nature and continuity of subsoils away from these locations are made but cannot be guaranteed.

In all circumstances, if variations in the subsoils occur which differ from that described or assumed to exist the site should be inspected by an engineer suitably qualified to make an informed judgement and provide advice on appropriate improvement measures.

This report has been prepared specifically for the development at Stage 2 of the Mayfield Subdivision and no responsibility is accepted by S & L Consultants Ltd for the use of any part of this report for other development sites without their written approval.

S & L Consultants Ltd
Consultants, Engineers, Surveyors, Planners

M W Hughes
Geotechnical Engineer

5 May 2003

APPENDIX I

Drawings - **Earthworks Completion Plans 16530-51, 52**
Deposited Plan DP 320267 (7 sheets)
Retaining Wall Details 16530-41, 42

GRAPHIC SCALE

0 50 100 150 200 250 300 mm

KEY

- ●T34 Construction Compact Test Position
- ○ Post Construction Bo by S & L Consultan
- ⊕TP7 Pre subdivision Test by S & L Consultant
- ⊕CW3. Pre subdivision Boreh by Connell Wagner L
- —1.0— Depth of Structural
- —1.0— Depth of Cut

Checked By	Rev. No.	DESCRIPTION	
	1	224 Application	
		NAME	DATE
Surveyed			
Designed			
Drawn		SD	05'03
Checked		HH	05'03
Approved			

REFERENCE#

SHRIMPTON & LIPINSKI

S & L CONSULTANTS L
SURVEYORS – ENGINEERS – PLANN

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Email:slga@xtra.co.nz

TITLE

MAYFIELD SUBDIVISION

STAGE 2

RAUKAWA DRIVE

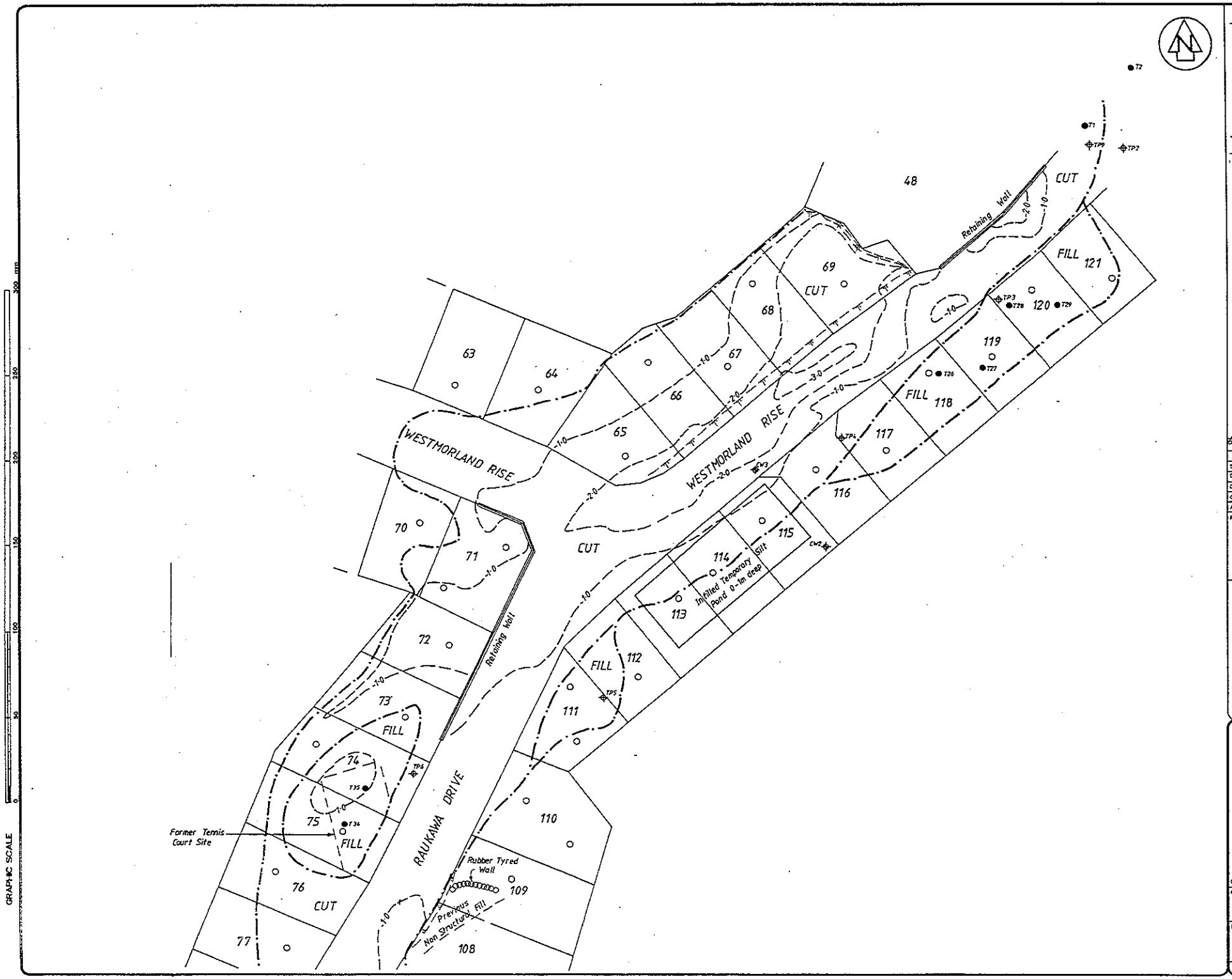
COMPLETED EARTHW REFERENCE PLAN

ORIGINAL SCALES	DATE
1:500 @ A1	05

DRAWING No

16530 -51

Revision: 1



KEY

- ●T34 Construction Compac Test Position
- ○ Post Construction B by S & L Consulta
- ⌖TP7 Pre subdivision Tes by S & L Consulta
- ⌖CW3. Pre subdivision Borel by Connell Wagner
- —1·0— Depth of Structural
- —1·0— Depth of Cut

Rev No.	DESCRIPTION
1	224 Application

Checked By	NAME	DATE
Surveyed		
Designed		
Drawn	SID	05'03
Checked	MIH	05'03
Approved		

REFERENCES

S&L
SHERMPTON & LIPINSKI

S & L CONSULTANTS L
SURVEYORS – ENGINEERS – PLAN

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TITLE

MAYFIELD SUBDIVISION
STAGE 2
RAUKAWA DRIVE
WESTMORLAND RISE

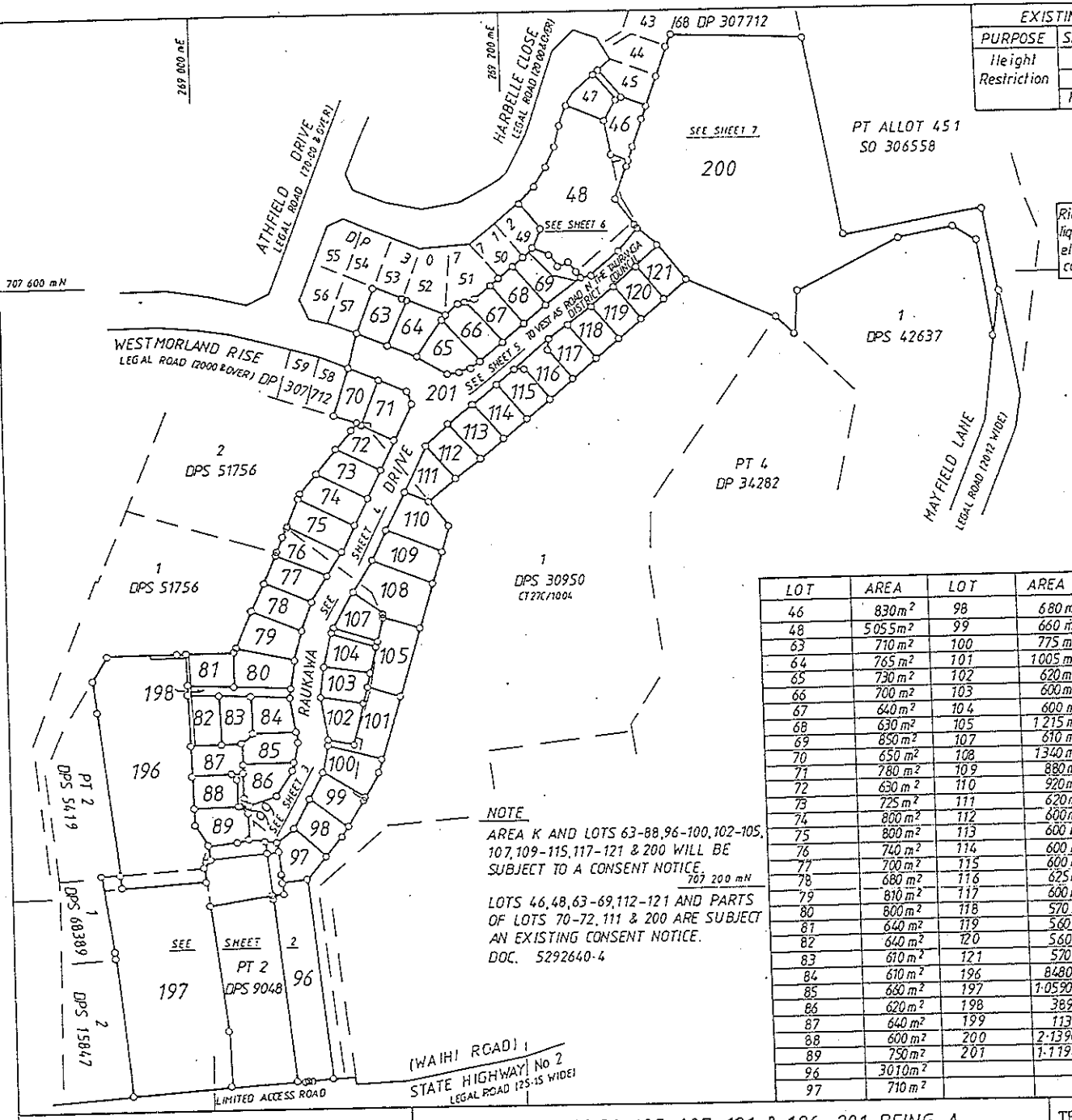
COMPLETED EARTHW
REFERENCE PLAN

ORIGINAL SCALES	DATE
1:500 @ A1	05

DRAWING No

16530-52

Revision: 1



EXISTING LAND COVENANT			
PURPOSE	SHOWN	LOT	DOCUMENT
Height Restriction	F	82	H.912808
	G	198	
	H & I	81	

MEMORANDUM OF EASEMENTS IN GROSS			
PURPOSE	SHOWN	SERV.TEN.	GRANTEE
Right to convey water	D & G	Lot 198	Tauranga District Council
Right to convey gas & liquids, right to transmit electricity & data & communications	D & G	Lot 198	Powerco - Ltd
	I	Lot 81	
	J	Lot 196	

AMALGAMATION CONDITIONS

That Lot 198 hereon (legal access) be held as to six undivided one-sixth shares by the owners of Lots 80 - 84 and 196 hereon as tenants in common in the said shares and that individual certificates of title be issued in accordance therewith.

That Lot 199 hereon (legal access) be held as to two undivided one half shares by the owners of Lots 87 and 88 hereon as tenants in common in the said shares and that individual certificates of title be issued in accordance therewith.

See Request 92637.

That Lot 116 hereon be transferred to the owner of Lot 1 DPS 30950 (C.T. 27C/1004) and that one Certificate of Title be issued to include both parcels.

See Request 185971.

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	SERV.TEN.	DOM.TEN.
ROW, Right to convey water & gas, Right to transmit telecomm & electricity	A, B	Lot 197	Lots 89, 196
	B, C	Lot 197	Lot 96
	D, G	Lot 198	Lots 80-84, 196
	E	Lot 199	Lots 87, 88

LOT	AREA	LOT	AREA	LOT	C.T.	LOT	C.T.
46	830 m²	98	680 m²	46	80258	98	80289
48	5055 m²	99	660 m²	48	80259	99	80290
63	710 m²	100	775 m²	63	80260	100	80291
64	765 m²	101	1005 m²	64	80261	101	80292
65	730 m²	102	620 m².	65	80262	102	80293
66	700 m²	103	600 m²	66	80263	103	80294
67	640 m²	104	600 m²	67	80264	104	80295
68	630 m²	105	1 215 m²	68	80265	105	80296
69	850 m²	107	610 m²	69	80266	107	80297
70	650 m²	108	1340 m²	70	80267	108	80298
71	780 m²	109	880 m²	71	80268	109	80299
72	630 m²	110	920 m²	72	80269	110	80300
73	725 m²	111	620 m²	73	80270	111	80301
74	800 m²	112	600 m²	74	80271	112	80302
75	800 m²	113	600 m²	75	80272	113	80303
76	740 m²	114	600 m²	76	80273	114	80304
77	700 m²	115	600 m²	77	80274	115	80305
78	680 m²	116	625 m²	78	80275	116 & Lot 1 DPS 30950	80306
79	810 m²	117	600 m²	79	80276		
80	800 m²	118	570 m²	80 & 198	80277	117	80307
81	640 m²	119	560 m²	81 & 198	80278	118	80308
82	640 m²	120	560 m²	82 & 198	80279	119	80309
83	610 m²	121	570 m²	83 & 198	80280	120	80310
84	610 m²	196	8480 m²	84 & 198	80281	121	80311
85	680 m²	197	1·0590 ha	85	80282	196 & 198	80312
86	620 m²	198	389 m²	86	80283	197	80313
87	640 m²	199	113 m²	87 & 199	80284	200	80314
88	600 m²	200	2·1390 ha	88 & 199	80285	201	ROAD
89	750 m²	201	1·1190 ha	89	80286		
96	3010 m²			96	80287		
97	710 m²			97	80288		

NOTE

AREA K AND LOTS 63-88, 96-100, 102-105, 107, 109-115, 117-121 & 200 WILL BE SUBJECT TO A CONSENT NOTICE.

707 200 mN

LOTS 46, 48, 63-69, 112-121 AND PARTS OF LOTS 70-72, 111 & 200 ARE SUBJECT AN EXISTING CONSENT NOTICE.
DOC. 5292640-4

Approvals

I hereby certify that this plan was approved by the Tauranga District Council pursuant to Section 223 of the Resource Management Act 1991 on the ____ day of _____ 2003 subject to the granting or reserving of the easements set out in the Memorandum hereon and subject to the amalgamation conditions set out hereon.

Authorised Officer sub 5311

Pursuant to Section 321(3)(c) Local Government Act 1974 the Tauranga District Council is satisfied that adequate access to Lots 81, 82, 83, 87, 88 & 196 hereon is provided over other land pursuant to a condition imposed under Section 220(1)(b)(iv) of the Resource Management Act 1991 and is satisfied that adequate access to Lot 96 is provided by way of a right of way and that subsection 321(1) of the Act shall not apply.
Dated this ____ day of _____ 200_.

Authorised Officer

CLASS I SURVEY

Total Area 9·7077 ha

Comprised in CsT 500/747, 540/629, 57B/139, 57B/140, 29977, 29979, 29994

I, JOHN DAVID BARNES

being a person entitled to practise as a licensed cadastral surveyor certify that:

(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002/2:

(b) This dataset is accurate and has been created in accordance with that Act and those Rules.

Signed _____ Date ____/____/____

Field Book _____ p. _____ Traverse Book _____ p. _____
Reference Plans _____
Examined _____ Correct _____

Approval as to Survey by Land Information New Zealand
____/____/____

Deposited by Land Information New Zealand
____/____/____

File _____
Received _____
Instructions _____

LAND DISTRICT
SOUTH AUCKLAND

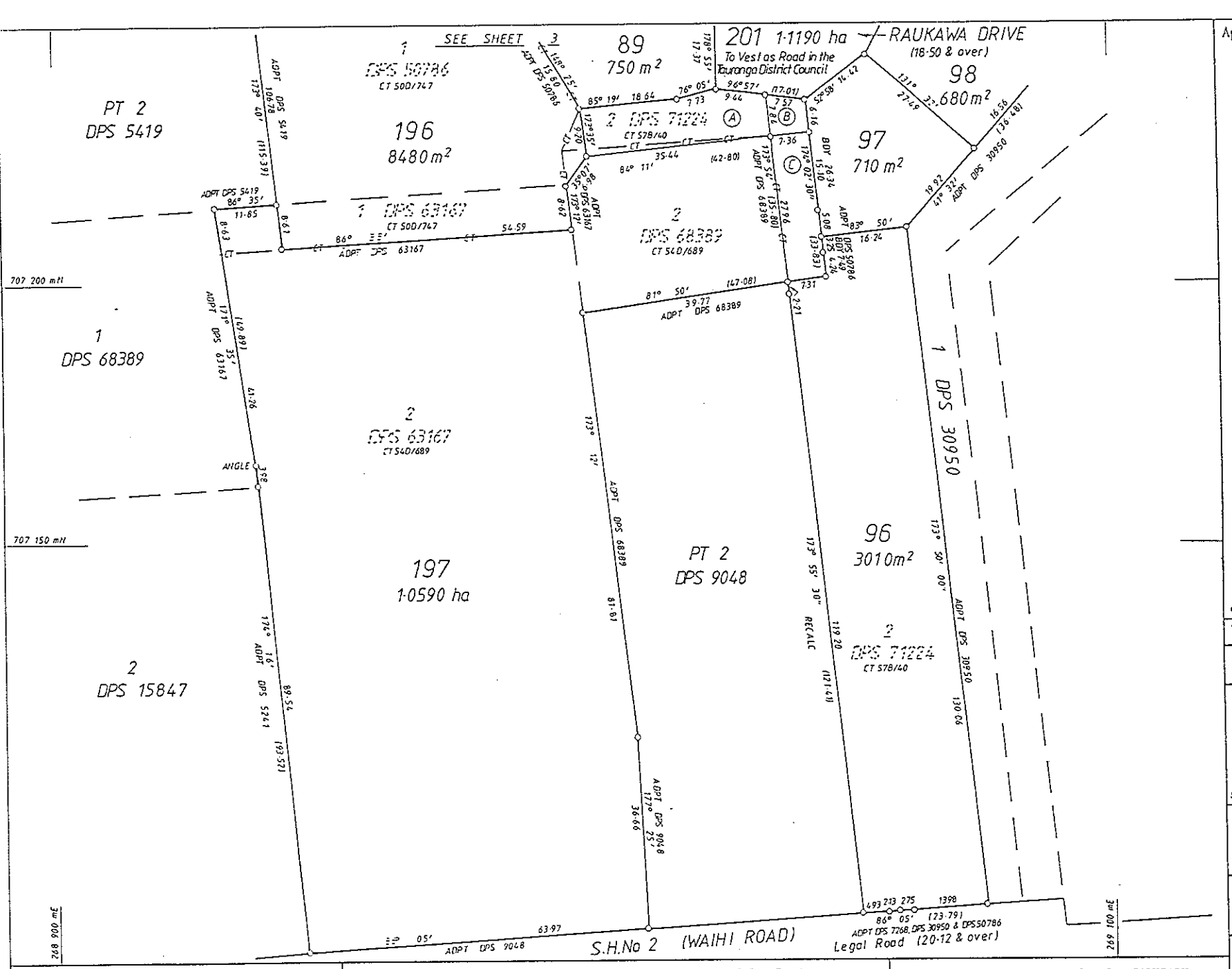
LOTS 46, 48, 63-89, 96-105, 107-121 & 196-201 BEING A SUBDIVISION OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712

TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD F.16530/2

Scale 1:2000 Date JULY 2002 - APRIL 2003

Sheet 1 of 7 Sheets DP 320217



Approvals

Class of Survey: I

Total Area

Comprised in

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Signed ..... Date ...../...../.....

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

.....

Examined ..... Correct .....

Approval as to Survey by Land Information New Zealand

...../...../.....

Deposited by Land Information New Zealand

...../...../.....

File

Received

Instructions

LAND DISTRICT

SOUTH AUCKLAND

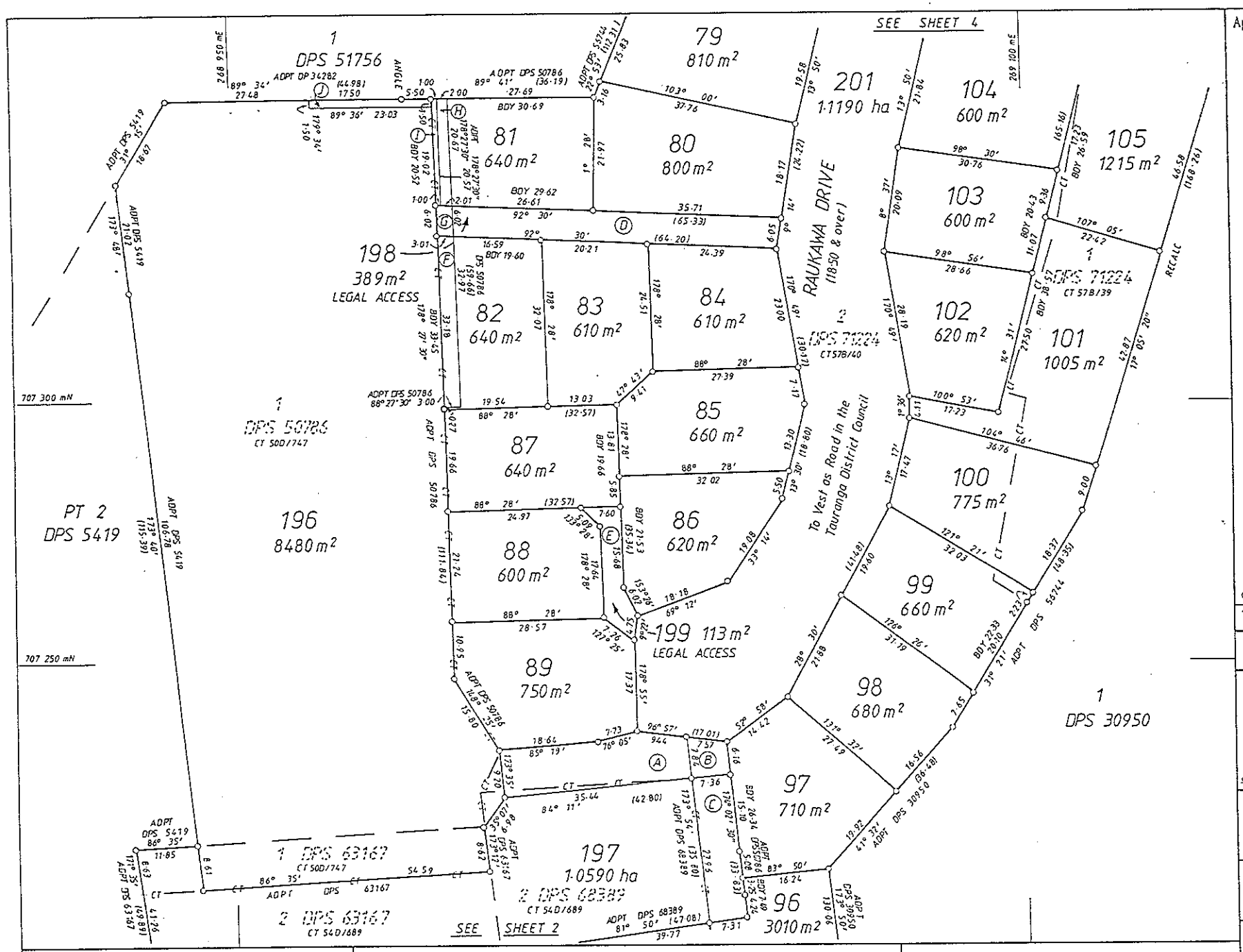
LOTS 46, 48, 63-89, 96-105, 107-121 & 196-201 BEING A SUBDIVISION OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712.

TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD E 16530/2

Scale 1:500 Date JULY 02 - APRIL 03

 DP 320267



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(b) This dataset is accurate and has been created in accordance with that Act and those Rules.

Signed ..... Date ...../...../.....

Field Book ..... pp. ..... Traverse Book ..... pp. .....

Reference Plans .....

Examined ..... Correct .....

Approval as to Survey by Land Information New Zealand

...../...../.....

Deposited by Land Information New Zealand

...../...../.....

File Received Instructions

LAND DISTRICT

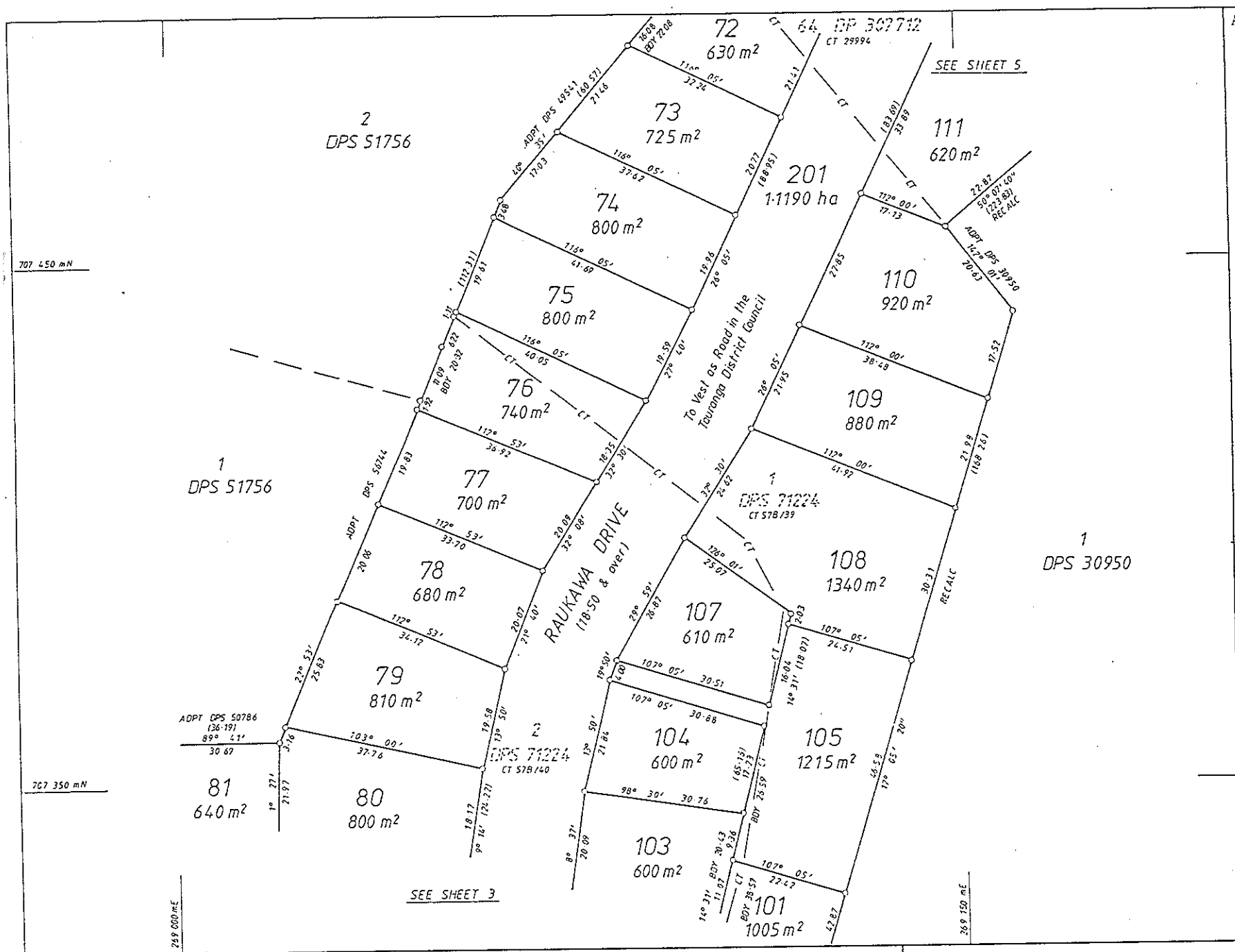
SOUTH AUCKLAND

LOTS 46, 48, 63-89, 96-105, 107-121 & 196-201 BEING A SUBDN OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712.

TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD F16530/2

Scale 1:500 Date JULY 02 - APRIL 03



Approvals

Class of Survey: *1*

Total Area

Comprised in

I, JOHN DAVID BARNES

being a person entitled to practise as a licensed cadastral surveyor certify that:

(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002/2:

(b) This dataset is accurate and has been created in accordance with that Act and those Rules.

Signed ..... Date ...../...../.....

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

.....

Examined ..... Correct .....

Approval as to Survey by Land Information New Zealand

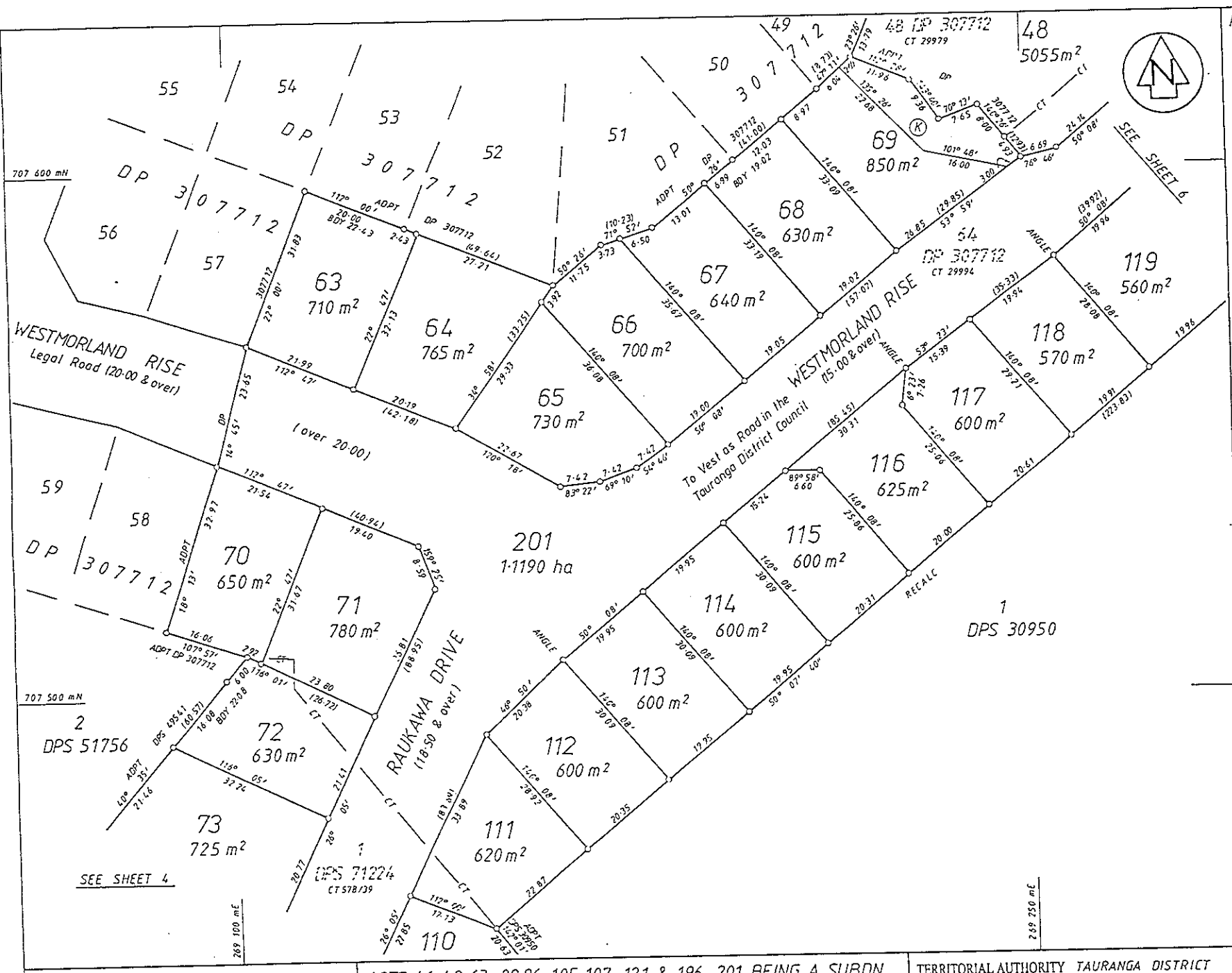
...../...../.....

Deposited by Land Information New Zealand

...../...../.....

File
Received
Instructions

LAND DISTRICT	LOTS 46, 48, 63–89, 96–105, 107–121 & 196–201 BEING A SUBDN OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712.	TERRITORIAL AUTHORITY *TAURANGA DISTRICT*
SOUTH AUCKLAND		Surveyed by S & L CONSULTANTS LTD *F16530/2*
		Scale *1:500* Date *JULY 02 – APRIL 03*



Approvals

Class of Survey: I

Total Area

Comprised in

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Signed ..... Date ...../...../.....

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

.....

Examined ..... Correct .....

Approval as to Survey by Land Information New Zealand

...../...../.....

Deposited by Land Information New Zealand

...../...../.....

File

Received

Instructions

LAND DISTRICT

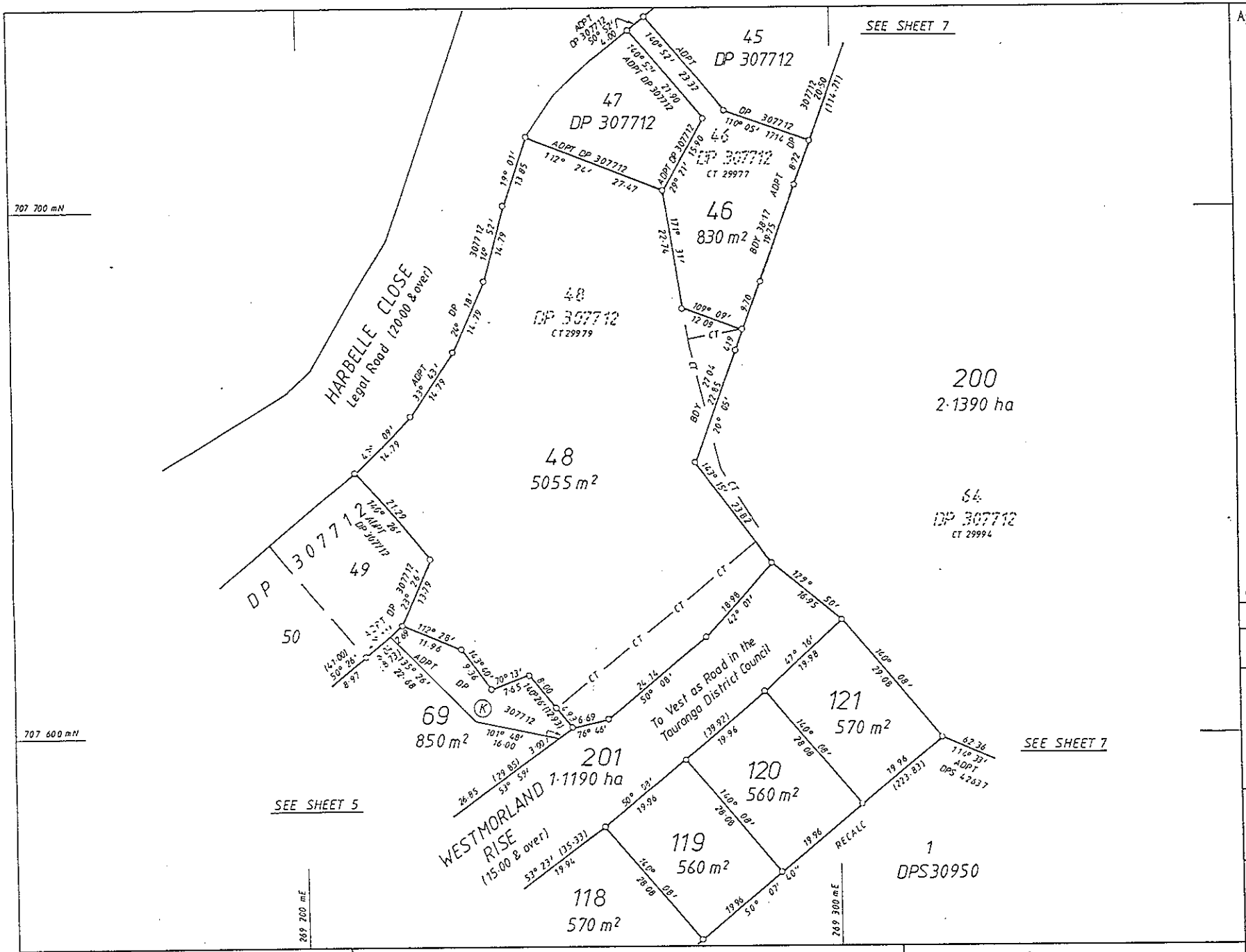
SOUTH AUCKLAND

LOTS 46, 48, 63–89, 96–105, 107–121 & 196–201 BEING A SUBDN OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712.

TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD F 16530/2

Scale 1:500 Date JULY 02 - APRIL 03



Approvals

Class of Survey: I

Total Area

Comprised in

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Signed ..... Date ...../...../.....

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

.....

Examined ..... Correct .....

Approval as to Survey by Land Information New Zealand

...../...../.....

Deposited by Land Information New Zealand

...../...../.....

File
Received
Instructions

LAND DISTRICT

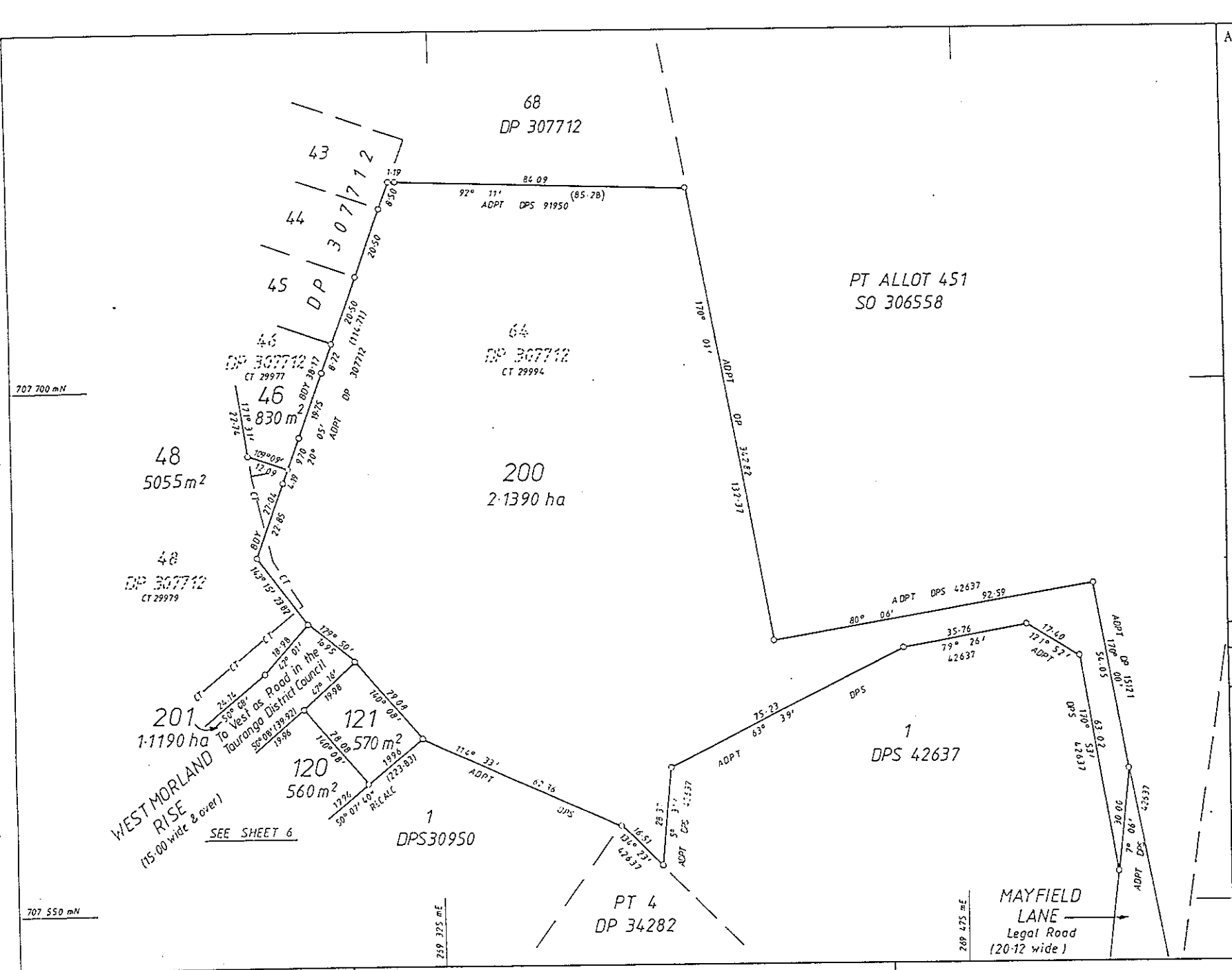
SOUTH AUCKLAND

LOTS 46, 48, 63-89, 96-105, 107-121 & 196-201 BEING A SUBDN OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712.

TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD F 16530/2

Scale 1:500 Date JULY 02 - APRIL 03



Approvals

Class of Survey: I

Total Area

Comprised in

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(a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002/2;

(b) This dataset is accurate and has been created in accordance with that Act and those Rules.

Signed ..... Date ...../...../.....

Field Book ..... p. ..... Traverse Book ..... p. .....

Reference Plans .....

Examined ..... Correct .....

Approval as to Survey by Land Information New Zealand

...../...../.....

Deposited by Land Information New Zealand

...../...../.....

File
Received
Instructions

LAND DISTRICT

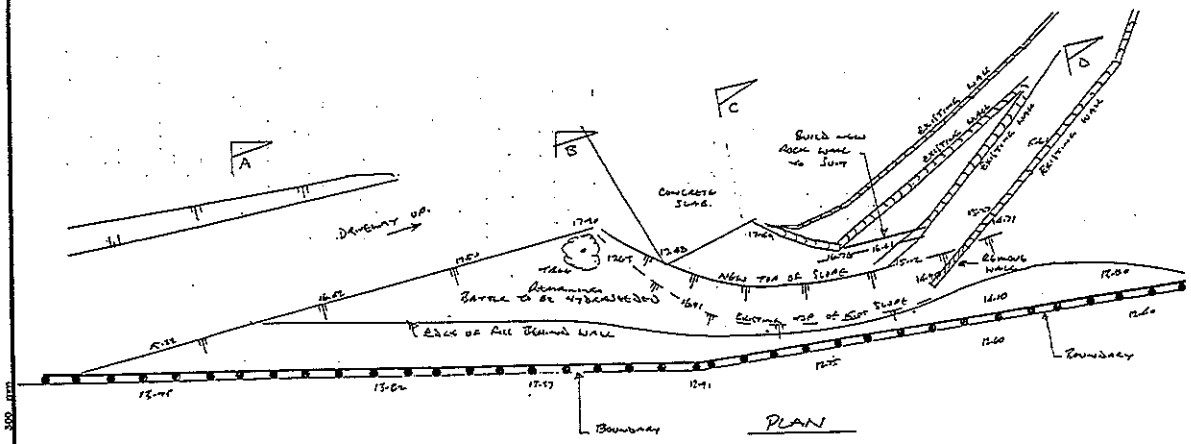
SOUTH AUCKLAND

LOTS 46, 48, 63–89, 96–105, 107–121 & 196–201 BEING A SUBDIVISION OF LOT 1 DPS 50786, LOTS 1 & 2 DPS 63167, LOT 2 DPS 68389, LOTS 1 & 2 DPS 71224 & LOTS 46, 48 & 64 DP 307712.

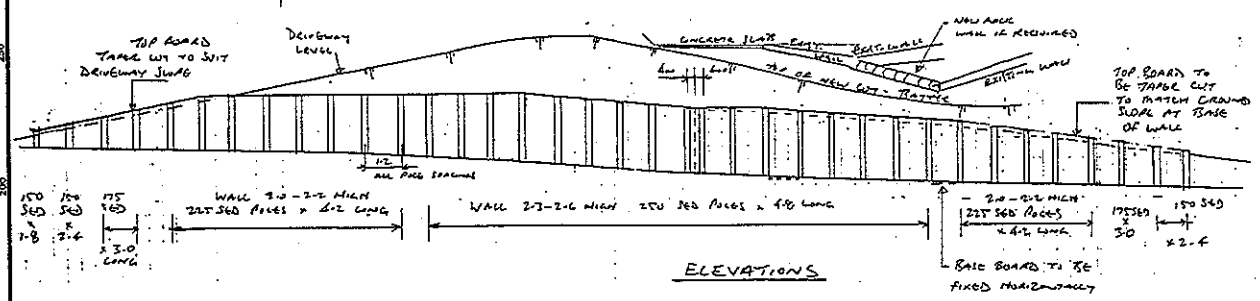
TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD F.1653012

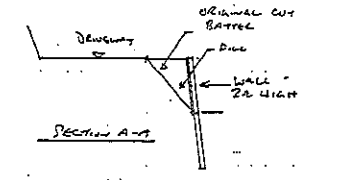
Scale 1:750 Date JULY 02 - APRIL 03



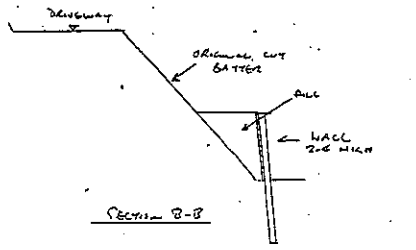
PLAN



ELEVATIONS



SECTION A-A



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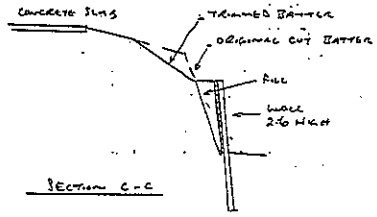

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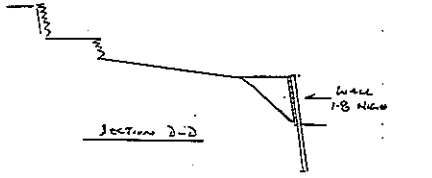
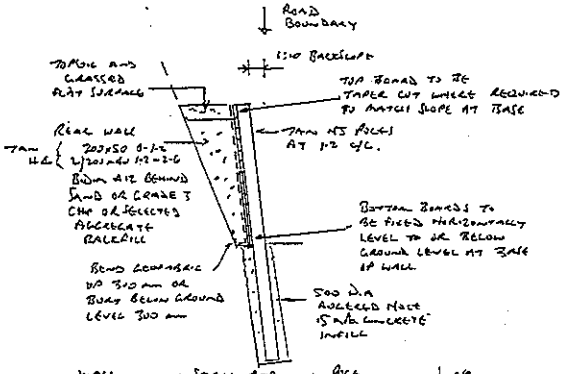


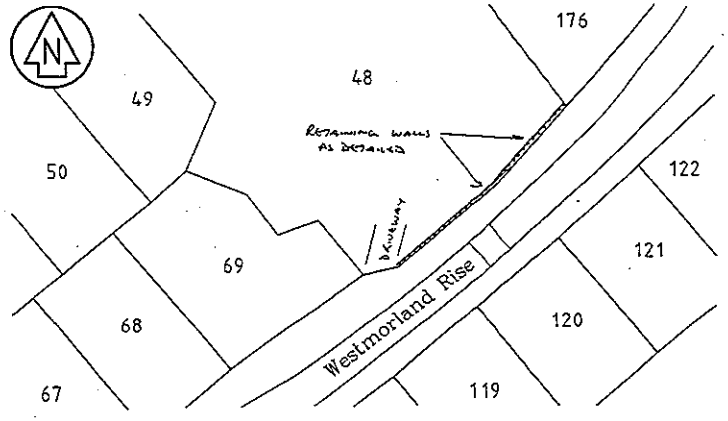
SECTION D-D

CROSS SECTIONS



WALL HEIGHT m	SMALL END DIAMETER mm	POLE LENGTH m	NO REQUIRED
0.6 TO 1.0	150	1.8	1
1.0 TO 1.4	150	2.4	3
1.6 TO 1.8	175	3.0	3
2.0 TO 2.2	225	6.2	13
2.3 TO 2.6	250	6.8	17

TYPICAL DETAILS



SITE PLAN

NOTE

WALL HEIGHTS AND EMBEDMENT DEPTHS CHECKED BY THE WA DESIGNER. ON SITE TO ADJUST CONCRETE EMBEDMENT.

Issue	Rev No.	DESCRIPTION	
		NAME	DATE
Surveyed			
Designed			2/07
Drawn			3/07
Checked			
Approved			

REFERENCES

0 ISSUE FOR BUILDING CONSENT

S&L
SHRIMPTON & LIPINSKI

S & L CONSULTANTS
SURVEYORS - ENGINEERS - PLA

111 Cameron Road, Tauranga, Nev
P.O. Box 231 Ph (07)577-60
Fax (07)577-6065
Email: al.tge@xtra.co.nz

TITLE

MAYFIELDS SUBDIVI
STAGE 2

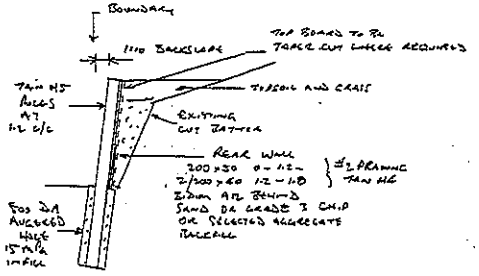
ROADSIDE RETAINI
WALL DETAILS
LOT 48.

ORIGINAL SCALES: 1:50, 1:100, 1:500 (A1)

DRAWING No: 16530-41

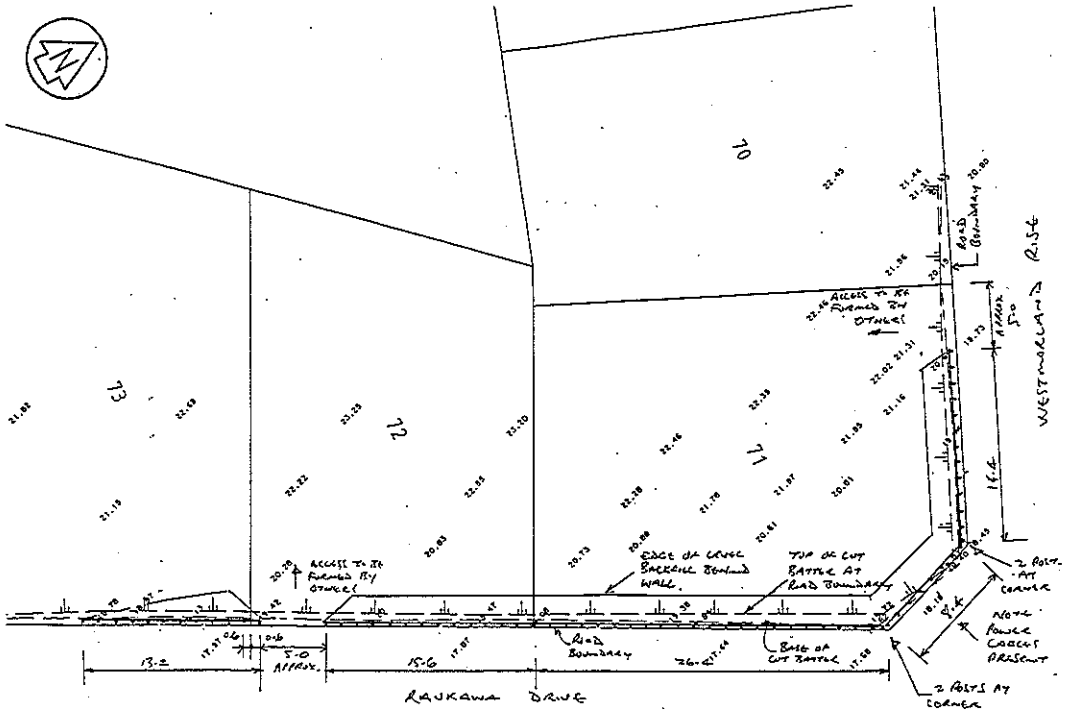
Revision: 0

GRAPHIC SCALE 0 50 100 150 200 250 300 mm

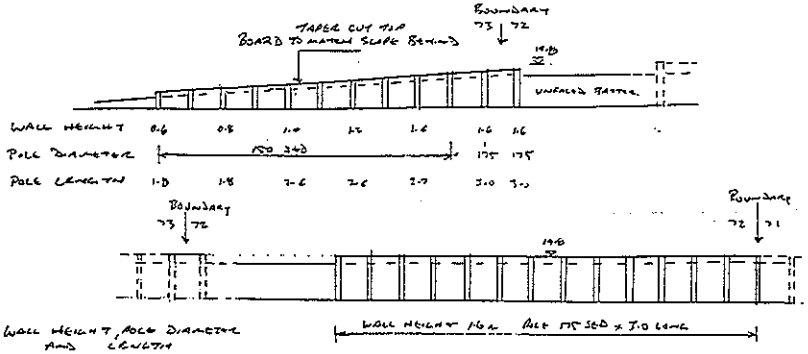


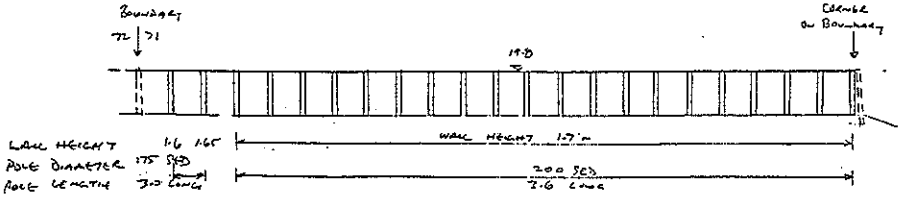
WALL HEIGHT m	SMALL END DIAMETER mm	POLE LENGTH (m)	NO. REQUIRED
0.6 to 0.8	150	1.8	6
1.0 to 1.2	150	2.4	8
1.4 to 1.5	150	2.7	14
1.6	175	3.0	21
1.7 to 1.8	200	3.6	20

TYPICAL DETAILS

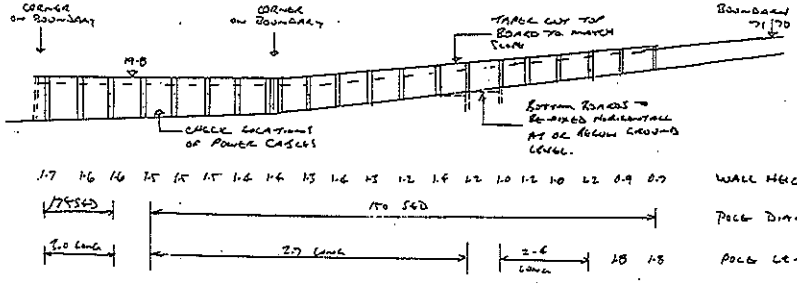


SITE PLAN





ELEVATIONS



ELEVATIONS

NOTE

WALL HEIGHTS AND EMBEDMENT DEPTHS CHECKED BY THE D DESIGNER ON SITE POURING CONCRETE ENCASEMENT

Rev. No.	DESCRIPTION	
	NAME	DATE
Surveyed		
Designed	[illegible]	3/07
Drawn	[illegible]	3/07
Checked		
Approved		

REFERENCES

S&L CONSULTANTS
SURVEYORS – ENGINEERS – PL
111 Cameron Road, Tauranga, N
PO Box 331 Ph(07)577-
Fax(07)577-0063
Email:stlge@xtra.co

TITLE

MAYFIELD SUBD STAGE 2

ROADSIDE RETA WALL DETAILS

LOTS 71, 72,

ORIGINAL SCALES
1:50, 1:100, 1:200 (A1)

DRAWING No
16530 - 42

Revision: 0

GRAPHIC SCALE
300 250 200 150 100 50 0

APPENDIX II

Statement of Professional Opinion as to the Suitability of Land for Building Development

Lot Summary Report

SECTION 2

To: The Director of Environmental Services

STATEMENT OF PROFESSIONAL OPINION AS TO THE GEOTECHNICAL SUITABILITY OF LAND FOR BUILDING

DEVELOPMENT: Mayfield Subdivision Stage 2

OWNER: Mayfield Ltd

LOCATION: Westmorland Rise, Raukawa Drive, Bethlehem

I Michael William Hughes (Full Name) of S & L Consultants Ltd

PO Box 231, Tauranga (Name and Address of Firm)

Hereby confirm that;

1) I am a professional person appropriately qualified with experience in geotechnical engineering to ascertain the suitability of the land for building development and was retained as the Soils Engineer to the above development.

2) An appropriate level of site investigation and construction supervision has been carried out under my direction and is described in my development evaluation dated 5 May 2003

3) In my professional opinion, not to be construed as a guarantee, I consider that;

(a) The area shown in my report dated 5 May 2003 of each new allotment is suitable for the erection thereon of the building types appropriate to the zoning of the land, provided that;

Recommendations contained in my report are complied with.

(b) The structural earth fills shown on the attached Plan Nos. 16530-51 and 52 have been placed in accordance with the Code of Practice for Development of the Tauranga District Council.

(c) The completed works give due regard to all land slope and foundation stability considerations.

(d) The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604:1999 and related documents providing that:

Recommendations contained in my report, section 6 are complied with.

(e) The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604:1999 and related documents, subject to the recommendations contained in my report including those relating to topsoil depths and soil variations away from test or observation positions.

4. This professional opinion is furnished to the Council and the owner for their purpose alone, on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection for any dwelling.

Signed ..... Date 5 May 2003

TAURANGA DISTRICT COUNCIL

SUITABILITY OF LAND FOR BUILDING DEVELOPMENT

TAURANGA DISTRICT COUNCIL

MAY 98

G 2 Δ

TAURANGA DISTRICT COUNCIL

LOT SUMMARY REPORT

MAY 98

G 2a Δ

MAYFIELD SUBDIVISION STAGE 2
WESTMORELAND RISE, RAUKAWA DRIVE, BETHLEHEM

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

TDC Sub 5311

File Ref: 16530

Lot#	Area(m^2)	Subsurface Data						Foundations		Building line restriction?	Recommendations/restrictions
		Shear Strength kPa	Subdivision Filling		Natural topography unworked	Natural topography earthworked		Conventional shallow Foundations to NZS 3604:1999	Specific Design		
		*	Y/N	Depth (m)	Y/N	Y/N	Depth(m)	Y/N/NA	Y/N/NA	Y/N	
46	830	-	-		-	-		Y	N	N	Refer to Connell Wagner report for Stage 1 - minor boundary adjustment only undertaken in Stage 2.
48	5055	-	-		-	-		Y	N		
63	710	130	N		Y	N		Y	N	N	
64	765	175	N		N	Y	0.5	Y	N	N	
65	730	175	N		N	Y	2.0	Y	N	N	
66	700	170	N		N	Y	2.0	Y	N	N	
67	640	175	N		N	Y	2.0	Y	N	N	
68	630	175	N		N	Y	2.5	Y	N	N	
69	850	175	N		N	Y	2.5	Y	N	Y	
70	650	175	N		N	Y	0.5	Y	N	N	
71	780	175	N		N	Y	2.0	Y	N	N	
72	630	175	N		N	Y	1.0	Y	N	N	
73	725	142	Y	0.5	N	Y	1.0	Y	N	N	
74	800	160	Y	1.0	N	Y	0.5	Y	N	N	
75	800	175	N		N	Y	0.3	Y	N	N	
76	740	148	N		N	Y	0.5	Y	N	N	
77	700	175	N		N	Y	0.5	Y	N	N	
78	680	142	N		N	Y	0.5	Y	N	N	
79	810	148	N		N	Y	0.5	Y	N	N	
80	800	143	Y	0.5	N	Y	0.5	Y	N	N	
81	640	115	N		Y	N		Y	N	N	
82	640	135	N		N	Y	0.3	Y	N	N	
83	610	89	Y	0.5	N	Y	0.3	Y	N	N	
84	610	175	Y	1.0	N	Y	0.3	Y	N	N	

Comments

Refer to S & L Consultants Ltd report reference 16530 dated 5 May 2003. Lots shown on DP 320267.

* Taken from post subdivision boreholes at likely foundation depth of 400mm from existing topsoiled ground levels.

TAURANGA DISTRICT COUNCIL

MAYFIELD SUBDIVISION STAGE 2
WESTMORELAND RISE, RAUKAWA DRIVE, BETHLEHEM

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

TDC Sub 5311

File Ref: 16530

Lot#	Area(m²)	Subsurface Data						Foundations		Building line restriction?	Recommendations/restrictions/comments
		Shear Strength kPa	Subdivision Filling		Natural topography unworked	Natural topography earthworked		Conventional shallow Foundations to NZS 3604:1999	Specific Design		
		*	Y/N	Depth (m)	Y/N	Y/N	Depth(m)	Y/N/NA	Y/N/NA	Y/N	
85	660	175	Y	1.0	N	Y	0.5	Y	N	N	
86	620	175	Y	1.0	Y	N		Y	N	N	
87	640	140	N		N	Y	0.3	Y	N	N	
88	600	111	N		Y	N		Y	N	N	
89	700	-	-		-	-					House on property
96	3010	-	-		-	-					To be further developed
97	710	129	N		Y	N		Y	N	N	
98	680	108	N		Y	N		Y	N	N	
99	660	85	N		N	Y	0.5	Y	N	N	
100	775	150	N		N	Y	0.5	Y	N	N	
101	1005	-	-		-	-					House on property
102	620	145	N		N	Y	0.5	Y	N	N	
103	600	175	N		N	Y	0.5	Y	N	N	
104	600	150	N		N	Y	1.0	Y	N	N	
105	1215	66	N		N	Y	1.0	Y	N	N	
107	610	100	N		N	Y	2.0	Y	N	N	
108	1340	-									House on property
109	880	120	N		Y	N		Y	N	N	Non structural fill present
110	920	74	N		N	Y	0.5	Y	N	N	
111	620	150	Y	0.7	N	Y	0.3	Y	N	N	
112	600	175	Y	0.5	N	Y	0.3	Y	N	N	
113	600	166	Y	1.0	N	Y	0.3	Y	N	N	Filling in temporary silt pond
114	600	150	Y	0.8	N	Y	0.3	Y	N	N	Filling in temporary silt pond
115	600	150	Y	0.8	N	Y	0.3	Y	N	N	Filling in temporary silt pond
116	625	142	Y	0.5	N	Y	0.3	Y	N	N	

Comments

Refer to S & L Consultants Ltd report reference 16530 dated 5 May 2003. Lots shown on DP 320267.

* Taken from post subdivision boreholes at likely foundation depth of 400mm from existing topsoiled ground levels.

LOT SUMMARY REPORT

MAY 98

G 2a Δ

TAURANGA DISTRICT COUNCIL

LOT SUMMARY REPORT

TAURANGA DISTRICT COUNCIL

MAY 98

G 2a Δ

MAYFIELD SUBDIVISION STAGE 2
WESTMORELAND RISE, RAUKAWA DRIVE, BETHLEHEM

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

TDC Sub 5311

File Ref: 16530

Lot#	Area(m^2)	Subsurface Data						Foundations		Building line restriction?	Recommendations/restrictions/comments
		Shear Strength kPa	Subdivision Filling		Natural topography unworked	Natural topography earthworked		Conventional shallow Foundations to NZS 3604:1999	Specific Design		
		*	Y/N	Depth (m)	Y/N	Y/N	Depth(m)	Y/N/NA	Y/N/NA	Y/N	
117	600	150	Y	0.6	N	Y	0.5	Y	N	N	
118	570	175	Y	0.9	N	Y	0.3	Y	N	N	
119	560	175	Y	1.0	N	Y	0.3	Y	N	N	
120	560	175	Y	1.1	N	Y	0.3	Y	N	N	
121	570	157	Y	0.6	N	Y	0.3	Y	N	N	
196	8480	-	-		-	-					To be further developed.
197	10590	-	-		-	-					To be further developed.

Comments

Refer to S & L Consultants Ltd report reference 16530 dated 5 May 2003. Lots shown on DP 320267.

* Taken from post subdivision boreholes at likely foundation depth of 400mm from existing topsoiled ground levels.

VERSION 1

APPENDIX III

Compaction Test Results

Our Ref: 16530

SUMMARY OF COMPACTION TEST RESULTS

Test No	Location	Air Voids Percentage	Undrained Shear Strength kPa
T19	Road	14	UTP
20	Road	11.2	UTP
21	Road	2.7	UTP
22	Road	6.4	>164
23	Road	7.9	UTP
20	Road	5	UTP
25	Road	7.8	>164
26	Lot 118	2.4	>164
27	Lot 119	0.0	>164
28	Lot 120	2.8	>164
29	Lot 120	2.3	UTP
30	Lot 86	5.3	UTP
31	Lot 85	4.9	>164
32	Lot 84	5	UTP
33	Lot 85	5.0	UTP
34	Lot 75	3.1	UTP
35	Lot 74	8.6	UTP
70	Lot 83	11.9	128
71	Lot 83	7.2	UTP

UTP - denotes that the ground was too hard to push in the shear vane

Refer to 16530-51, 52 for test locations

APPENDIX IV

Post Construction Borehole Logs

Pre Construction Borehole & Test Pit Logs

SHRIMPTON & SIPINESKI

Borehole No. 63

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown CLAYEY SILT slightly sandy moist very stiff almost friable		0.2			
		0.5	135/93		
		0.8	123/32		
End of Borehole		1.0			
		1.1	178/16		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & SIPINSKI

Borehole No. 64

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable	OH	0.0			
Brown CLAYEY SILT slightly sandy moist very stiff	CL	0.1			
		0.4	172/68		●
Brown SILTY med. SAND sl. clayey moist stiff becomes brownish light grey	SM	0.6			
		0.7	169/40		●
Dark brown CLAYEY SILT moist v.stiff h.plastic grades brown	OH	0.8			
		0.9			
End of Borehole		1.0			
		1.1	152/20		●

EXCAVATION METHOD: 50 ø Hand Auger

SKEMPTON & LIPINSKI

Borehole No. 65

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground:

Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Light brownish light grey fine SAND slightly moist medium dense		0.2			
		0.4	UTP		»
		0.7	UTP		»
End of Borehole		1.0			
		1.1	142/38		•

EXCAVATION METHOD: 50 ø Hand Auger

SKEMPTON & LIPINSKI

Borehole No. 66

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Yellowish light brown SANDY SILT sl. clayey moist very stiff		0.2			
		0.4	169/18		
		0.8	123/29		
Orangish brown SILT sl clayey moist very stiff		0.9			
End of Borehole		1.0			
		1.1	106/26		

EXCAVATION METHOD: 50 ø Hand Auger

SIMPSON & LIPINSKI

Borehole No. 67

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Light brown CLAYEY SILT slightly sandy moist very stiff		0.2			
Light brown SILT moist hard		0.9	UTP		»
		0.6	>209		»
End of Borehole		1.0 1.1	195/45		•

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 68

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable	xxx	0.0			
Mixed brown grey CLAYEY SILT slightly sandy moist very stiff		0.1			
becomes brown CLAYEY SILT		0.4	200/40		
		0.7	UTP		>>
End of Borehole		1.0			
		1.1	200/66		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & SIPINSKI

Borehole No. 69

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 09-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown CLAYEY SILT slightly sandy moist very stiff		0.3			
		0.4	175/48		
		0.7	>209		>>
Light brownish light grey fine SAND moist med.dense		0.8			
End of Borehole		1.0			
		1.1	UTP		>>

EXCAVATION METHOD: 50 ø Hand Auger

SHAMPTON & LIPINSKI

Borehole No. 70

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Orangish brown CLAYEY SILT slightly sandy moist very stiff		0.3			
		0.5	185/45		
Light brown SANDY SILT slightly clayey moist very stiff		0.7			
		0.8	143/28		
Light brown SILT slightly sandy very moist stiff		0.9			
		1.0			
End of Borehole		1.1	71/39		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 71

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03, 30-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Rear					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown CLAYEY SILT moist very stiff		0.2			
Light brown SILT moist very stiff		0.3			
Light brownish light grey fine SAND moist medium dense		0.4	>209		
Brown CLAYEY SILT moist verystiff plastic		0.6 0.7	142/35		
End of Borehole		1.0 1.1	151/32		
Front					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
layer of vegetation		0.2			
Brown SANDY SILT slightly clayey very moist very stiff slightly friable		0.4 0.6	192/38		
Grades brown CLAYEY SILT slightly sandy very moist verystiff		0.7 0.8	128/18		
End of Borehole		1.0 1.1	91/22		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 72

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Light brown SANDY SILT slightly clayey moist very stiff		0.3			
		0.5	194/86		
Light brown fine SAND slightly silty moist medium dense		0.7			
		0.8	100/31		
Brown CLAYEY SILT moist very stiff plastic		0.9			
End of Borehole		1.0			
		1.1	118/23		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & SIPINSKI

Borehole No. 73

Sheet: 1 Of: 1

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown CLAYEY SILT moist very stiff plastic		0.2			
		0.9	142/75		
becomes mixed brown		0.5			
becomes dark brown		0.6			
Brown SILT moist very stiff		0.8	159/71		
End of Borehole		1.0			
		1.1	148/93		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 74

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT slightly clayey moist very stiff		0.3			
		0.5	150/62		
		0.8	146/57		
End of Borehole		1.0			
		1.1	140/37		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 75

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0				
Lightbrown SANDY SILT moist very stiff		0.2			FILL	
mixed SANDY SILT SILTY SAND		0.4	UTP			>>
Dark brown SILT moist very stiff friable		0.6				
		0.7	166/68			
End of Borehole		1.0				
		1.1	154/51			

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 76

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable varies 100 - 300		0.0			
Brown SILT moist very stiff friable		0.6	148/37		
End of Borehole		1.0 / 1.1	151/40		

EXCAVATION METHOD: 50 ø Hand Auger

SHEPHERTON & LIPINSKI

Borehole No. 77

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Light brown CLAYEY SILT sl. sandy moist v. stiff		0.2			
Brown SILT moist very stiff friable		0.3			
		0.4	200/82		
		0.8	157/52		
End of Borehole		1.0			
		1.1	146/35		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 78

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground:

Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level
Black ORGANIC CLAYEY SILT moist stiff friable		0.0		
Brown SILT moist very stiff friable		0.3		
		0.5	142/43	
Brown CLAYEY SILT moist very stiff		0.7		
		0.8	142/31	
End of Borehole		1.0		
		1.1	117/75	

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 79

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown CLAYEY SILT moist very stiff		0.2			
Brown SILT moist very stiff friable		0.9			
		0.5	148/45		
		0.8	138/25		
End of Borehole		1.0			
		1.1	148/10		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 80

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04 - 03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.3			
		0.6			
		0.7	143/78		
grades slightly clayey		0.9			
End of Borehole		1.0			
		1.1	157/42		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 81

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Upper West					
Black ORGANIC CLAYEY SILT moist stiff friable	OH/CH	0.0			
Brown SILT moist very stiff friable	ML	0.3			
grades slightly clayey	ML	0.7	138/29		
End of Borehole		0.8			
		1.0			
		1.1	135/28		
Lower East					
Black ORGANIC CLAYEY SILT moist stiff friable	OH/CH	0.0			
Brown SILT moist very stiff friable	ML	0.3			
		0.7	119/25		
grades slightly clayey	ML	0.9			
End of Borehole		1.0			
		1.1	151/34		

EXCAVATION METHOD: 50 ø Hand Auger

Borehole No. 82

Sheet: 1 Of: 1

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.3			
		0.4	135/34		•
grades slightly clayey		0.8	135/28		•
End of Borehole		1.0			
		1.1	145/16		•

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 83

Sheet: 1 Of: 1

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Job No. 16 530 | Date Excavated: 11-04-03, 05-05-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Front North					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist stiff friable		0.6			
		0.7	89/23		
End of Borehole		1.0			
		1.1	132/42		
Rear South					
Mixed black ORGANIC CLAYEY SILT brown SILT moist stiff friable		0.0			
Brown SILT slightly clayey moist very stiff		0.3			
		0.5	148/51		
		0.8	94/29		
becomes mixed brown SILT very moist		1.0			
		1.1	146/60		
Brown SANDY SILT sl. clayey moist v.stiff friable		1.2			
Brown SILTY medium SAND moist medium dense		1.3			
		1.9	148/40		
Light brown SANDY SILT very moist stiff		1.5			
Grades dark brown SILTY fine SAND very moist stiff		1.8	77/43		
Dark brown CLAYEY SILT very moist stiff plastic		1.9			
End of Borehole		2.0			
		2.1	65/38		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 84

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 30-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Mixed brown CLAYEY SILT slightly sandy moist very stiff slightly friable		0.3			
		0.5	>209		»
		0.8	>209		»
		1.0	UTP		»
		1.3	UTP		»
Dark brown SILT moist very stiff friable		1.6			
		1.7	169/40		⊘
becomes brown		1.8			
End of Borehole		2.0			
		2.1	163/49		●

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIFINSKI

Borehole No. 85

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Front					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
		0.3			
Mixed brown SANDY SILT slightly clayey moist very stiff		0.9	203/37		
Light grey SAND moist medium dense		0.9			
		1.0	UTP		»
Mixed brown SILT some clayey some sandy		1.3	160/55		
Brown SILT moist very stiff friable		1.4			
Light brown SANDY SILT moist very stiff friable		1.5			
Brown SILT moist very stiff friable		1.6			
		1.7	194/		
End of Borehole		2.0			
		2.1	> 209		»
Rear					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT slightly clayey moist very stiff friable		0.1			
Grades brown CLAYEY SILT moist very stiff		0.4	129/31		
		0.9	126/28		
End of Borehole		1.0			
		1.1	128/23		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 86

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Mixed brown CLAYEY SILT slightly sandy moist very stiff		0.2			
		0.4	>209		»
		0.7	UTP		»
		1.1	172/55		•
Dark brown SILT moist very stiff friable grades brown		1.3			
		1.4	>209		»
End of Borehole		1.6			
		1.7	154/45		⊗

EXCAVATION METHOD: 50 ø Hand Auger

Borehole No. B7

Sheet: 1 Of: 1

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Job No. 16 530 | Date Excavated: 11-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.1			
		0.4	140/24		
grades slightly clayey		0.7			
		0.8	152/34		
End of Borehole		1.0			
		1.1	148/32		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & SLIPINSKI

Borehole No. BB

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 11-09-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.3			
		0.5	111/25		
grades slightly clayey		0.7			
		0.8	134/35		
End of Borehole		1.0			
		1.1	145/25		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 97

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-09-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.3			
		0.5	129/34		
grades slightly clayey		0.8	138/35		
End of Borehole		1.0			
		1.1	161/43		

EXCAVATION METHOD: 50 ø Hand Auger

SKEMPTON & LIPINSKI

Borehole No. 98

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground:

Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level
Black ORGANIC CLAYEY SILT moist stiff friable	CL	0.0		
Brown SILT moist very stiff friable		0.2		
grades slightly clayey		0.5	108/52	
		0.6		
Light brown CLAYEY SILT moist very stiff		0.8	143/31	
End of Borehole		1.0		
		1.1	132/29	

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & SIFFINSKI

Borehole No. 99

Sheet: 1 Of: 1

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist stiff friable		0.3			
		0.6	85/42		
Grades brown CLAYEY SILT moist very stiff		0.8	134/29		
becomes light brown		0.9			
End of Borehole		1.0			
		1.1	126/25		

EXCAVATION METHOD: 50 ø Hand Auger

SKRIMPTON & LIPINSKI

Borehole No. 100

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Front					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist stiff friable		0.3			
grades slightly clayey		0.5	151/25		
		0.8	102/22		
Grades light brown CLAYEY SILT moist very stiff		0.9			
End of Borehole		1.0			
		1.1	108/18		
Rear					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.1			
grades light brown slightly clayey		0.5	149/26		
		0.6			
		0.8	111/23		
End of Borehole		1.0			
		1.1	193/31		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 102

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level
Front				
Black ORGANIC CLAYEY SILT moist stiff friable		0.0		
Brown SILT slightly clayey moist very stiff friable		0.3		
Grades brown CLAYEY SILT moist very stiff		0.6	145/58	
grades light brown		0.8	91/18	
End of Borehole		1.0 1.1	89/18	
Rear				
Black ORGANIC CLAYEY SILT moist stiff friable		0.0		
Brown SILT moist very stiff friable		0.2		
grades light brown slightly clayey		0.5	152/32	
		0.8	155/35	
End of Borehole		1.0 1.1	132/23	

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 50 ø Hand Auger

SHAMPTON & LIPINSKI

Borehole No. 103

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.2			
grades slightly clayey		0.5	179/51		
		0.8	138/38		
End of Borehole		1.0			
		1.1	151/37		

EXCAVATION METHOD: 50 ø Hand Auger

SINCLAIR KNIGHT MERZ

Borehole No. 104

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Mixed brown SILT moist stiff		0.2			
		0.3	166/85		
becomes brown SILT moist very stiff friable		0.4			
		0.5	149/41		
grades light brown slightly clayey slightly sandy		0.7			
		0.8	138/35		
End of Borehole		1.0			
		1.1	91/23		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 105

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Upper South					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist verystiff friable		0.2			
grades slightly clayey		0.6	66/28		
		0.8	45/17		
End of Borehole		1.0 / 1.1	158/45		
Lower North					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Dark brown CLAYEY SILT moist hard plastic		0.3			>>
Brown SILT moist hard friable		0.4	UTP		
		0.6	UTP		>>
grades slightly clayey		0.8			
		0.9	>209		>>
End of Borehole		1.0 / 1.1	198/55		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 107

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level
Black ORGANIC CLAYEY SILT moist stiff friable	OH	0.0		
Brown CLAYEY SILT moist very stiff plastic	CH	0.2		
Light brown SILT slightly clayey slightly sandy very moist stiff	ML	0.7	100/15	
Grades SANDY SILT very moist stiff	ML	0.8 / 0.9		
End of Borehole		1.0 / 1.1	86/28	

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 50 ø Hand Auger

SKEMPTON & LIPINSKI

Borehole No. 109

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Dark brown SILT moist verystiff friable		0.4			
grades brown slightly clayey		0.6	120/35		
		0.8	137/29		
End of Borehole		1.0			
		1.1	148		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & SZPINSKI

Borehole No. 11D

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 30-04-03 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Front North					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Brown SILT moist very stiff friable		0.3			
		0.5	79/15		
		0.8	120/17		
End of Borehole		1.0			
		1.1	158/18		
Rear South					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Dark brown SILT moist very stiff friable		0.4			
		0.7	105/28		
becomes brown slightly sandy slightly clayey		0.8			
		0.9	106/32		
End of Borehole		1.0			
		1.1	125/25		

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 111

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 30-04-03, 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Front North						
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown SILT some clayey some sandy very moist very stiff		0.2				
		0.5	152/99			
Brown SILT moist very stiff friable		0.7				
		0.8	160/72			
End of Borehole		1.0				
		1.1	189/89			
Rear South						
Black ORGANIC CLAYEY SILT moist stiff friable		0.0				
Brown SILT slightly sandy moist very stiff friable		0.4				
		0.5	145/93			
grades SILT slightly clayey not sandy		0.8	142/99			
End of Borehole		1.0				
		1.1	112/22			

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 112

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 30-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Rear middle					
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Dark brown SILT moist very stiff friable		0.3			
		0.4	175/66		
		0.7	154/42		
Grades brown CLAYEY SILT moist very stiff plastic					
End of Borehole		1.0			
		1.1	142/54		
Rear adjacent boundary Lot 111					
Mixed black ORGANIC CLAYEY SILT brown SILT moist stiff friable		0.0			
Mixed brown SILT moist very stiff friable		0.2			
Dark brown SILTY medium SAND slightly moist loose		0.3			
Dark brown SILT slightly moist stiff		0.4			
becomes brown		0.6			
		0.7	171/52		
		1.1	194/65		
		1.4	155/37		
		1.7	142/42		
End of Borehole		2.0			
		2.1			

EXCAVATION METHOD: 50 ø Hand Auger

SHAMPTON & LIPINSKI

Borehole No. 113

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 29-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown CLAYEY SILT moist very stiff slightly friable		0.2				
		0.5	166/48			
		0.8	142/52			
End of Borehole		T.O 1.1	131/29			

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 114

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 29-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown SANDY SILT slightly clayey moist very stiff friable		0.3				
		0.5	160/40			•
		0.8	148/40			•
Brown SILT moist very stiff friable		0.9				
End of Borehole		1.0				
		1.1	168/55			•

EXCAVATION METHOD: 50 ø Hand Auger

Borehole No. 115

Sheet: 1 Of: 1

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Job No. 16 530 | Date Excavated: 29-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0				
Mixed brown SILT slightly clayey slightly sandy moist very stiff friable		0.2			FILL	
		0.5	154/49			
Brown SILT moist very stiff friable		0.8	149/45			
End of Borehole		1.0				
		1.1	142/26			

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 116

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 29-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level	Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			
Dark brown SILT moist very stiff friable		0.3			
		0.5	142/92		
grades brown		0.6			
		0.8	138/51		
End of Borehole		1.0			
		1.1	120/34		

EXCAVATION METHOD: 50 ø Hand Auger

SHAMPTON & LIPINSKI

Borehole No. 117

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown cream SILT sl. clayey sl. sandy moist stiff		0.3				
		0.5	195/48			•
becomes brown SILT moist very stiff friable		0.6				
grades slightly clayey		0.8	148/34			•
End of Borehole		1.0 1.1	138/31			•

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 118

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown CLAYEY SILT moist very stiff plastic		0.4	>200			>>
		0.8	UTP			>>
Brown SILT slightly moist very stiff friable		0.9	UTP			>>
End of Borehole		1.0				

EXCAVATION METHOD: 50 ø Hand Auger

SKEMPTON & LIPINSKI

Borehole No. 119

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Brown CLAYEY SILT slightly moist very stiff		0.3				
Mixed light brown SANDY SILT slightly moist hard		0.4	UTP			>>
		0.7	UTP			>>
		1.0	UTP			>>
Brown SILT moist very stiff friable		1.1				
End of Borehole		1.3 1.4	166/49			

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 120

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 01-05-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown CLAYEY SILT slightly sandy moist very stiff		0.4				
		0.6	205/55			>>
		0.8	188/63			•
Light brown SILTY SAND moist medium dense		0.9				
		1.1	>209			>>
Mixed brown SILT some sandy some clayey moist very stiff (Possible previous filling)		1.2				
		1.4	160/51			•
		1.7	>209			>>
Dark brown SILT moist very stiff friable		1.8				
End of Borehole		2.0				
		2.1	174/52			•

EXCAVATION METHOD: 50 ø Hand Auger

SHRIMPTON & LIPINSKI

Borehole No. 121

Site: MAYFIELD RESIDENTIAL SUBDIVISION STAGE 2

Sheet: 1 Of: 1

Job No. 16 530 | Date Excavated: 14-04-03 | RL Ground: | Logged By: DT KONTZE

Description of Soil	Soil Symbol	Depth (m)	Miniature Shear Vane	Groundwater Level		Undrained Shear Strength (kPa) 50 100 150
Black ORGANIC CLAYEY SILT moist stiff friable		0.0			FILL	
Mixed brown SILT slightly moist hard		0.4				
becomes brown SILT slightly moist hard friable		0.5	UTP			>>
grades slightly clayey		0.6				
		0.8	>209			>>
End of Borehole		1.0	153/43			•
		1.1				

EXCAVATION METHOD: 50 ø Hand Auger

Test Pit No. 3

Sheet: 1 Of: 1

Site: MAYFIELD

Job No. 16530 | Date Excavated: 19/7/02 | RL Ground: | Logged By: MH

Description of Soil	Soil Symbol	Depth (m)	CALIBRATED CONE	Undrained Shear Strength (kPa) 50 100 150
TOPSOIL : Hard ; Stockpile		0.5	UTP	
		1.0	UTP	
HAUL ROAD LEVEL.			UTP	
		1.5		
SILT : Brown yellow, very stiff	X X		121/34	
	X	2.0	175/38	
	X X			
		2.5	183/36	
	X			
		3.0	194/43	
	X X			
	X	3.5		
EOP @ 3.6m.				

POST ROTOEHU ASH

DRY

EXCAVATION METHOD:

Test Pit No. 4

Sheet: 1 Of: 1

Site: MAYFIELD

Job No. 16530 | Date Excavated: 19/7/02 | RL Ground: | Logged By: MA

Description of Soil	Soil Symbol	Depth (m)		Undrained Shear Strength (kPa)
TOPSOIL within existing stockpile	FILL	0.5	56/18	50 100 150
level of adjacent Haul road		1.0	75/20	
SILT: clayey, brown yellow, very stiff	NATURAL ASH SOILS.	1.5	182/48	
		2.0	190/65	
		2.5	183/52	
		3.0	150/50	
		3.5	168/45	
Sandy		4.0		
		4.5		
EOB @ 4.5m.				

EXCAVATION METHOD:

Test Pit No. 5

Sheet: 1 Of: 1

Site: MAYFIELD

Job No. 16530 | Date Excavated: 19/7/02 | RL Ground: | Logged By: MH

Description of Soil	Soil Symbol	Depth (m)		Undrained Shear Strength (kPa)
				50 100 150
TOPSOIL	FILLING			
SILT : brown yellow with some roots.		0.5		105/60
121/50 115/38 98/40 120/39 150/62				98/48
Natural Buried topsoil		1.0		
SILT : Brown yellow	NATURAL : ASH SOILS	1.5	DRY	156/86
				190/69
		2.0		175/52
		2.5		190/43
		3.0		>200

EXCAVATION METHOD:

Test Pit No. 6

Sheet: Of:

Site: MAYFIELD

Job No. 16530 | Date Excavated: 19/7/02 | RL Ground: | Logged By: MH

Description of Soil	Soil Symbol	Depth (m)	CALIBRATED VANES	Undrained Shear Strength (kPa) 50 100 150
TOPSOIL				
SILT : Brown yellow with rootlets / small twigs		0.5	190 / 55	
SILT : clayey, pale brown	NATURAL ASH SOILS			
brown yellow, very stiff		1.0	181 / 65	
		1.5	150 / 52	
		2.0	156 / 52	
		2.5	182 / 51	
EOP @ 3.0m.		3.0		

EXCAVATION METHOD:

S&L

Test Pit No. 7

Sheet: 1 Of: 1

Site: MAYFIELD

Job No. 16530 | Date Excavated: 19/7/02 | RL Ground: | Logged By:

Description of Soil	Soil Symbol	Depth (m)	CALIBRATED VANE	Undrained Shear Strength (kPa) 50 100 150
85% Brown yellow clayey silt 10% Topsoil 5% rootlets	FILLING	0.5	130/40	
130/40 110/39 117/40 160/50 120/38 118/28 125/30 117/30.		1.0		
SILT: clayey, brown yellow very stiff	NATURAL ASH SOILS	1.5	175/55	
		2.0	185/43	
		2.5	182/45	
		3.0	159/31	
		3.5	156/27	
		4.0	164/34	

EXCAVATION METHOD:

BOREHOLE LOG

Connell Wagner

Test Location

See Geotechnical Site Plan

Elevation: 15.2 m

Borehole Number 2

Sheet 1 of 1

Job MAYFIELD Subdivision

Job Number 7073-01 LC Date: 14.4.99

Drill Method Hand Augar and Shear vane

Tested by: Sally Hargraves

Notes:

Edge of ploughed and planted field

Water Table: None Encountered

Description of Soil	Soil Symbol	Depth	Water Table	Undrained Shear Strength (kPa) 50 100 150
Dark brown slightly sandy SILT (ML) (topsoil)				
(soft to firm)				
Brown slightly sandy SILT (ML) (firm to stiff, fill)				
(becomes orange brown)				
Orange brown slightly sandy SILT (ML) (Younger ASH)				
(stiff)				
		1.0m		
(occasional slightly clayey layers)				
(becomes very stiff)				
Borehole ends 1.7m				
		2.0m		
		3.0m		