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**TEC**  
CONSULTANTS

**EARTHWORKS COMPLETION REPORT  
FOR  
HAMON PARK  
RESIDENTIAL SUBDIVISION  
AT HODGKINS ST, ROTORUA  
FOR  
PINNACLE HILL SUBDIVISIONS LTD**

**12 DECEMBER 2007**

**190801-R-E-C138**

**PINNACLE HILL SUBDIVISIONS LTD**

**HAMON PARK SUBDIVISION**

**EARTHWORKS COMPLETION REPORT**

**1. INTRODUCTION**

The Pinnacle Hill Subdivisions Ltd, Hamon Park Subdivision comprises the development of Pt SECT 20 BLK IV HOROHORO with 63 new residential lots over an area of approximately 6.0 hectares.

The site is located on the western side of Hodgkins St. The property is adjoined by orthodox residential development all around the edge of the property. Lot 13 has access from Blomfield St.

**2. TOPOGRAPHY AND SOILS**

The property had previously been used as a grazing block with one existing house on the site. The topography of the existing site was undulating and dominated by three moderate deep gullies.

A preliminary geotechnical investigation confirmed that the site is underlain in various silt and sand layers. The upper two metres consisted generally of medium fine sands and silts with the underlying layers consisted of coarse granular sands and pumice gravels.

Earthworks were undertaken to recontour the existing land profile to smooth the Lots, fill the two smaller gullies and provide roading levels that are lower than the Lot levels. The cut and fill operation has produced a finished smoothed contour with a consistent slope across the overall subdivision to tie into the existing contours at the perimeter of the site.

**3. EXTENT OF WORKS AND METHODOLOGY**

The majority of the site was earth worked and as such this resulted in approximately 4.8 Ha being reworked during earthworks. Lot 40 did not have earthworks carried out as this Lot contains the original house.

The area was cleared of all fences, trees, stumps, logs and other rubbish prior to any excavations. The earthworks operation involved stripping the topsoil to stockpiles and then carrying out cut to fill operations to allow for recontouring of the sections. The gullies were excavated with a longreach digger and involved the removal of 8000m<sup>3</sup> of unsuitable material. Granular pumice was laid in the base of the gullies prior to filling approximately 1.5m deep to drain any spring water present.

During the cut to fill operation, fill was placed in thin layers of up to 0.2m deep and compacted with motor scrapers

The earthworks operations were carried out from November 2006 to May 2007.

At the completion of the contouring, the topsoil was re-spread across the Lots to a maximum depth of 250mm (minimum 100mm) and grassed.

#### 4. SUPERVISION AND TESTING

All earthworks were supervised on a regular, but not continuous, basis by a representative of MTEC Consultants Ltd to ensure topsoil and any unsuitable material was completely removed and clean fill placed in an appropriate manner. We can confirm that the insitu and imported fill material was placed in thin layers and compacted satisfactorily.

The depth of earthworks varied from 3.0m cut to 5.0m fill with the gullies having the largest fill depth. The average depth of earthworks was around 1.5m metres of cut and 2.0m of fill, across the site.

A series of 9 boreholes to 2.0m and 9 Scala Penetrometer tests were carried out (prior to earthwork, refer attached).

Every lot has had at least one scala penetrometer test, except Lot 40 which has an existing house on it. At the location of the temporary earthworks sediment ponds, 6 scala penetrometer tests were carried out. The target Scala Penetrometer Test values used as a benchmark in assessing the compaction densities achieved was 200mm per 5 blows for building sites (Factored Ultimate Bearing Capacity of 150kPa or Allowable Bearing Capacity of 100kPa).

On all of the Lots the typical penetration values were 50 to 200mm per 5 blows over the upper 1.0m depth of testing, indicating that a minimum Factored Ultimate Bearing Capacity over the depth of testing was 150kPa.

It is noted that occasionally Scala Penetrometer Values in the upper 300mm indicated a penetration value greater than the permissible. This is due either the upper layer being predominantly of topsoil or due to the loose upper layer of sand that generally can not be compacted to the same level as the underlying soils due to a lack of confinement.

#### 5. SLOPE STABILITY ASSESSMENT ADJACENT TO THE MAIN GULLY

We have carried out a slope stability assessment adjacent to the main gully in order to determine any areas that are restricted from construction without additional foundation design.

The Lots adjacent to the main gully (Lots 39, 40, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63) have been assessed based on a typical cross section and possible future failure plane of 1 vertical to 2 horizontal.

As a "rule of thumb" in the Rotorua Region in the volcanic ashes (pumice silts, sand and gravels), a slope of 26.6 degrees (1 in 2) is considered to be stable provided there are no unfavourable conditions such as uncontrolled stormwater, high ground water table, a long slope (i.e., in excess of 20m) and the grazing of large stock which causes erosion.

Therefore the conditions on the slopes adjacent to the gully can be considered to be favourable provided stormwater is controlled from flowing over the slope and there is no grazing of large stock (cattle, horses & deer) on the slope.

Slope failures in cohesionless pumice soils tend to be shallow planar failures however where near vertical banks are involved the failures tend to progress from frittering back to a slope of close to 26.6 degrees (1 in 2). The attached cross section indicates an assumed failure plane at an angle of 26.6 degrees (1 in 2). The edge of the restricted areas have been located on the edge of the assumed zone of instability. Outside the restricted area is suitable for normal foundations. Buildings should not be located within the restricted area and the following consent notice should be placed on the titles of the Lots identified

*The owners and subsequent owners of Lots 39, 40, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63 are advised that area "X" is a restrictive area and is unsuitable for building. No earthworks, building or retaining shall be undertaken within the said area without the approval of the District Engineer*

## 6. BENKLEMANN BEAM TESTING

Benklemann Beam testing was undertaken on the new road alignment.

Benkelman Beam testing on the finished base course was carried out on the 12 December 2007 and indicated that the results were satisfactory with no reading greater than the peak allowable value of 4.55mm (refer attached). There were 5 tests where the allowable deviation was more than the 0.875mm, with the majority less than 3.70mm, in the following locations

SIDE	DISTANCE	DEFLECTION
LEFT	440 (CUL DE SAC)	3.64mm
RIGHT	60	3.62mm
RIGHT	120	3.52mm
RIGHT	160	3.70mm
RIGHT	360	4.12mm

The road was still being prepped on the day of testing and was saturated with water and sensitive due to the construction machinery, therefore leading to high readings. The road will improve once the water has drained and the surfacing as generally there is a minimum improvement of 0.5mm with drying of the basecourse and subgrade

## 7. CONCLUSION

In our professional opinion, ground conditions on all lots (lots 1- 63) of the subdivision are suitable for construction of residential buildings in accordance with the requirements of clause B1 of the Building Regulations 1992, subject to a Consent Notice with respect to the restricted areas on the titles of the following Lots

*The owners and subsequent owners of Lots 39, 40, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63 are advised that area "X" is a restrictive area and is unsuitable for building. No earthworks, building or retaining shall be undertaken within the said area without the approval of the District Engineer*

## 8. LIMITATIONS

The recommendations given in this report are based on limited site data from discrete test locations. Variations in ground conditions could exist across the site. The nature and continuity of subsoil conditions away from the test sites are inferred and it must be appreciated that actual conditions could vary from the assumed model.

This report has been prepared only for the Rotorua District Council and for the initial purchaser of each property for their purposes. It is not to be relied upon or used out of context by any other person without reference to MTEC Consultants Ltd. The reliance by other parties on the information or opinions contained in the report shall, without prior review and agreement in writing, be at such parties sole risk.

MTEC Consultants Ltd



Steve Pittman

BE, MIPENZ (Civil, Struct), CPEng, IntPE

date 12th December 2007

Attachments: - RDC Forms  
Plan showing Test Locations  
Cut and Fill Plan  
Benklelman Beam Test Results  
Scala Penetrometer Results

To: The District Engineer  
Rotorua District Council  
Private Bag  
ROTORUA

**1B - STATEMENT OF PROFESSIONAL OPINION AS TO SUITABILITY OF LAND  
FOR BUILDING DEVELOPMENT**

Subdivision: STAGE 1

Owner/Developer: PINNACLE SUBDIVISIONS LTD

Location: HODGKINS STREET, PUKEHANGI

I, Stephen Michael Pittman of MTEC Consultants Ltd, PO Box 878, Rotorua  
(Full Name) (Name and Address of Firm)

hereby confirm that:

1. I am a Certified Professional Engineer experienced in the field of soils engineering and was retained by the owner/developer as the Soils Engineer on the above subdivision.

2. The extent of my inspections during construction, and the results of all tests carried out are described in my report dated 12 DEC 2007

3. In my professional opinion, not be construed as a guarantee, I certify that:

\*a) That earth fills shown on the attached Plan No. 190801-A-E-0003 <sup>SMT 12</sup> have been placed in compliance with the Code of Practice of the Rotorua District Council.

\*b) The completed works give due regard to land slope and foundation stability considerations.

\*c) The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZ Building Act 2004 and NZ Building Regulations 2004, and related documents, providing that:

i)

---

ii)

---

iii)

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\*d) The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZ Building Act 2004 and NZ Building Regulations 2004, and related documents, providing that:

i) BUILDING IS PROHIBITED IN THE RESTRICTED AREAS  
OF LOT 57 DUE TO A SWPE

ii)

iii)

4. This professional opinion is furnished to the Council and the owner/developer for their purposes 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 of any dwelling.

Signed: 

Date: 17/12/2007

\*Delete items not applicable.

## 1D - COMPLETION OF SUBDIVISIONAL WORK

ISSUED BY: **STEPHEN MICHAEL PITTMAN**  
(Suitably qualified professional)

TO: **ROTORUA DISTRICT COUNCIL**  
(Territorial Authority)

COPY TO BE SUPPLIED TO: **PINNACLE HILL SUBDIVISIONS LTD**  
(Subdividing Owner/Principal)

IN RESPECT OF: **STAGE 1**  
(Description of subdivisional work)

AT: **HODGKINS STREET, PUKEHANGI**  
(Address)

**MTEC CONSULTANTS LTD** has been engaged by **PINNACLE HILL SUBDIVISIONS LTD**  
(Consultants Firm) (Subdividing Owner)

to provide construction observation, review and certification services in respect of the above subdivisional work.  
My qualifications and experience related to this work are:

— **BE MIPENZ (CIVIL/STRUCTURAL) CPENG**  
— **17 YEARS AS A CONSULTING CIVIL/STRUCTURAL ENGINEER**

I am familiar with the conditions of consent to the subdivisional works, and the specification and drawings as granted and

approved by: **ROTORUA DISTRICT COUNCIL**  
(Territorial Authority)

As an independent professional I or personnel under my control have carried out regular observations, inspections and testing of the subdivisional work and based upon these regular observations, inspections and tests, information supplied by the contractor during the course of the subdivisional works and the contractor's certification upon completion of the subdivisional works (copy attached) I BELIEVE ON REASONABLE GROUNDS that the subdivisional works other than those outstanding works listed below, have been completed in accordance with the above consent and that good, normally acceptable engineering design and construction implementation practices have been undertaken. I note that the Rotorua Civil Engineering Industry Standard 2000 is the recommended Means of Compliance with the consent conditions and I Believe on Reasonable Grounds that the work has been carried out to the same standard as required by the Rotorua Civil Engineering Industry Standard 2000. Details of the regular observations, inspections and testing are attached.

..... **SMIT** ..... Date **17/12/2007**  
(Signature suitably qualified Professional)

..... **BE MIPENZ (CIVIL/STRUCT) CPENG** ..... Member CSNZ ☐ NZIS ☐  
(Professional Qualifications)

..... **MTEC CONSULTANTS PO BOX 878 Rotorua** ..... ACENZ ☐ IPENZ ☒  
(Address)

Current Policy of Professional Indemnity Insurance: **Yes** No

Outstanding Works **NIL**



To: **The District Engineer**  
Rotorua District Council  
Private Bag  
**ROTORUA**

**1B - STATEMENT OF PROFESSIONAL OPINION AS TO SUITABILITY OF LAND  
FOR BUILDING DEVELOPMENT**

Subdivision: **STAGE 2/3**

Owner/Developer: **PINNACLE SUBDIVISIONS LTD**

Location: **HODGKINS STREET, PUKEHANGI**

I, Stephen Michael Pittman of MTEC Consultants Ltd, PO Box 878, Rotorua  
(Full Name) (Name and Address of Firm)

hereby confirm that:


1. I am a Certified Professional Engineer experienced in the field of soils engineering and was retained by the owner/developer as the Soils Engineer on the above subdivision.
2. The extent of my inspections during construction, and the results of all tests carried out are described in my report dated 12 DEC 2007
3. In my professional opinion, not be construed as a guarantee, I certify that:
  - \*a) That earth fills shown on the attached Plan No. 190801-R-E-0003 SH12 have been placed in compliance with the Code of Practice of the Rotorua District Council.
  - \*b) The completed works give due regard to land slope and foundation stability considerations.
  - \*c) The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZ Building Act 2004 and NZ Building Regulations 2004, and related documents, providing that:
    - i)  
\_\_\_\_\_
    - ii)  
\_\_\_\_\_
    - iii)  
\_\_\_\_\_
  - \*d) The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZ Building Act 2004 and NZ Building Regulations 2004, and related documents, providing that:

i) BUILDING IS PROHIBITED IN THE RESTRICTED AREAS  
OF LOTS 53-55, 59-63, 39

ii)

iii)

4. This professional opinion is furnished to the Council and the owner/developer for their purposes 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 of any dwelling.

Signed:   
Date: 31/01/08

\*Delete items not applicable.

## 1D - COMPLETION OF SUBDIVISIONAL WORK

ISSUED BY: STEPHEN MICHAEL PITTMAN  
(Suitably qualified professional)

TO: ROTORUA DISTRICT COUNCIL  
(Territorial Authority)

COPY TO BE SUPPLIED TO: PINNACLE HILL SUBDIVISIONS LTD  
(Subdividing Owner/Principal)

IN RESPECT OF: STAGE 2/3  
(Description of subdivisional work)

AT: HODGKINS STREET, PUKEHANGI  
(Address)

MTEC CONSULTANTS LTD has been engaged by PINNACLE HILL SUBDIVISIONS LTD  
(Consultants Firm) (Subdividing Owner)

to provide construction observation, review and certification services in respect of the above subdivisional work.  
My qualifications and experience related to this work are:

— BE MIPENZ (CIVIL/STRUCTURAL) C P ENG  
— 17 YEARS AS A CONSULTING CIVIL/STRUCTURAL ENGINEER

I am familiar with the conditions of consent to the subdivisional works, and the specification and drawings as granted and

approved by: ROTORUA DISTRICT COUNCIL  
(Territorial Authority)

As an independent professional I or personnel under my control have carried out regular observations, inspections and testing of the subdivisional work and based upon these regular observations, inspections and tests, information supplied by the contractor during the course of the subdivisional works and the contractor's certification upon completion of the subdivisional works (copy attached) I BELIEVE ON REASONABLE GROUNDS that the subdivisional works other than those outstanding works listed below, have been completed in accordance with the above consent and that good, normally acceptable engineering design and construction implementation practices have been undertaken. I note that the Rotorua Civil Engineering Industry Standard 2000 is the recommended Means of Compliance with the consent conditions and I Believe on Reasonable Grounds that the work has been carried out to the same standard as required by the Rotorua Civil Engineering Industry Standard 2000. Details of the regular observations, inspections and testing are attached.

Signature:  Date: 31/01/08  
(Signature suitably qualified Professional)

BE MIPENZ (CIVIL/STRUCT) C P ENG Member CSNZ ☐ NZIS ☐  
(Professional Qualifications)

MTEC CONSULTANTS P.O. BOX 878 ROTORUA ACENZ ☐ IPENZ ☒  
(Address)

Current Policy of Professional Indemnity Insurance: Yes/No

Outstanding Works

**NOTES/KEY:**

1. FIELD WORK COMPLETED ON 28/11/2007
  2. LEVELS ARE IN TERMS OF MOTURHI DATUM 1953  
DRAIN CB XLV SO 48721  
RL 317.70
  3. CONTOUR INTERVAL IS 1.0m
- ★ STREET LIGHT

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THIS DOCUMENT SHALL BE USED ONLY FOR THE PURPOSES FOR WHICH IT WAS SUPPLIED  
AND MUST NOT BE USED IN CONNECTION WITH ANY OTHER ASSOCIATED INFORMATION.  
SERVICES: SURVEYING, ENGINEERING, PLANNING, DESIGN, CONSTRUCTION, MAINTENANCE  
IF THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL CONCRETE REINFORCED PIPES PRIOR TO EXCAVATION WORK

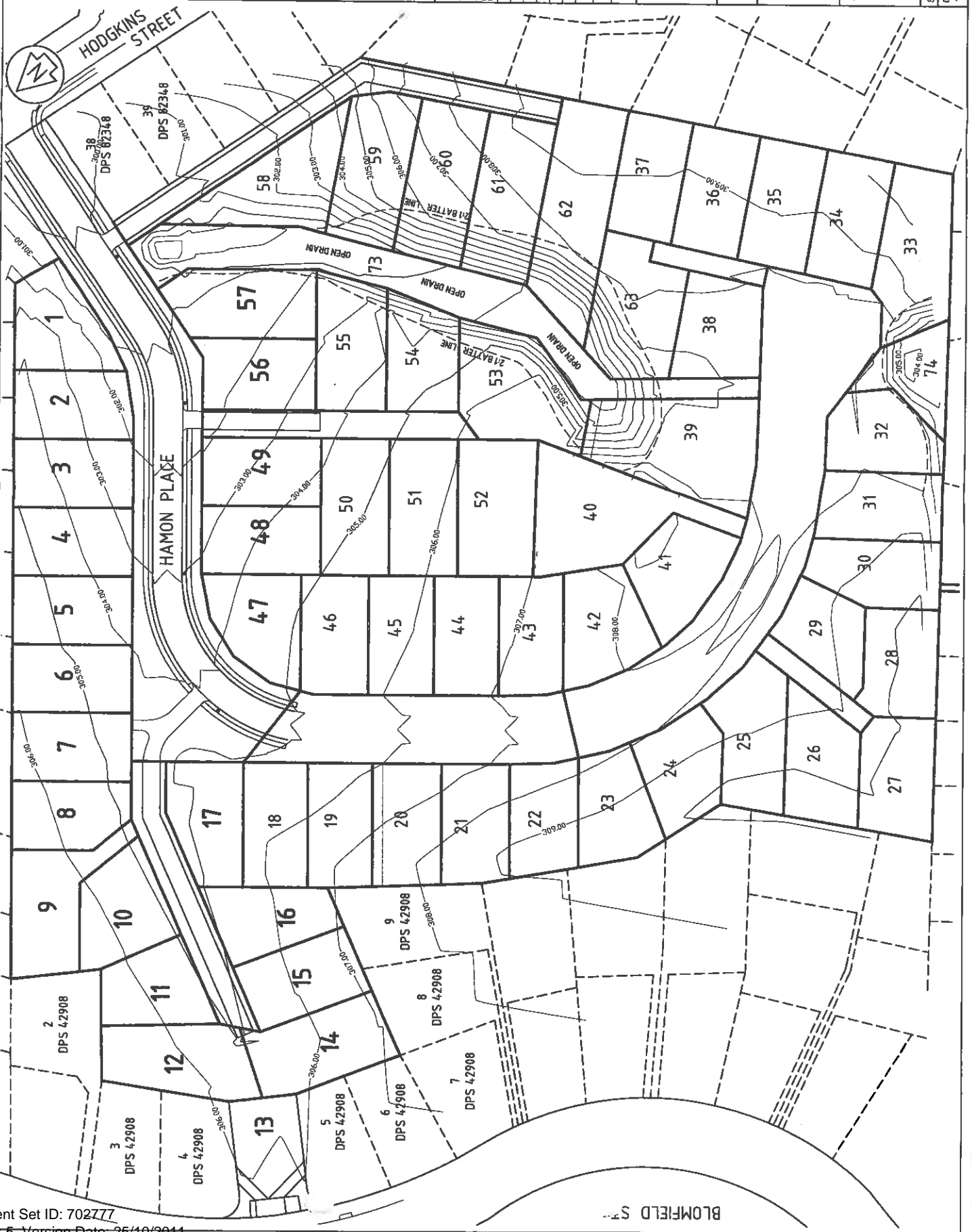
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**SURVEYORS  
ENGINEERS  
PLANNERS**  
MTEC CONSULTANTS  
ROTORUA 18 PANE CROFTING  
TAURANGA WAIKATO

**CLIENT:**  
PINNACLE HILL SUBDIVISIONS LTD  
**PROJECT LOCATION:**  
HODGKINS STREET  
ROTORUA

**DRAWING DESCRIPTION:**  
FINAL CONTOUR PLAN  
AS BUILT  
STAGE 1

**SCALE:** 1:250  
**DRAWING No.** 190801-R-E-D003  
**SHEET No.** 11  
**ISSUE** A



**NOTES/KEY:**

1. FIELD WORK COMPLETED ON 28/11/2007
  2. LEVELS ARE IN TERMS OF MOTURHI DATUM 1953  
ORIGIN CH XLV 50 44721  
RL 371.70
  3. CONTOUR INTERVAL IS 1.0m
- ★ STREET LIGHT

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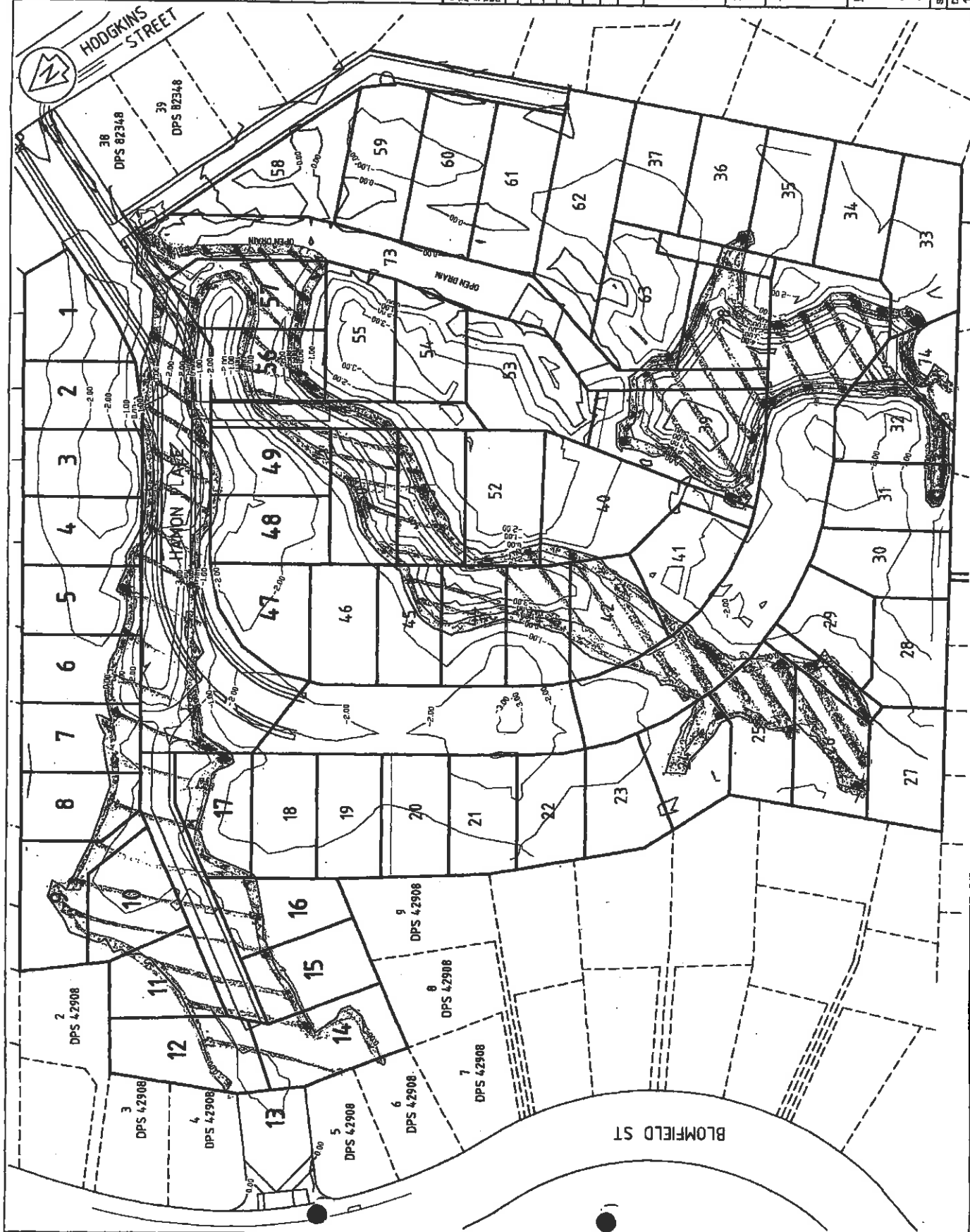
No.	Date	By	For
A	08/12/07	GD	ISSUED FOR APPROVAL
DRAWN: GD			
CHECKED: C.P			
DESIGNED: C.P			
SURVEYED BY: C.P			
LOCAL AUTHORITY REF: 65-08-038			

**INTEC CONSULTANTS**  
SURVEYORS  
ENGINEERS  
PLANNERS  
ROTORUA 78 PAPER STREET  
TAMARUA

**CLIENT**  
PINNACLE HILL SUBDIVISIONS LTD  
**PROJECT LOCATION**  
HODGKINS STREET  
ROTORUA

**DRAWING DESCRIPTION**  
CUT - FILL CONTOUR PLAN  
ASBULTS  
STAGE 1

SCALE: 1:250	ORIGINAL DWG. SIZE A2
DRAWING NO. 190801-R-E-D003	SHEET NO. 12
	ISSUE A





NOTES/KEY:



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 THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL EXISTING SERVICES PRIOR TO BEGINNING WORK.

ISSUED FOR INFORMATION	
No.	Date
1	10/10/2011
2	10/10/2011
3	10/10/2011
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62	10/10/2011
63	10/10/2011

**TEC**  
 CONSULTANTS  
 SURVEYORS  
 ENGINEERS  
 PLANNERS  
 ROTORUA  
 100 POKI  
 MT MAUNGANGI  
 WHAKATANE

**CLIENT**  
 PINNACLE HILL SUBDIVISIONS LTD  
 PROJECT LOCATION  
 HODGKINS STREET  
 ROTORUA

**DRAWING DESCRIPTION**  
 ASBUILT TESTING PLAN

**SCALE:** 1:1000  
**DRAWING No.** 190801-R-E-D002  
**SHEET No.** 01  
**ISSUE** A

# MTEC CONSULTANTS LTD

## BENKELMAN BEAM TEST

JOB NAME: PINNACLE HILL SUBDIVISIONS  
SITE ADDRESS: HODGKINS STREET, ROTORUA  
JOB NUMBER: 190801/E

DATE: 17.12.2007  
BY: CBW

DEFLECTIONS READINGS GREATER THAN 10.00mm ARE INDICATED AS 10.00mm

ALLOWABLE VALUE: 3.5 mm

PEAK VALUE: 4.55 mm

ALLOWABLE DEVIATION

25%

BETWEEN ADJACENT READINGS

LOCATION	DISTANCE Metre	READING	DEFLECTION mm
1	20	1.38	2.76
2	40	1.34	2.68
3	60	0.92	1.84
4	80	0.76	1.52
5	100	1.26	2.52
6	120	0.9	1.70
7	140	0.72	1.44
8	160	1.16	2.32
9	180	1.04	2.08
10	200	0.98	1.96
11	220	0.82	1.64
12	240	0.64	1.28
13	260	1.32	2.64
14	280	1.14	2.28
15	300	1.27	2.54
16	320	1.00	2.00
17	340	0.94	1.88
18	360	1.2	2.40
19	380	0.74	1.48
20	400	0.79	1.58
21	420	0.75	1.50
22	440	1.82	3.64
23		L	
24			
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LOCATION	DISTANCE M	READING	DEFLECTION mm
1	20	1.65	3.30
2	40	1.22	2.44
3	60	1.81	3.62
4	80	0.8	1.60
5	100	1.14	2.28
6	120	1.8	3.52
7	140	0.8	1.60
8	160	1.85	3.70
9	180	1.15	2.30
10	200	1.20	2.40
11	220	1.22	2.44
12	240	1.49	2.98
13	260	1.53	3.06
14	280	1.52	3.04
15	300	1.30	2.60
16	320	1.07	2.14
17	340	1.59	3.18
18	360	2.06	4.12
19	380	1.27	2.54
20	400	1.51	3.02
21	420	0.65	1.30
22	440	1.30	2.60
23		R	
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# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E - FINAL EARTHWORKS TESTING

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 1(1)			LOT 1(2)			LOT 2(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		180	140		150	110
10		280	110		260	80		220	70
15		400	120		360	100		350	130
20		530	130		420	60		460	110
25		680	150		560	140		590	130
30		840	160		690	130		740	150
35		980(1)	140		810	120		890	150
40					920	110		1000	110
45					1000	80			
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 2(2)			LOT 3(1)			LOT 3(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		120	80		170	130		110	70
10		200	80		270	100		190	80
15		330	130		410	140		270	80
20		470	140		530	120		370	100
25		600	130		650	120		480	110
30		730	130		780	130		600	120
35		870	140		910(4)	130		770	170
40		1000	130					880	110
45								1000	120
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 4(1)			LOT 4(2)			LOT 5(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		150	110		160	120
10		280	100		220	70		250	90
15		390	110		290	70		360	110
20		550	160		350	60		440	80
25		670	120		420	70		520	80
30		780	110		520	100		630	110
35		900	120		610	90		750	120
40		1000	100		790	180		860	110
45					890	100		1000	140
50					1000	110			
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 5(2)			LOT 6(1)			LOT 6(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		160	120		200	160		180	140
10		300	140		300	100		280	100
15		430	130		410	110		380	100
20		550	120		520	110		470	90
25		720	170		640	120		540	70
30		880	160		790	150		640	100
35		1000	120		870	80		760	120
40					970(1)	100		870	110
45								1000	130
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 7(1)			LOT 7(2)			LOT 8(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		210	170		230	190		150	110
10		330	120		380	150		270	120
15		410	80		500	120		380	110
20		490	80		680	180		470	90
25		590	100		760	80		550	80
30		710	120		830	70		630	80
35		840	130		930	100		760	130
40		1000	160		1000	70		850	90
45								960	110
50								1000	40
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 8(2)			LOT 9(1)			LOT 9(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		230	190		250	210		220	180
10		330	100		310	60		320	100
15		420	90		360	50		380	60
20		520	100		430	70		460	80
25		660	140		490	60		540	80
30		720	60		550	60		590	50
35		780	60		620	70		620	30
40		830	50		690	70		650	30
45		880	50		840	150		700	50
50		910	30		900	60		750	50
55		950	40		970(2)	70		880	130
60		1000	50					1000	120
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 10(1)			LOT 10(2)			LOT 11(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		140	100		190	150		180	140
10		240	100		310	120		270	90
15		330	90		430	120		400	130
20		420	90		530	100		510	110
25		520	100		610	80		620	110
30		600	80		690	80		720	100
35		660	60		760	70		810	90
40		710	50		830	70		900	90
45		770	60		900	70		1000	100
50		840	70		980(1)	80			
55		920	80						
60		1000	80						
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 11(2)			LOT 12(1)			LOT 12(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		120	80		100	60
10		310	130		160	40		190	90
15		450	140		220	60		280	90
20		590	140		280	60		350	70
25		710	120		370	90		440	90
30		820	110		510	140		500	60
35		930(3)	110		670	160		570	70
40					870	200		630	60
45					1000	130		700	70
50								790	90
55								880	90
60								1000	120
65									
70									
75									
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100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL SUBDIVISIONS LTD  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 13(1)			LOT 13(2)			LOT 14(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		140	100		130	90		140	100
10		250	110		200	70		200	60
15		380	130		290	90		290	90
20		480	100		390	100		370	80
25		550	70		500	110		470	100
30		670	120		580	80		540	70
35		750	80		650	70		630	90
40		850	100		730	80		690	60
45		1000	150		800	70		790	100
50					910	110		910	120
55					1000	90		1000	90
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 14(2)			LOT 15(1)			LOT 15(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		230	190		250	210		190	150
10		330	100		310	60		250	60
15		420	90		360	50		350	100
20		520	100		430	70		430	80
25		660	140		490	60		490	60
30		720	60		550	60		570	80
35		780	60		620	70		660	90
40		830	50		690	70		730	70
45		880	50		840	150		800	70
50		910	30		900	60		860	60
55		950	40		970(2)	70		930	70
60		1000	50					1000	70
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL SUBDIVISIONS LTD  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 16(1)			LOT 16(2)			LOT 17(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		150	110		190	150
10		240	70		250	100		310	120
15		340	100		340	90		430	120
20		410	70		430	90		530	100
25		480	70		530	100		610	80
30		570	90		610	80		690	80
35		640	70		670	60		760	70
40		700	60		720	50		830	70
45		770	70		780	60		900	70
50		820	50		850	70		980(1)	80
55		870	50		930	80			
60		930	60		1000	70			
65		1000	70						
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 17(2)			LOT 18(1)			LOT 18(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		180	140		210	170
10		270	90		310	130		330	120
15		400	130		450	140		410	80
20		510	110		590	140		490	80
25		620	110		710	120		590	100
30		720	100		820	110		710	120
35		810	90		930(3)	110		840	130
40		900	90					1000	160
45		1000	100						
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 19(1)			LOT 19(2)			LOT 20(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		260	220		150	110
10		270	90		370	110		240	90
15		350	80		450	80		350	110
20		450	100		500	50		420	70
25		580	130		570	70		490	70
30		720	140		680	110		580	90
35		840	120		720	40		650	70
40		1000	160		840	120		710	60
45					880	40		770	60
50					1000	120		810	40
55								860	50
60								920	60
65								1000	80
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 20(2)			LOT 21(1)			LOT 21(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		220	180		180	140		190	150
10		320	100		340	160		290	100
15		390	70		420	80		440	150
20		470	80		500	80		570	130
25		550	80		540	40		680	110
30		600	50		630	90		750	70
35		630	30		700	70		830	80
40		660	30		890	190		900	70
45		710	50		1000	110		1000	100
50		760	50						
55		890	130						
60		1000	110						
65									
70									
75									
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90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
SITE ADDRESS: HODGKINS STREET, ROTORUA  
JOB NUMBER: 190801/E

DATE: 14.11.07  
BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 22(1)			LOT 22(2)			LOT 23(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		240	200		180	140		150	110
10		360	120		280	100		290	140
15		520	160		390	110		370	80
20		630	110		510	120		470	100
25		730	100		630	120		580	110
30		770	40		740	110		670	90
35		810	40		810	70		760	90
40		850	40		890	80		820	60
45		900	50		1000	110		890	70
50		960	60					940	50
55		1000	40					1000	60
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 23(2)			LOT 24(1)			LOT 24(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		220	180		190	150		190	150
10		330	110		250	60		350	160
15		410	80		330	80		460	110
20		490	80		460	130		600	140
25		580	90		580	120		730	130
30		690	110		680	100		870	140
35		790	100		750	70		1000	130
40		850	60		800	50			
45		900	50		870	70			
50		960	60		1000	130			
55		1000	40						
60									
65									
70									
75									
80									
85									
90									
95									
100									



# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 25(1)			LOT 25(2)			LOT 26(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		260	220		230	190		160	120
10		360	100		330	100		250	90
15		460	100		430	100		320	70
20		530	70		520	90		370	50
25		620	90		670	150		450	80
30		700	80		720	50		500	50
35		760	60		780	60		550	50
40		800	40		840	60		620	70
45		850	50		890	50		690	70
50		890	40		930	40		770	80
55		930	40		1000	70		840	70
60		1000	70					900	60
65								1000	100
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 26(2)			LOT 27(1)			LOT 27(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		190	150		180	140		170	130
10		240	50		290	110		250	80
15		360	120		380	90		340	90
20		500	140		480	100		530	190
25		610	110		570	90		680	150
30		710	100		660	90		780	100
35		750	40		740	80		840	60
40		790	40		800	60		910	70
45		820	30		860	60		1000	90
50		840	20		920	60			
55		900	60		1000	80			
60		980(1)	80						
65									
70									
75									
80									
85									
90									
95									
100									

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 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 28(1)			LOT 28(2)			LOT 29(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		260	220		220	180
10		280	110		420	160		460	240
15		400	120		560	140		600	140
20		540	140		690	130		750	150
25		700	160		810	120		900(4)	150
30		860(4)	160		920	110			
35					1000	80			
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 29(2)			LOT 30(1)			LOT 30(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		120	80		270	230		230	190
10		200	80		410	140		400	170
15		330	130		530	120		580	180
20		470	140		650	120		750	170
25		600	130		780	130		910(3)	160
30		730	130		910(4)	130			
35		870	140						
40		1000	130						
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 31(1)			LOT 31(2)			LOT 32(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		330	290		260	220		160	120
10		520	190		400	140		300	140
15		710	190		570	170		430	130
20		940(2)	230		670	100		550	120
25					760	90		720	170
30					850	90		880	160
35					930	80		1000	120
40					1000	70			
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 32(2)			LOT 33(1)			LOT 33(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		180	140		200	160
10		260	90		280	100		300	100
15		380	120		390	110		410	110
20		630	250		550	160		520	110
25		900(2)	270		670	120		640	120
30					780	110		790	150
35					900	120		880	90
40					1000	100		1000	120
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# **MTEC CONSULTANTS LTD**

## **SCALA PENETROMETER TEST RESULTS**

**JOB NAME:** PINNACLE HILL SUBDIVISIONS LTD  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 34(1)			LOT 34(2)			LOT 35(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		260	220		230	190		210	170
10		410	150		380	150		400	190
15		560	150		580	200		570	170
20		700	140		770	190		720	150
25		900(3)	200		940(2)	170		860	140
30								1000	140
35									
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 35(2)			LOT 36(1)			LOT 36(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		110	70		220	180		210	170
10		190	80		380	160		300	90
15		290	100		510	130		400	100
20		420	130		630	120		520	120
25		600	180		750	120		630	110
30		770	170		870	120		840	210
35		880	110		1000	130		1000	160
40		1000	120						
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# **MTEC CONSULTANTS LTD**

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**JOB NAME:** PINNACLE HILL SUBDIVISIONS LTD  
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**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 37(1)			LOT 37(2)			LOT 38(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		200	160		250	210		190	150
10		290	90		360	110		380	190
15		400	110		440	80		510	130
20		610	210		520	80		600	90
25		790	180		630	110		720	120
30		980(1)	190		820	190		890	170
35					1000	180		1000	110
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 38(2)			LOT 39(1)			LOT 39(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		200	160		180	140		150	110
10		330	130		280	100		270	120
15		450	120		380	100		370	100
20		550	100		470	90		460	90
25		660	110		540	70		540	80
30		770	110		640	100		630	90
35		1000	230		760	120		800	170
40					870	110		1000	200
45					1000	130			
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

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## SCALA PENETROMETER TEST RESULTS

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 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 40(1)			LOT 40(2)			LOT 41(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		230	190		200	160
10		320	150		400	170		330	130
15		480	160		570	170		470	140
20		640	160		710	140		660	190
25		800	160		820	110		840	180
30		940(2)	140		930(3)	110		1000	160
35									
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 41(2)			LOT 42(1)			LOT 42(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		210	170		230	190		210	170
10		350	140		500	270		330	120
15		460	110		680	180		410	80
20		600	140		760	80		490	80
25		840	240		830	70		590	100
30		1000	160		930	100		710	120
35					1000	70		840	130
40								1000	160
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

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**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
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**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 43(1)			LOT 43(2)			LOT 44(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		150	110		280	240
10		270	90		270	120		490	210
15		350	80		380	110		700	210
20		450	100		470	90		910(3)	210
25		580	130		550	80			
30		720	140		630	80			
35		840	120		850	220			
40		1000	160		1000	150			
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 44(2)			LOT 45(1)			LOT 45(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		210	170		200	160		180	140
10		350	140		290	90		290	110
15		490	140		400	110		390	100
20		720	230		610	210		550	160
25		920(3)	210		790	180		730	180
30					970(3)	180		900(4)	170
35									
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

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**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
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TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 46(1)			LOT 46(2)			LOT 47(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		220	180		120	80
10		290	110		350	130		260	140
15		390	100		420	70		370	110
20		500	110		560	140		480	110
25		630	130		690	130		600	120
30		730	100		820	130		720	120
35		830	100		930	110		840	120
40		1000	170		1000	70		960(2)	120
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 47(2)			LOT 48(1)			LOT 48(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		220	180		180	140		210	170
10		380	160		300	120		360	150
15		500	120		450	150		490	130
20		620	120		590	140		610	120
25		740	120		700	110		750	140
30		860	120		810	110		850	100
35		1000	140		900	90		950(2)	100
40					1000	100			
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									



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 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 49(1)			LOT 49(2)			LOT 50(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		190	150		140	100
10		300	130		320	130		240	100
15		390	90		450	130		330	90
20		470	80		570	120		430	100
25		570	100		700	130		540	110
30		660	90		830	130		640	100
35		750	90		960(2)	130		770	130
40		840	90					900	130
45		960(2)	120					1000	100
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 50(2)			LOT 51(1)			LOT 51(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		200	160		190	150
10		280	110		320	120		270	80
15		390	110		450	130		350	80
20		500	110		570	120		410	60
25		610	110		670	100		470	60
30		740	130		770	100		540	70
35		910(3)	170		860	90		620	80
40					1000	140		700	80
45								770	70
50								850	80
55								920	70
60								1000	80
65									
70									
75									
80									
85									
90									
95									
100									

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 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 52(1)			LOT 52(2)			LOT 53(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		210	170		110	70		160	120
10		350	140		190	80		290	130
15		460	110		290	100		380	90
20		560	100		400	110		500	120
25		650	90		510	110		630	130
30		740	90		620	110		760	130
35		840	100		720	100		860	100
40		930	90		810	90		970(2)	110
45		1000	70		900	90			
50					1000	100			
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 53(2)			LOT 54(1)			LOT 54(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		190	150		200	160
10		300	130		240	50		330	130
15		440	140		300	60		470	140
20		600	160		370	70		600	130
25		730	130		450	80		710	110
30		840	110		530	80		810	100
35		960(2)	120		700	170		900	90
40					850	150		1000	100
45					1000	150			
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
SITE ADDRESS: HODGKINS STREET, ROTORUA  
JOB NUMBER: 190801/E

DATE: 14.11.07  
BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 55(1)			LOT 55(2)			LOT 56(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		190	150		170	130		120	80
10		310	120		330	160		200	80
15		430	120		500	170		280	80
20		550	120		630	130		380	100
25		670	120		770	140		510	130
30		780	110		900(4)	130		640	130
35		880	100					760	120
40		980(1)	100					860	100
45								920	60
50								1000	80
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 56(2)			LOT 57(1)			LOT 57(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		130	90		200	160		180	140
10		230	100		280	80		290	110
15		350	120		360	80		380	90
20		490	140		420	60		460	80
25		600	110		480	60		560	100
30		710	110		550	70		650	90
35		800	90		630	80		740	90
40		880	80		710	80		830	90
45		1000	120		780	70		950(2)	120
50					860	80			
55					930	70			
60					1000	70			
65									
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL SUBDIVISIONS LTD  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 14.11.07  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 58(1)			LOT 58(2)			LOT 59(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		150	110		190	150		170	130
10		260	110		300	110		260	90
15		350	90		400	100		340	80
20		450	100		510	110		420	80
25		560	110		630	120		500	80
30		650	90		730	100		590	90
35		770	120		820	90		680	90
40		900	130		910	90		770	90
45		1000	100		1000	90		890	120
50								1000	110
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 59(2)			LOT 60(1)			LOT 60(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		180	140		210	170		130	90
10		300	120		350	140		200	70
15		410	110		490	140		270	70
20		530	120		620	130		350	80
25		640	110		750	130		430	80
30		780	140		900(3)	150		500	70
35		900(4)	120					560	60
40								620	60
45								700	80
50								770	70
55								850	80
60								920	70
65								1000	80
70									
75									
80									
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

JOB NAME: PINNACLE HILL SUBDIVISIONS LTD  
 SITE ADDRESS: HODGKINS STREET, ROTORUA  
 JOB NUMBER: 190801/E

DATE: 14.11.07  
 BY: CBW

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	LOT 61(1)			LOT 61(2)			LOT 62(1)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		150	110		210	170		130	90
10		270	120		310	100		230	100
15		390	120		400	90		350	120
20		500	110		500	100		470	120
25		620	120		600	100		590	120
30		720	100		710	110		700	110
35		820	100		830	120		800	100
40		900	80		950(2)	120		910	110
45		980(1)	80					1000	90
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

NUMBER OF BLOWS	LOT 62(2)			LOT 63(1)			LOT 63(2)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		170	130		190	150		170	130
10		300	130		310	120		290	120
15		430	130		500	190		400	110
20		520	90		660	160		520	120
25		600	80		800	140		630	110
30		690	90		930(3)	130		750	120
35		800	110					860	110
40		900	100					970(2)	110
45		1000	100						
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

**MTEC CONSULTANTS LTD****SCALA PENETROMETER TEST RESULTS**

**JOB NAME:** PINNACLE HILL SUBDIVISIONS  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 17.12.2007  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	POND 1(1)			POND 1(2)			POND 1(3)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		310	270		270	230		230	190
10		480	170		410	140		380	150
15		630	150		530	120		500	120
20		770	140		630	100		630	130
25		900	130		750	120		710	80
30		1040	140		860	110		800	90
35		1140	100		970	110		890	90
40		1250	110		1100	130		980	90
45		1390	140		1240	140		1080	100
50		1520	130		1380	140		1190	110
55		1650	130		1510	130		1290	100
60		1770	120		1600	90		1400	110
65		1900(3)	130		1680	80		1520	120
70					1750	70		1650	130
75					1840	90		1780	130
80					1920	80		1890	110
85					2000	80		2000	110
90									
95									
100									

NUMBER OF BLOWS	POND 1(4)			POND 1(5)			POND 1(6)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		220	180		270	230		230	190
10		330	110		460	190		340	110
15		500	170		630	170		470	130
20		710	210		800	170		600	130
25		840	130		950	150		720	120
30		990	150		1110	160		810	90
35		1110	120		1260	150		900	90
40		1240	130		1400	140		1000	100
45		1400	160		1520	120		1090	90
50		1520	120		1590	70		1200	110
55		1630	110		1680	90		1310	110
60		1750	120		1790	110		1410	100
65		1870	120		1870	80		1520	110
70		1970(2)	100		1960(2)	90		1620	100
75								1700	80
80								1790	90
85								1870	80
90								1940	70
95								2000	60
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL SUBDIVISIONS  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 17.12.2007  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	POND 2(1)			POND 2(2)			POND 2(3)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		250	210		210	170		300	260
10		400	150		300	90		490	190
15		510	110		450	150		670	180
20		600	90		610	160		830	160
25		690	90		770	160		970	140
30		790	100		910	140		1090	120
35		880	90		1070	160		1190	100
40		1010	130		1310	240		1300	110
45		1130	120		1460	150		1400	100
50		1240	110		1600	140		1510	110
55		1330	90		1730	130		1620	110
60		1440	110		1830	100		1720	100
65		1540	100		1900	70		1830	110
70		1630	90		1970(1)	70		1940(3)	110
75		1720	90						
80		1800	80						
85		1880	80						
90		1970(1)	90						
95									
100									

NUMBER OF BLOWS	POND 2(4)			POND 2(5)			POND 2(6)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		240	200		210	170		240	200
10		370	130		310	100		370	130
15		500	130		440	130		500	130
20		640	140		570	130		620	120
25		770	130		700	130		730	110
30		900	130		830	130		900	170
35		1000	100		910	80		1050	150
40		1100	100		1000	90		1260	210
45		1230	130		1080	80		1420	160
50		1350	120		1200	120		1600	180
55		1470	120		1310	110		1770	170
60		1580	110		1430	120		1910(3)	140
65		1700	120		1550	120			
70		1810	110		1720	170			
75		1900	90		1900(3)	180			
80		2000	100						
85									
90									
95									
100									

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL SUBDIVISIONS  
**SITE ADDRESS:** HODGKINS STREET, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 17.12.2007  
**BY:** CBW

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	POND 3(1)			POND 3(2)			POND 3(3)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		230	190		200	160		170	130
10		350	120		340	140		260	90
15		490	140		500	160		350	90
20		640	150		630	130		450	100
25		740	100		770	140		580	130
30		830	90		910	140		740	160
35		920	90		1060	150		900	160
40		1030	110		1200	140		1050	150
45		1160	130		1330	130		1210	160
50		1310	150		1450	120		1360	150
55		1420	110		1580	130		1500	140
60		1570	150		1700	120		1670	170
65		1690	120		1810	110		1830	160
70		1810	120		1900	90		2000	170
75		1980(2)	170		2000	100			
80									
85									
90									
95									
100									

NUMBER OF BLOWS	POND 3(4)			POND 3(5)			POND 3(6)		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0	-0.04	40	0	-0.04	40	0	-0.04	40	0
5		190	150		220	180		260	220
10		310	120		330	110		400	140
15		430	120		510	180		550	150
20		590	160		700	190		690	140
25		750	160		880	180		800	110
30		890	140		1030	150		920	120
35		1030	140		1190	160		1080	160
40		1190	160		1340	150		1250	170
45		1340	150		1480	140		1410	160
50		1470	130		1620	140		1580	170
55		1600	130		1750	130		1740	160
60		1730	130		1880	130		1900(3)	160
65		1870	140		2000	120			
70		2000	130						
75									
80									
85									
90									
95									
100									



[illegible]

INTERDEPENDENCY OF PROCESSED ASSETS			
PLUMBING RIGHT OF WAY A SERVICES	GROUND	SEWER, TIE IN	DOCK, TIE IN
ROBERT TO DOWNEY STOCKMATHEN RIGHT TO DRAIN SEWERAGE	(A)	LOT 64 HERRON	LOT 53-55 HERRON
	(B)	LOT 60 HERRON	LOT 51, 52, 54 & 55 HERRON
	(C)	LOT 61 HERRON	LOT 51 & 53 HERRON
	(D)	LOT 68 HERRON	LOT 52 & 55 HERRON
	(E)	LOT 70 HERRON	LOT 53 HERRON
	(F)	LOT 59 HERRON	LOT 51 & 52 HERRON
	(G)	LOT 30 HERRON	LOT 5 DVS down

[illegible]

THAT LOT 10 HERON BLVD. ACCESS BE HELD AS TO THESE UNIMPROVED ONE-FOUR-THIRDS OF THE OWNERS OF LOTS 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837,

**RIGHT - ATTORNEYS GENERAL**  
 The Attorney General, Mr. John E. Ashcroft, has announced that he will not be taking any action to enforce the law against the use of the Internet for the purpose of distributing pornography. He said that the law is not intended to be used to enforce the law against the use of the Internet for the purpose of distributing pornography.

[illegible]

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ENT.  
INNACLE HILL SUBDIVISIONS LTD  
LOCATION  
ODGKINS STREET  
TORIA

ORIGINAL DWS, SIZE A1	
SHEET NO.	01
ISSUE	C

NOTES/KEY:  
 1. AREAS AND MEASUREMENTS ARE SUBJECT TO TITLE  
 SURVEY

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DATE	BY	REVISION
01/01/2011	INT	1
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01/01/2011	INT	16
01/01/2011	INT	17
01/01/2011	INT	18
01/01/2011	INT	19
01/01/2011	INT	20
01/01/2011	INT	21
01/01/2011	INT	22
01/01/2011	INT	23
01/01/2011	INT	24
01/01/2011	INT	25
01/01/2011	INT	26
01/01/2011	INT	27
01/01/2011	INT	28
01/01/2011	INT	29
01/01/2011	INT	30
01/01/2011	INT	31
01/01/2011	INT	32
01/01/2011	INT	33
01/01/2011	INT	34
01/01/2011	INT	35
01/01/2011	INT	36
01/01/2011	INT	37
01/01/2011	INT	38
01/01/2011	INT	39
01/01/2011	INT	40
01/01/2011	INT	41
01/01/2011	INT	42
01/01/2011	INT	43
01/01/2011	INT	44
01/01/2011	INT	45
01/01/2011	INT	46
01/01/2011	INT	47
01/01/2011	INT	48
01/01/2011	INT	49
01/01/2011	INT	50
01/01/2011	INT	51
01/01/2011	INT	52
01/01/2011	INT	53
01/01/2011	INT	54
01/01/2011	INT	55
01/01/2011	INT	56
01/01/2011	INT	57
01/01/2011	INT	58
01/01/2011	INT	59
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01/01/2011	INT	63
01/01/2011	INT	64
01/01/2011	INT	65
01/01/2011	INT	66
01/01/2011	INT	67
01/01/2011	INT	68
01/01/2011	INT	69
01/01/2011	INT	70
01/01/2011	INT	71
01/01/2011	INT	72
01/01/2011	INT	73
01/01/2011	INT	74
01/01/2011	INT	75
01/01/2011	INT	76
01/01/2011	INT	77
01/01/2011	INT	78
01/01/2011	INT	79
01/01/2011	INT	80
01/01/2011	INT	81
01/01/2011	INT	82
01/01/2011	INT	83
01/01/2011	INT	84
01/01/2011	INT	85
01/01/2011	INT	86
01/01/2011	INT	87
01/01/2011	INT	88
01/01/2011	INT	89
01/01/2011	INT	90
01/01/2011	INT	91
01/01/2011	INT	92
01/01/2011	INT	93
01/01/2011	INT	94
01/01/2011	INT	95
01/01/2011	INT	96
01/01/2011	INT	97
01/01/2011	INT	98
01/01/2011	INT	99
01/01/2011	INT	100

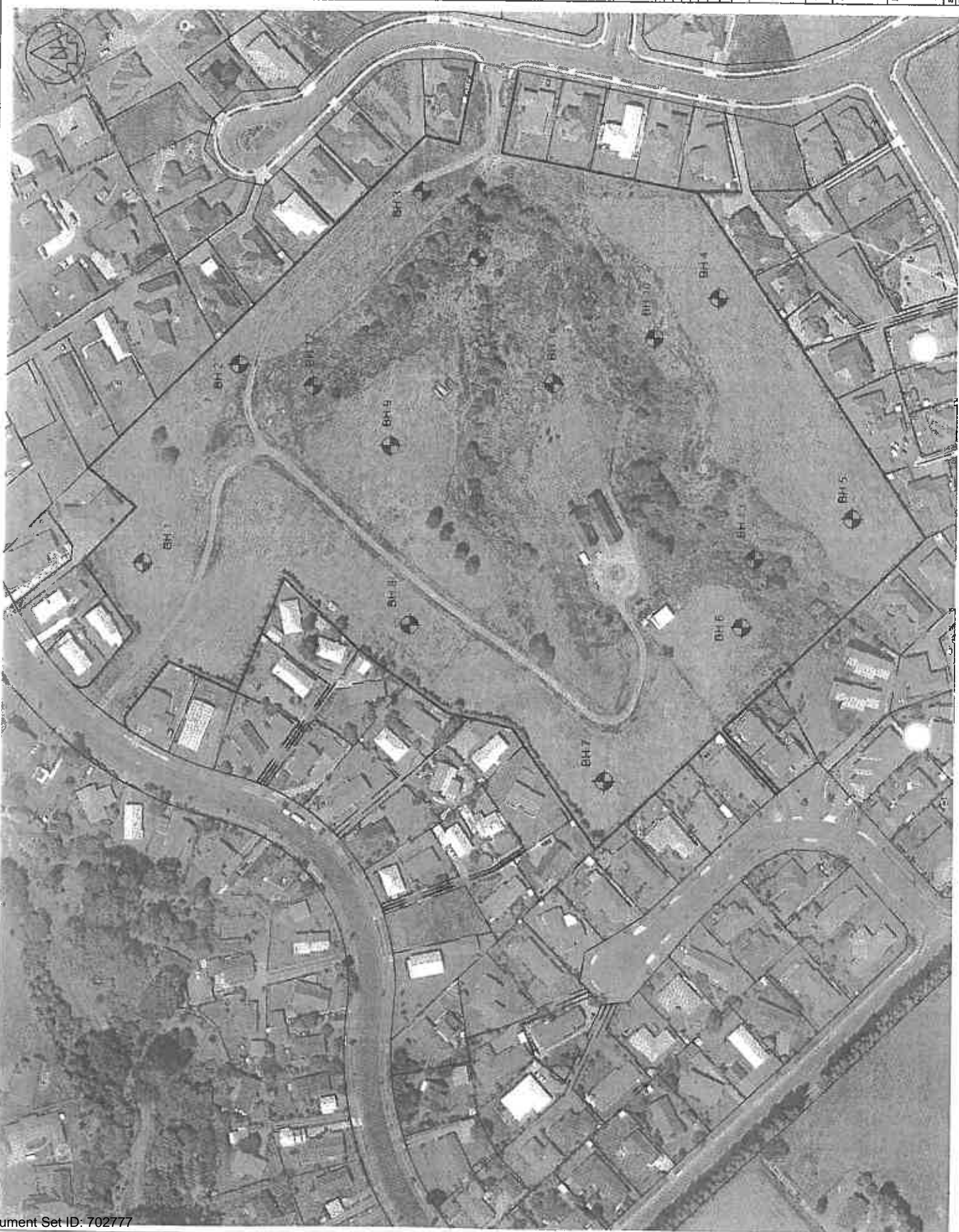
CHECKED: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 SURVEYED BY: \_\_\_\_\_  
 LOCAL AUTHORITY REF: \_\_\_\_\_

**INT**  
**TEC**  
 SURVEYORS  
 ENGINEERS  
 PLANNERS  
 INTERRA  
 111 MARLBOROUGH  
 WIMBORNE

CLIENT  
**PINNACLE HILL FARMS**  
 PROJECT ADDRESS

DRAWING DESCRIPTION

SCALE 1:750  
 ORIGINAL DATE 21/10/2011  
 DRAWN BY: INT



# MTEC CONSULTANTS LTD

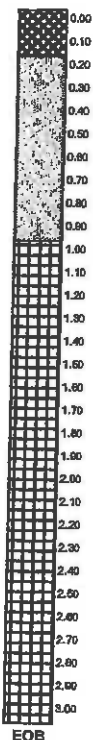
## BOREHOLE LOGS

JOB NAME: PINNACLE HILL FARMS  
SITE ADDRESS: BLOMFIELD - HODGKINS ST, ROTORUA  
JOB NUMBER: 190801/E

DATE: 21/12/2005  
BY: CBW/DG

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL

### BOREHOLE 1



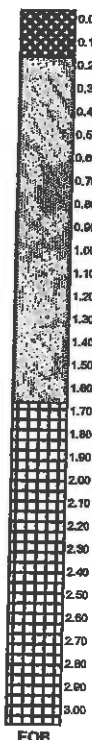
TOPSOIL : black/brown, damp

SAND : (fg) sand, some silt, orangey/brown slightly moist

GRAVEL : (fg) gravel, some silt, light brown moist, occasional pumice gravel to 10mm

becoming saturated at 1.40m

### BOREHOLE 2



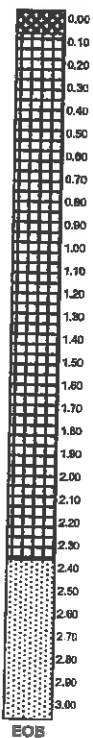
TOPSOIL : black/brown, damp

SAND : (fg) sand, some silt, orangey/brown damp

GRAVEL : (fg) gravel, some silt, light brown moist

(mg) gravel 2.20m onwards, saturated

### BOREHOLE 3



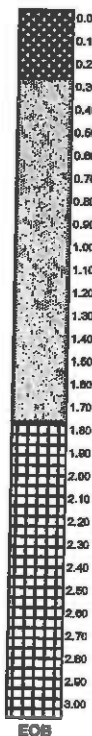
TOPSOIL : black/brown, damp

GRAVEL : (mg) gravel, some silt, light brown moist, occasional pumice gravel to 30mm

becoming saturated at 1.30m

SILT : occasional pumice gravel to 10mm brown, wet

### BOREHOLE 4



TOPSOIL : black/brown, damp

SAND : (fg) sand, some silt, dark orangey/brown slightly moist

GRAVEL : (fg) gravel, some silt, light brown moist

becoming saturated at 2.40m

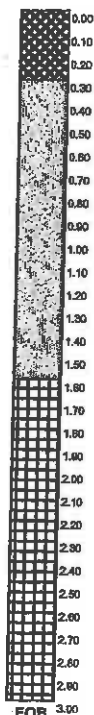
**BOREHOLE LOGS**

**JOB NAME:** PINNACLE HILL FARMS  
**SITE ADDRESS:** BLOMFIELD - HODGKINS ST, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 21/12/2005  
**BY:** CBW/DG

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL

**BOREHOLE 5**



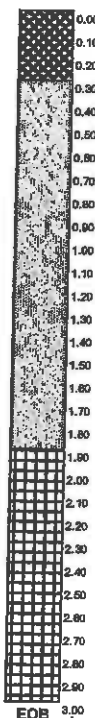
**TOPSOIL :** black/brown, damp

**SAND :** (fg) sand, some silt, orangey/brown slightly moist

**GRAVEL :** (fg) gravel, some silt, light brown wet

becoming saturated at 2.10m / occasional pumice gravel to 10mm

**BOREHOLE 6**



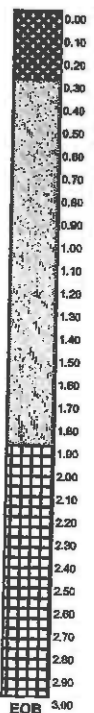
**TOPSOIL :** black/brown, damp

**SAND :** (fg) sand, some silt, orangey/brown moist

**GRAVEL :** (fg) gravel, some silt, light brown wet

(mg) gravel at 2.20m onwards becoming saturated

**BOREHOLE 7**



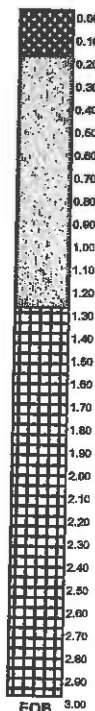
**TOPSOIL :** black/brown, damp

**SAND :** (mg) sand, some silt, orangey/brown slightly moist

**GRAVEL :** (fg) gravel, some silt, light brown wet

(mg) gravel 2.50m onwards becoming saturated

**BOREHOLE 8**



**TOPSOIL :** black/brown, damp

**SAND :** (mg) sand, some silt, orangey/brown moist

becoming wet becoming (cg) sand

**GRAVEL :** (fg) gravel, some silt, light brown

(mg) gravel at 1.6m

Becoming saturated at 2.0m

Frequent Pumice Gravel to 20mm

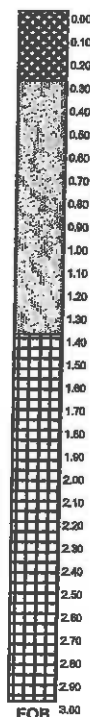
**BOREHOLE LOGS**

**JOB NAME:** PINNACLE HILL FARMS  
**SITE ADDRESS:** BLOMFELD - HODGKINS ST, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 21/12/2005  
**BY:** CBW/DG

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL

**BOREHOLE 9**



**TOPSOIL :** black/brown, damp

**SAND :** (mg) sand, some silt, orangey/brown moist

becoming wet

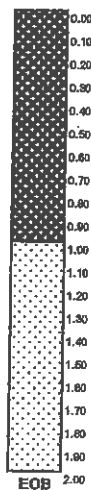
**GRAVEL :** (fg) gravel, some silt, light brown

(mg) gravel at 1.8m

Becoming saturated at 2.2m

Frequent Pumice Gravel to 20mm

**BOREHOLE 10**

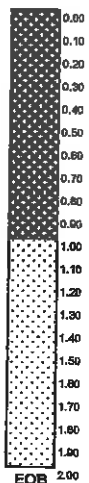


**TOPSOIL :** Black  
Organic matter  
Saturated

**SILT** Very fine Silt  
Grey/brown  
Saturated

no sample beyond this point

**BOREHOLE 11**

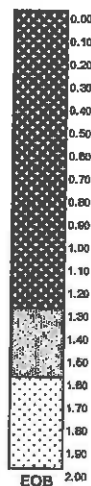


**TOPSOIL :** Black  
Organic matter  
Saturated

**SILT** Very fine Silt  
Grey/brown  
Saturated

no sample beyond this point

**BOREHOLE 12**



**TOPSOIL** Black  
Organic matter  
Saturated

**SAND (mg)** :some silt, orangey/brown, saturated

**SILT** Very fine Silt  
Grey/brown  
Saturated

no sample beyond this point

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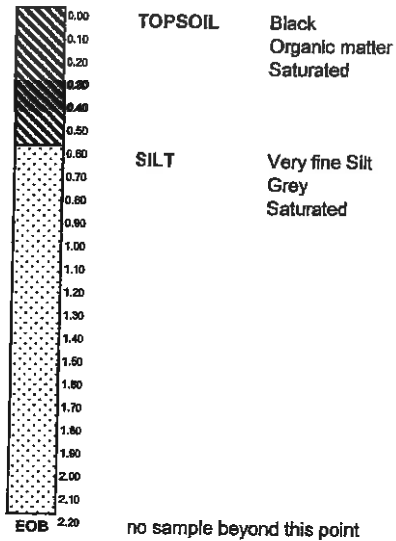
## BOREHOLE LOGS

JOB NAME: PINNACLE HILL FARMS  
SITE ADDRESS: BLOMFIELD - HODGKINS ST, ROTORUA  
JOB NUMBER: 190801/E

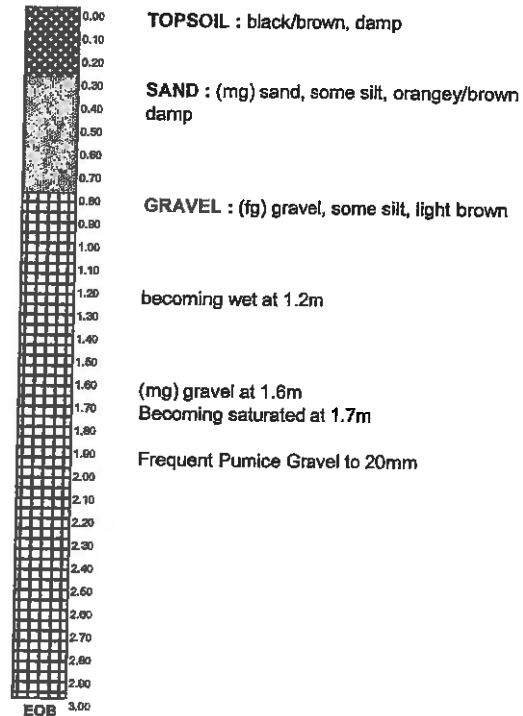
DATE: 21/12/2005  
BY: CBW/DG

NOTE: DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL

### BOREHOLE 13



### BOREHOLE 14



# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL FARMS  
**SITE ADDRESS:** BLOMFIELD - HODGKINS ST, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 21/12/2005  
**BY:** CBW/DG

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	SP 1			SP 2			SP 3		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0		40			40			40	
5		290	250		340	300		140	100
10		550	260		650	310		250	110
15		700	150		810	160		410	160
20		810	110		1000	190		500	90
25		890	80		1100	100		600	100
30		960	70		1200	100		700	100
35		1050	90		1290	90		780	80
40		1110	60		1370	80		870	90
45		1160	50		1440	70		980	110
50		1210	50		1510	70		1040	60
55		1250	40		1570	60		1100	60
60		1320	70		1650	80		1170	70
65		1360	40		1710	60		1260	90
70		1400	40		1770	60		1330	70
75		1470	70		1820	50		1400	70
80		1530	60		1880	60		1480	80
85		1580	50		1950	70		1560	80
90		1640	60		2000	50		1650	90
95		1700	60					1740	90
100		1760	60					1810	70

NUMBER OF BLOWS	SP 4			SP 5			SP 6		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0		40			40			40	
5		320	280		380	340		360	320
10		640	320		790	410		630	270
15		900	260		1000	210		790	160
20		1070	170		1100	100		900	110
25		1210	140		1190	90		1030	130
30		1350	140		1280	90		1140	110
35		1450	100		1360	80		1240	100
40		1520	70		1450	90		1320	80
45		1590	70		1530	80		1390	70
50		1650	60		1600	70		1450	60
55		1710	60		1660	60		1520	70
60		1750	40		1720	60		1550	30
65		1800	50		1780	60		1600	50
70		1840	40		1880	100		1640	40
75		1880	40		1930	50		1680	40
80		1940	60		2000	70		1730	50
85		2000	60					1760	30
90								1820	60
95								1860	40
100								1900	40

# MTEC CONSULTANTS LTD

## SCALA PENETROMETER TEST RESULTS

**JOB NAME:** PINNACLE HILL FARMS  
**SITE ADDRESS:** BLOMFIELD - HODGKINS ST, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 21/12/2005  
**BY:** CBW/DG

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
 TABLE OF PENETRATION IN mm PER 5 BLOWS  
 LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	SP 7			SP 8			SP 9		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0		40			40			40	
5		380	340		380	340		450	410
10		620	240		610	230		750	300
15		770	150		780	170		1000	250
20		900	130		930	150		1100	100
25		1010	110		1070	140		1230	130
30		1100	90		1180	110		1360	130
35		1200	100		1300	120		1490	130
40		1280	80		1400	100		1610	120
45		1370	90		1500	100		1730	120
50		1430	60		1610	110		1810	80
55		1490	60		1730	120		1890	80
60		1550	60		1900	170		1940 (2)	50
65		1600	50		2000	100			
70		1650	50						
75		1710	60						
80		1750	40						
85		1810	60						
90		1860	50						
95		1920	60						
100		2000	80						

NUMBER OF BLOWS	SP 10			SP 11			SP 12		
	RL	READING	PENETR.	RL	READING	PENETR.	RL	READING	PENETR.
RL START									
0		40			40			40	
5		850	810		870	830		1000	960
10		1750(3)	900		1800(2)	930		1300	300
15								1500	200
20								1720	220
25								1900	180
30								2000	100
35									
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									



# **MTEC CONSULTANTS LTD**

## **SCALA PENETROMETER TEST RESULTS**

**JOB NAME:** PINNACLE HILL FARMS  
**SITE ADDRESS:** BLOMFELD - HODGKINS ST, ROTORUA  
**JOB NUMBER:** 190801/E

**DATE:** 21/12/2005  
**BY:** CBW/DG

**NOTE:** DEPTH OF PENETRATION BEGINS AT EXISTING GROUND LEVEL  
TABLE OF PENETRATION IN mm PER 5 BLOWS  
LINE INDICATES LEVEL OF FIRM GROUND

NUMBER OF BLOWS	SP 13			SP 14		
	RL	READING	PENETR.	RL	READING	PENETR.
RL START						
0		40			40	
5		1200	1160		330	290
10		1500	300		650	320
15		1620	120		810	160
20		1720	100		950	140
25		1900	180		1040	90
30		2000	100		1110	70
35					1160	50
40					1230	70
45					1300	70
50					1360	60
55					1450	90
60					1530	80
65					1630	100
70					1730	100
75					1820	90
80					1930 (3)	110
85						
90						
95						
100						