

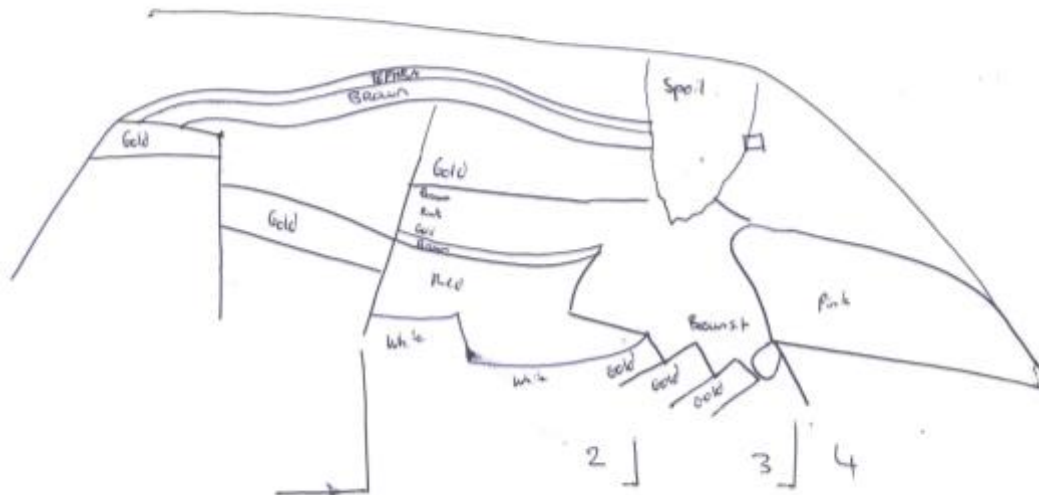
## Appendices

### Field Sketches – Kay Road Field Area

Multiple field sketches were taken detailing the NW Kay Road face. These field sketches developed as understanding of the field area improved.

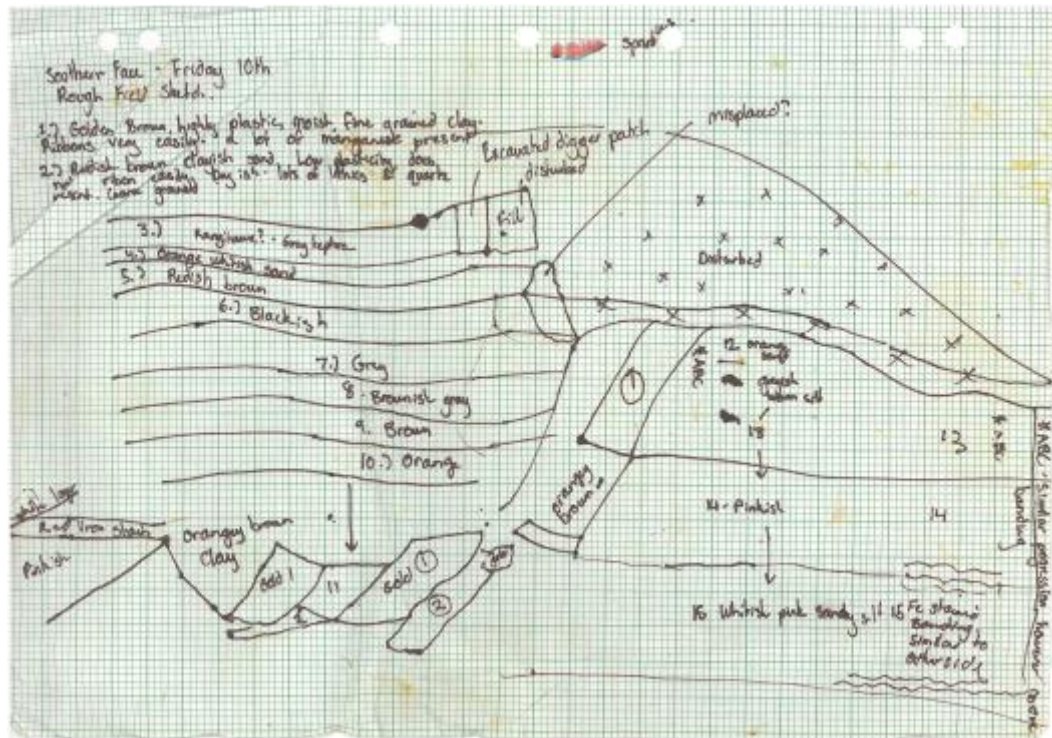
#### *NW Field Sketches – Kay Road*

Field sketches of the NW face in Kay Road are detailed below. An initial sketch of the NW face is shown below in Appendix A.



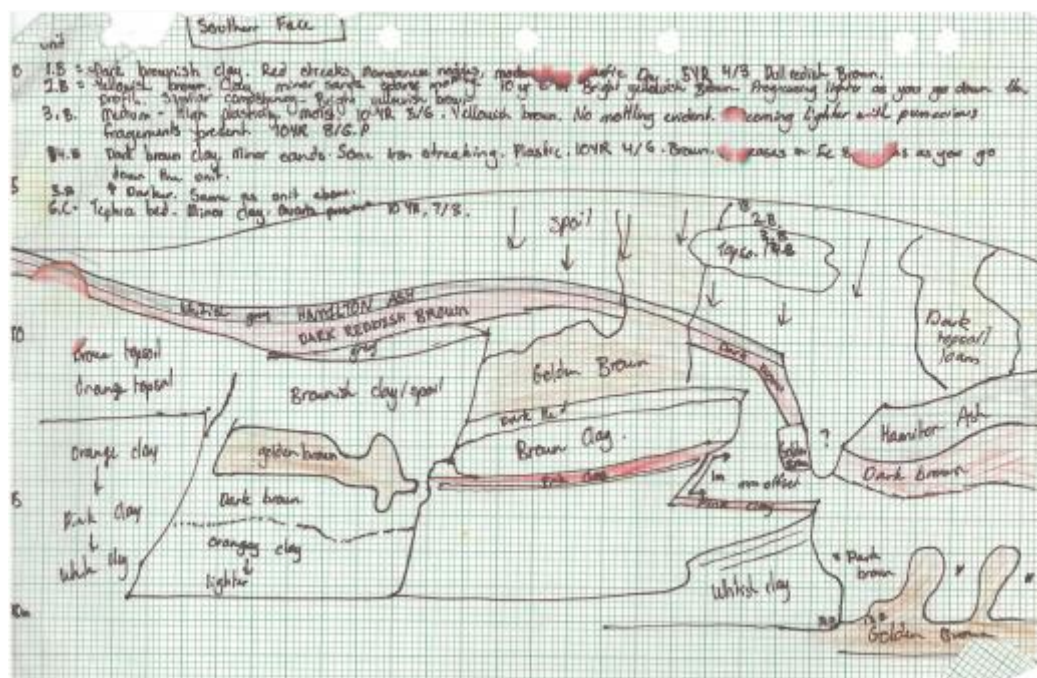
#### **Appendix A** – Preliminary sketch of the NW face.

A secondary sketch of the NW face is shown below in Appendix B. In this Figure, units are labelled 1-16, with locations of units annotated onto field sketch.



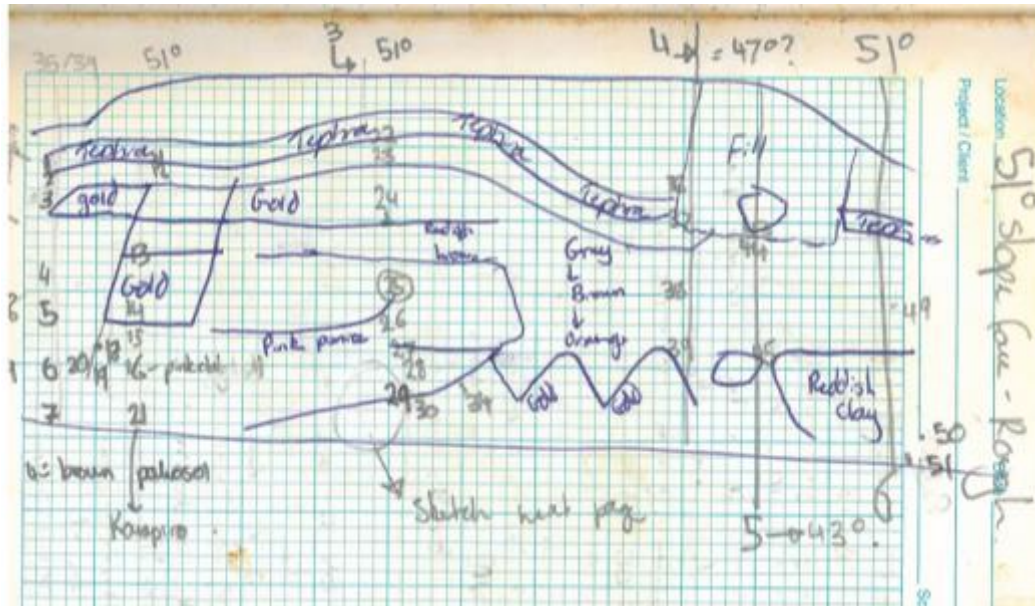
**Appendix B** – Initial sketch of beds in the North Western face. As shown in this image, soil units are named 1 through 16. Descriptions of soils follow in this section.

Appendix C below illustrates a field sketch of the NW of the Kay Road field area, better detailing unit distribution and structural information. Colours were used to better help identify distribution of geology.



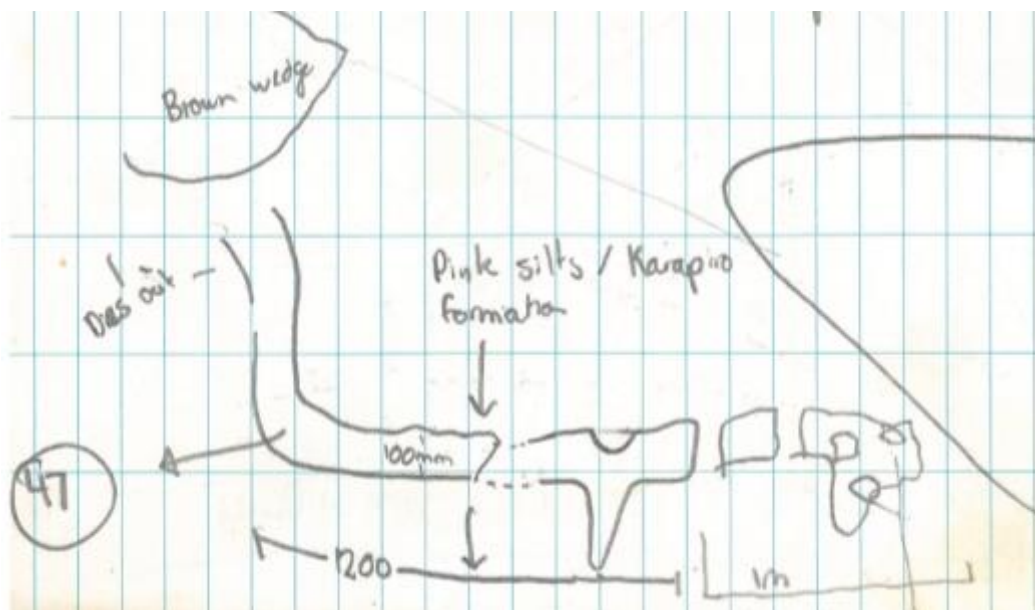
### Appendix C - Preliminary sketch of the North Western face.

A field sketch of the NW face is shown below in Appendix D. This sketch details the location of where structural information was recorded in the NW of the Kay Road field area. Shown along the top of the sketch is the angle at which each face was cut.



**Appendix D** - Sketch of the North Western face illustrating where dip and dip direction were taken.

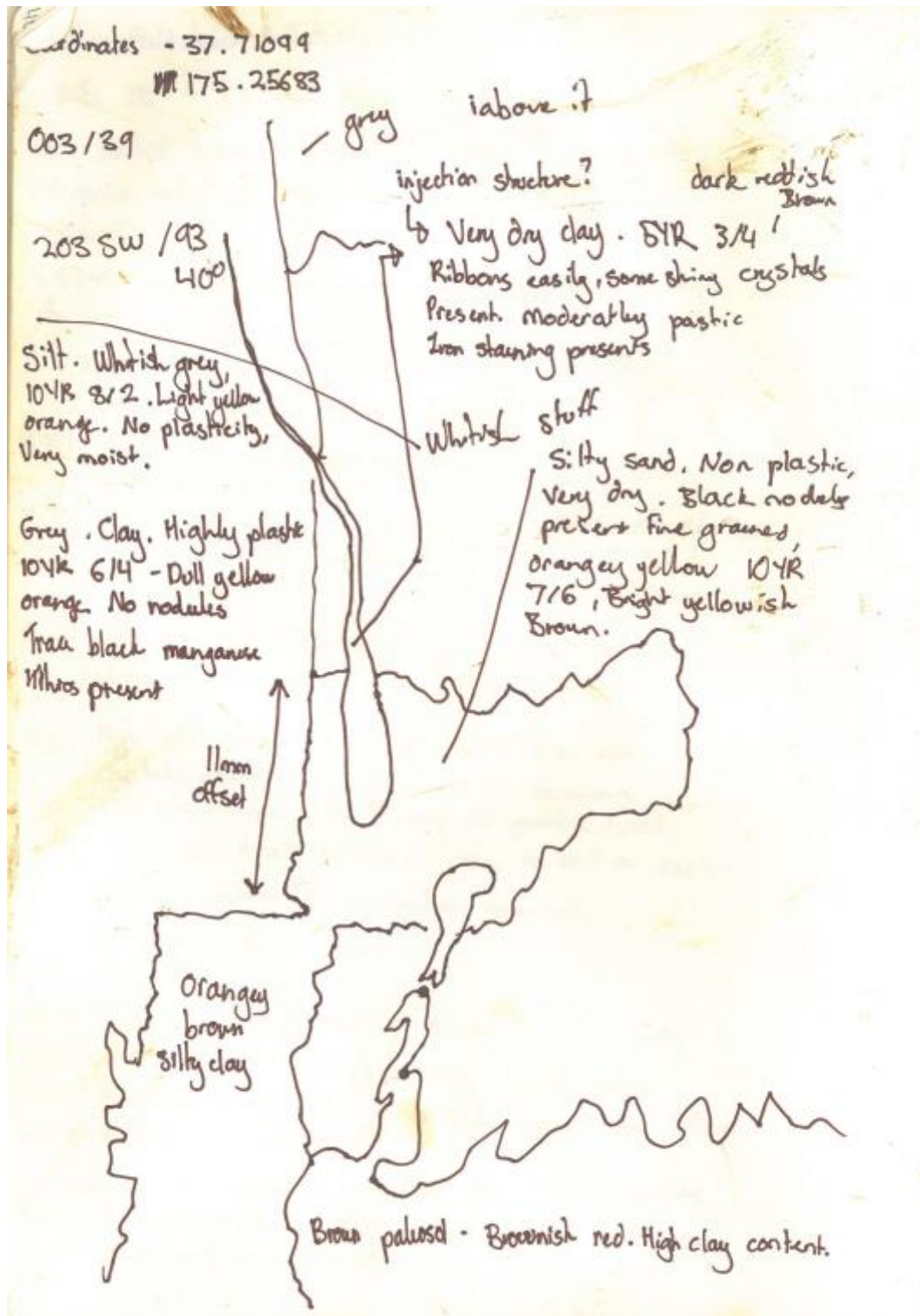
A similar image is detailed below in Appendix E, however this sketch focuses on an injection and intrusion structure found within the NW of the Kay Road field area.



**Appendix E** - Close up sketch of an injection structure in the lower units of the North Western face



A sketch detailing a secondary injection structure is detailed below in Appendix F.

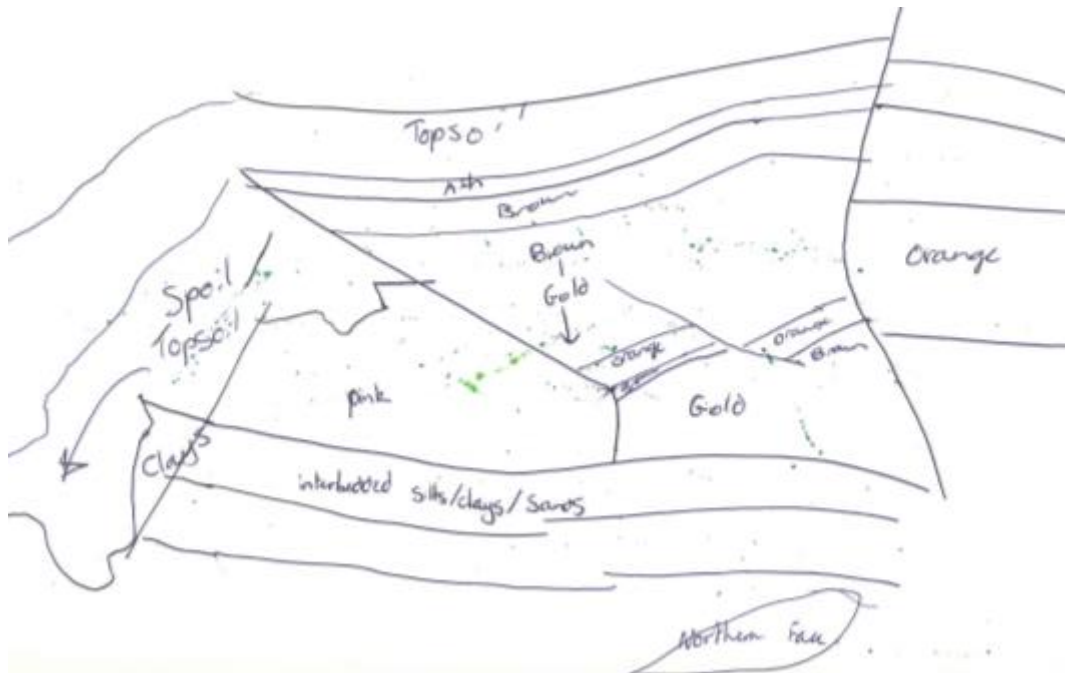


**Appendix F** - Sketch describing an injection like structure found in the south of the NW face at Kay Road.

### ***NE field sketches Kay Road***

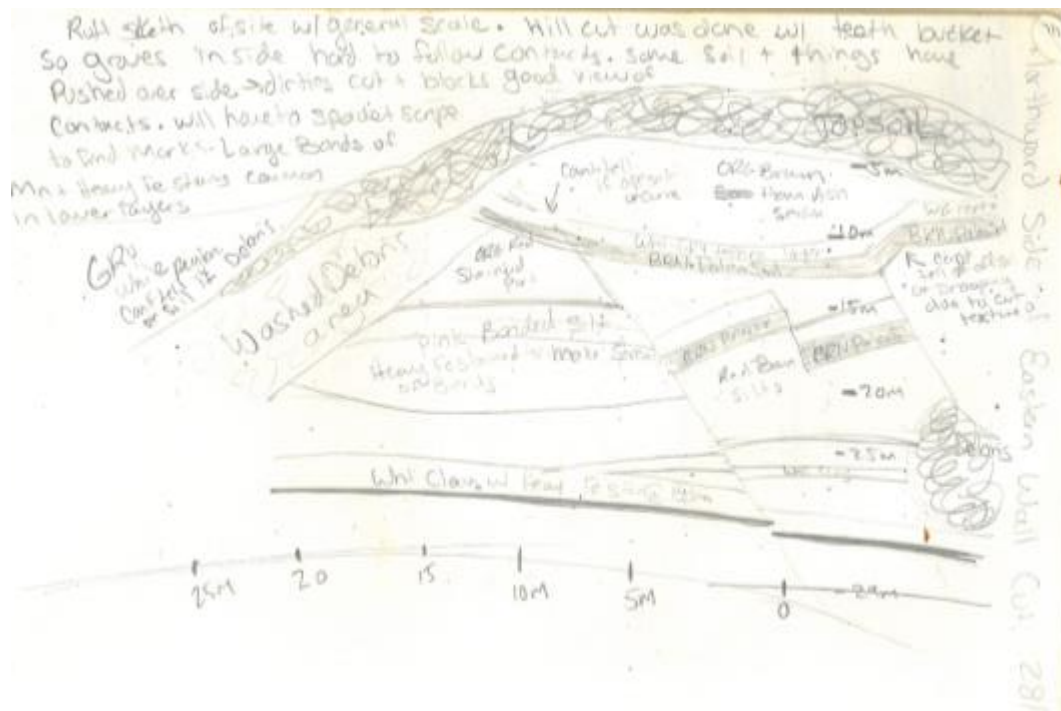
Field sketches taken in the NE of the Kay Road field area are shown below. Similar to those presented in field sketches of the NW of the Kay Road field area, these sketches were continually refined throughout the investigation at Kay Road.

Appendix G below illustrates the first sketch taken of the NE face. This sketch illustrates a generalised sketch of structural features and unit distribution.



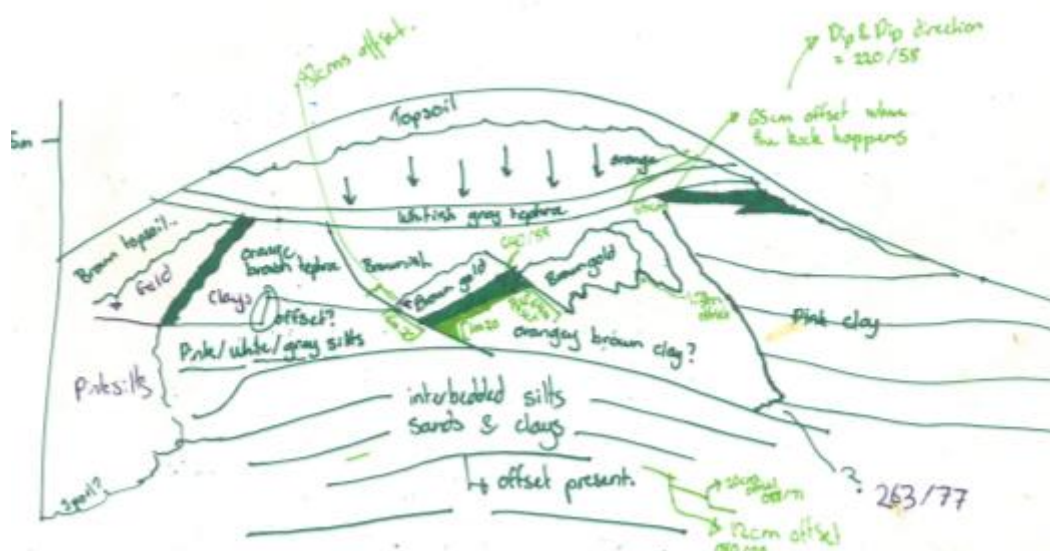
### **Appendix G - Preliminary sketch of the NE face.**

A secondary sketch was taken of the NE face. This was compiled by Francesca Spinardi, and is presented below in Appendix H.



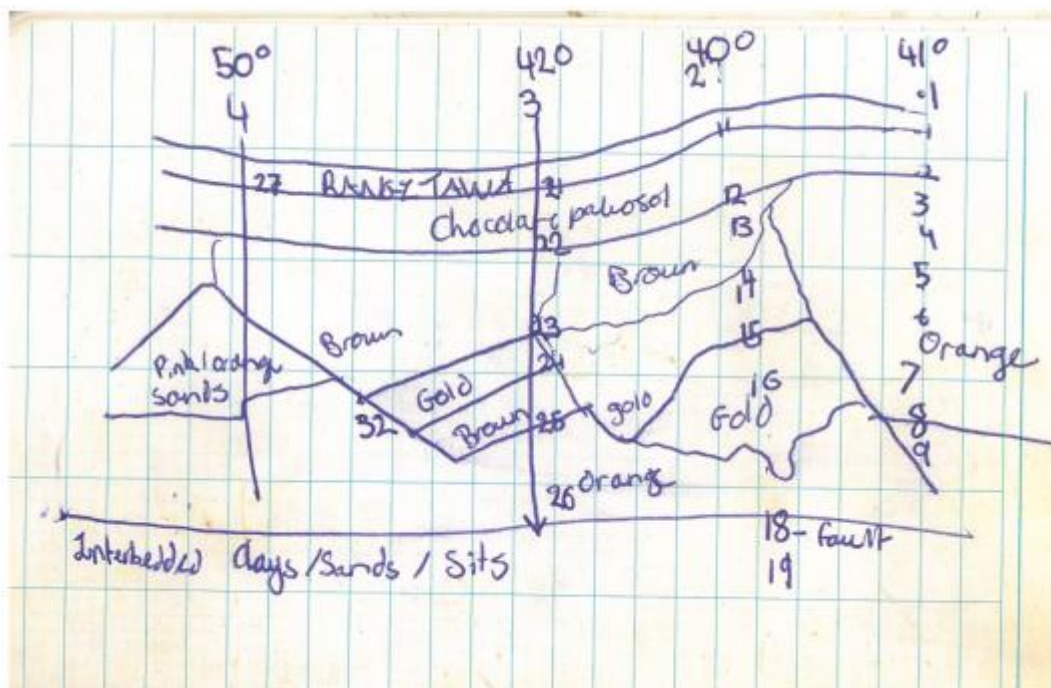
**Appendix H** - Preliminary field sketch of the NE face, courtesy of Francesca Spinardi.

Further sketches of the NE face were taken throughout the investigation at Kay Road. Appendix I illustrates another one of these sketches.



### Appendix I - Field sketch of the NE face.

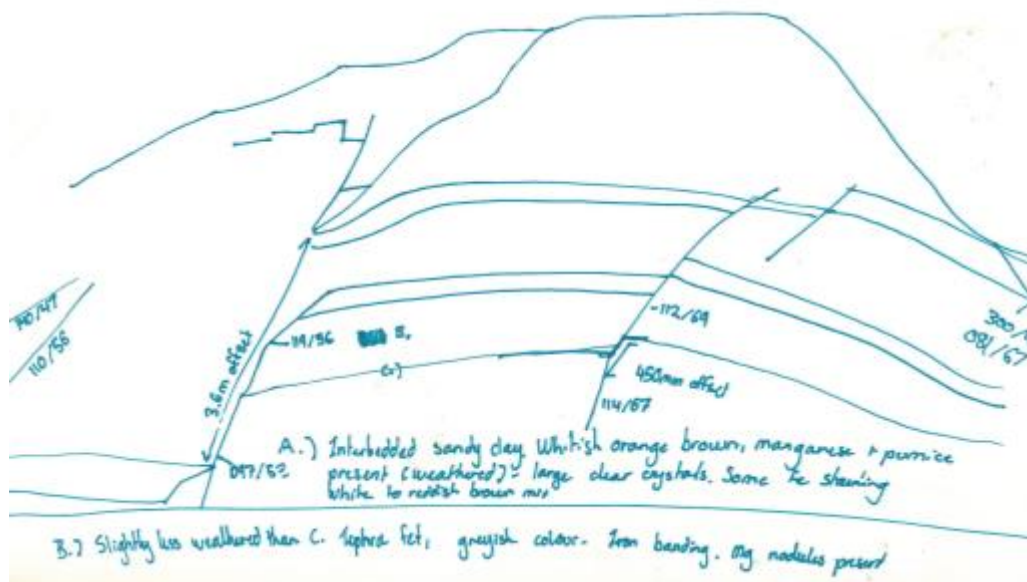
Appendix J below details the NE face, alongside the location of structural measurements obtained. Measurements of the angle at which the NE face have been cut are shown at the top of the Figure.



**Appendix J** - Sketch of the North Eastern face illustrating where dip and dip direction were recorded

#### **SW field sketches – Kay Road**

A field sketch of the SW face is detailed below in Appendix K. Offset is noted within the field sketch.

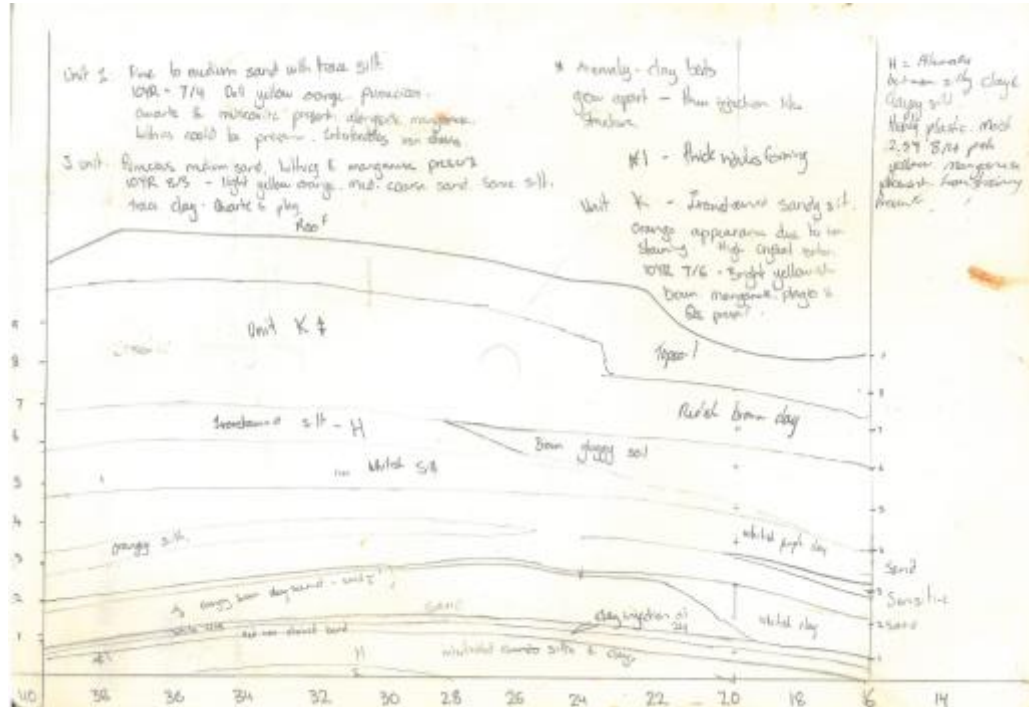


**Appendix K** - Field sketch of the South Western face.



## SE field sketches – Kay Road

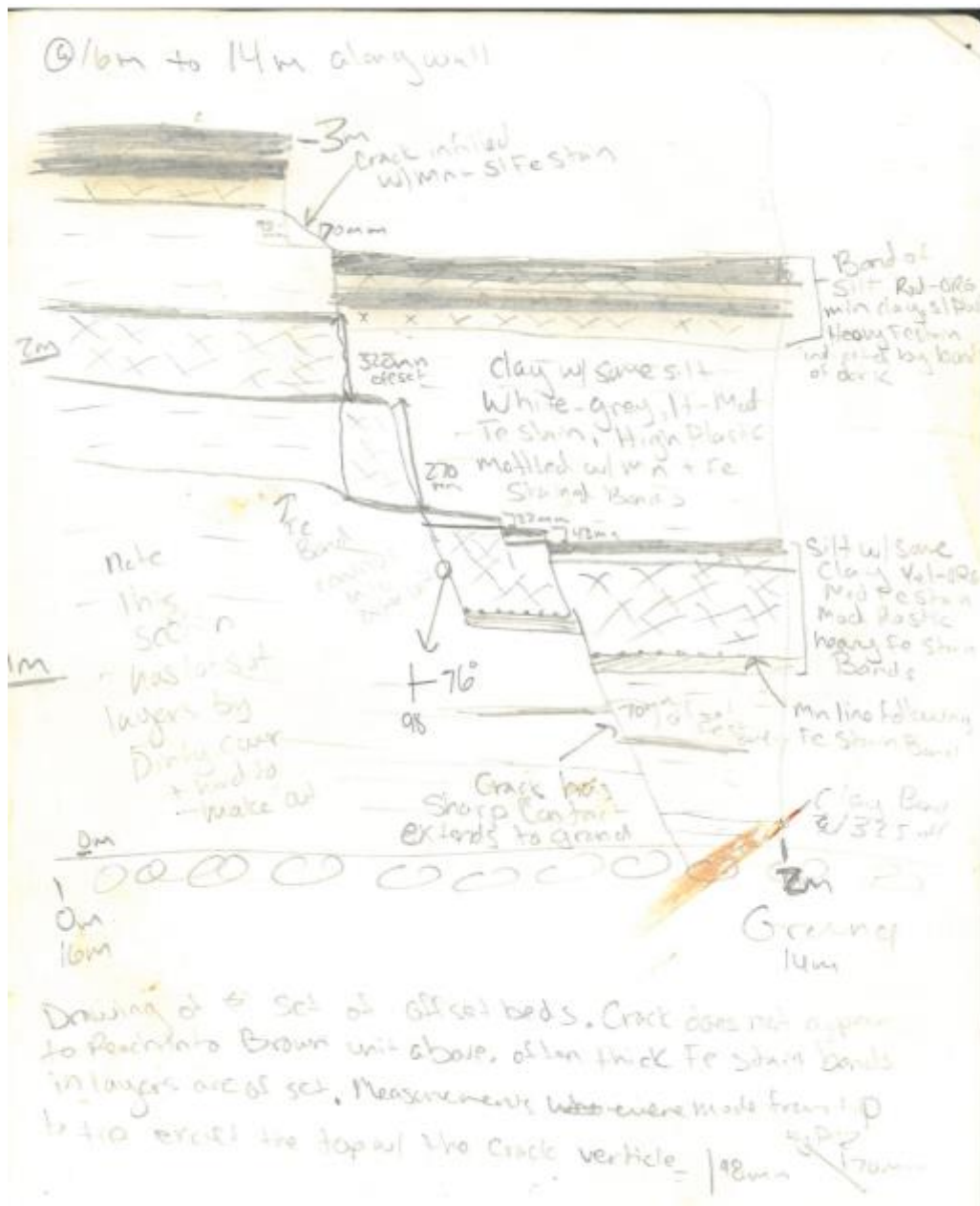
Field sketches of the SE face are detailed below. Appendix L below details the identification and distribution of various beds observed within the SE face.



## Appendix L - Initial sketch of the SE face.

A close up sketch of faulting within the SE of the field area is detailed below in Appendix M. This sketch was drawn by Francesca Spinardi.



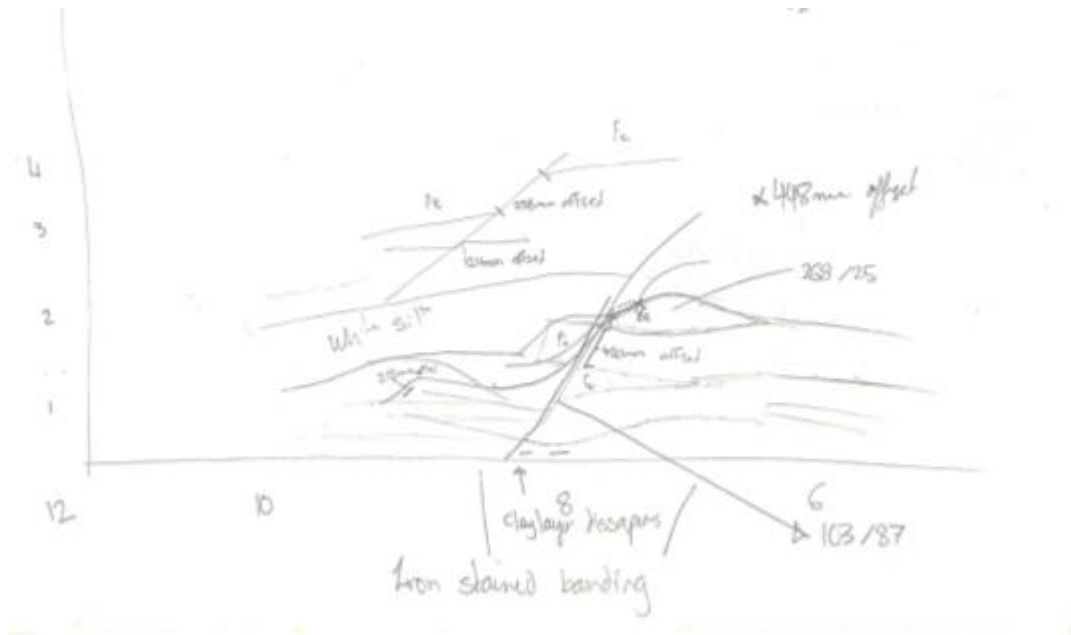


**Appendix M** - Sketch of faulting in the SE face. Sketch drawn by Francesca Spinardi.

A hand-drawn geological sketch of a rock wall, titled "Sketch @ 10m-12m Markers E wall 29/2/17". The sketch shows a cross-section of a rock face with various layers and features. Key annotations include:
 

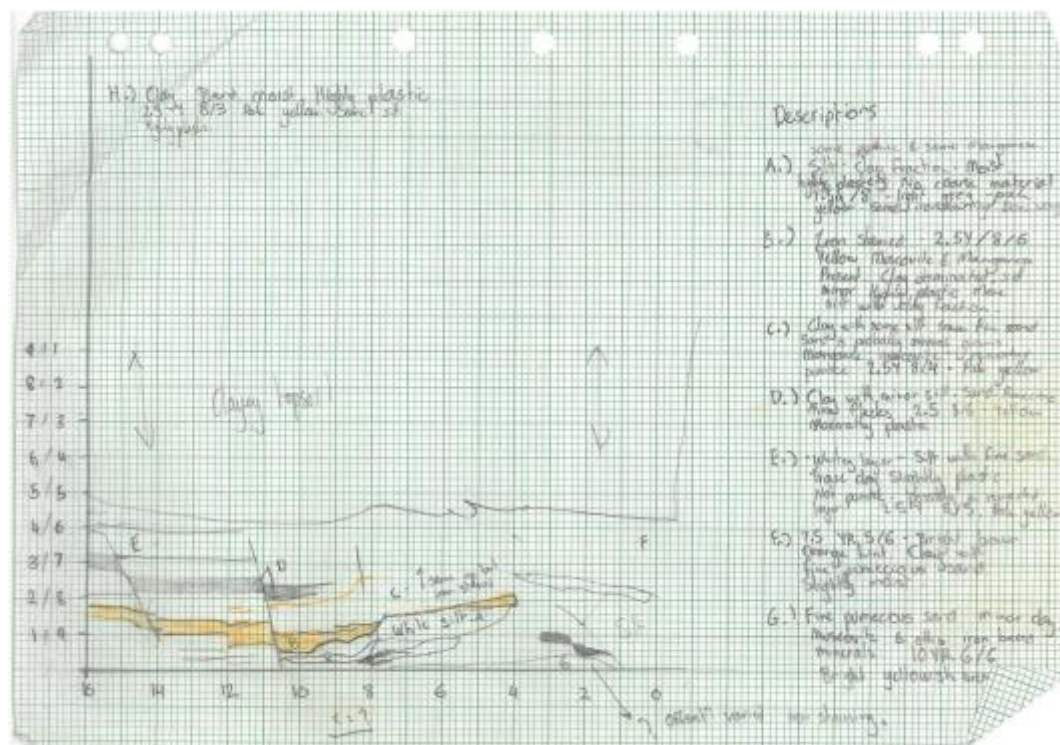
- Top Layer:** Labeled "off set Down + Forward" and "2m".
- Second Layer:** Labeled "70mm offset" and "70mm".
- Third Layer:** Labeled "70mm" and "72mm".
- Fourth Layer:** Labeled "Festina Band" and "Festina crack as well".
- Fifth Layer:** Labeled "420mm offset".
- Sixth Layer:** Labeled "12m" and "0m".
- Seventh Layer:** Labeled "Very sharp contact along offset" and "10m".
- Eighth Layer:** Labeled "Sharp contact where offset occurs" and "10m".
- Ninth Layer:** Labeled "Sinter Dip 120/83" and "160mm offset".
- Tenth Layer:** Labeled "Top layer 153" and "153".
- Other Annotations:** "wedge bands", "looking after Band top angle off", "min Band", "Dip 120/83", "10m", "12m", "0m", "160mm offset", "153", "153".

Appendix O below details a similar sketch of the SE face, which focuses on offset within the middle of the SE face.



**Appendix O** - Sketch of offset within the SE face.

Appendix Q below details structural features within the SE face, alongside unit distribution and description.



**Appendix Q** - Sketch of the SE face.

## Osborne Road Appendices

### Preliminary hand auger sampling

Soil sampling occurred in two rounds along a single transect. The first round of soil sampling used a 1.6 m Dutch auger. Field descriptions of soil logs are presented below.

Appendix Q1 describes soil sampled at hand auger 1, Osborne Road.

Project: <u>Osborne Rd - Transect opposite house</u>		Log of Boring _____	
Project Location: <u>3m - Fenceline</u>		Sheet 1 of 1	
Date(s) Drilled: <u>20/01/17</u>	Logged By: <u>Ben</u>	Checked By: _____	
Drilling Method: <u>Hand Auger</u>	Drill Bit Size/Type: <u>Hand Auger - 1.6m</u>	Total Depth of Borehole: _____	
Drill Rig Type: _____	Drilling Contractor: _____	Approximate Surface Elevation: _____	
Groundwater Level and Date Measured: _____	Sampling Method(s): _____	Hammer Data: _____	
Borehole Backfill: _____	Location: <u>Wp 242 - E2707432</u> <u>N6306163</u>		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0	0						First 10cm, friable brown top soil.	
1	1						Transition to orangey brown, friable clay. Can make small ribbon.	
2	2						Increasingly white, mottling.	
3	3						Increasingly white. Redding conditions. More clay like. Higher silt content.	
4	4						Increasingly white clay like, nodular. Friable silt.	
5	5						Whitish brown sand. Fine grained. Quartz present.	
6	6							
7	7							
8	8							
9	9							
10	10							
11	11							
12	12							
13	13							
14	14							
15	15							
16	16							
17	17							
18	18							
19	19							
20	20							
21	21							
22	22							
23	23							
24	24							
25	25							
26	26							
27	27							
28	28							
29	29							
30	30							

NB - logs start left. 1st bottom

Appendix Q1 - Log sheet of Hand Auger 1 sample, Osborne Road.



Appendix Q2 below describes soil sampled at hand auger 2, Osborne Road.

Project:		Log of Boring _____	
Project Location:		Sheet 1 of 1	
Project Number:			

Date(s) Drilled: 20/01/17	Logged By: TSW	Checked By:
Drilling Method: 1.6m Hand Auger	Drill Bit Size/Type:	Total Depth of Borehole:
Drill Rig Type:	Drilling Contractor:	Approximate Surface Elevation:
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data:
Borehole Backfill:	Location: 243 - E 2707429 N 6386163	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0	0						Topsoil - Brown, Frable.	
15	15						Transition to clay like loam. Orangy brown, Frable. Shine when clumped together in Hand Auger	
60	60						White silt / Reduced soils appearing.	
80	80						White silt. Brownish. Fine grained, Sticky, Plastic.	
100	100						Whitish gray sand? Road embankment? Artificial fill?	
120	120						Transition to white silty sand	
20							↓	
25								Similar to HAF
30								

Appendix Q2 - Log sheet of Hand Auger 2 sample, Osborne Road.

Appendix Q3 below describes soil sampled at hand auger 3, Osborne Road.

<b>Project:</b> Ben Campbell <b>Project Location:</b> Osborne Rd <b>Project Number:</b>		<b>Log of Boring _____</b> <b>Sheet 1 of 1</b>	
---	--	---	--

Date(s) Drilled: 20/01/17	Logged By:	Checked By:	
Drilling Method:	Drill Bit Size/Type:	Total Depth of Borehole:	
Drill Rig Type:	Drilling Contractor:	Approximate Surface Elevation:	
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data:	
Borehole Backfill:	Location: WP214 E 270 T429 N 6386162		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Dark top soil	
	40						Transition to orange brown loam	
	60						White ish transition to silty sandy clay.	
	10						Grayish brown sandy silt. Quartz glimmers, lenticles reduced	
	15						Friable, Apedal	
	1m 16m						Fine silt. Very fine	
	20							
	25							
	30							

**Appendix Q3** - Log sheet of Hand Auger 3 sample, Osborne Road.

Appendix Q4 describes soil sampled at hand auger 4, Osborne Road.

Project: <u>Osborne Rd</u> Project Location: <u>HA 4:</u> Project Number:		<b>Log of Boring _____</b> Sheet 1 of 1	
---	--	--	--

Date(s) Drilled: <u>20 01/17</u>	Logged By:	Checked By:
Drilling Method:	Drill Bit Size/Type:	Total Depth of Borehole:
Drill Rig Type:	Drilling Contractor:	Approximate Surface Elevation:
Groundwater Level and Date Measured:	Sampling Method(s): <u>1.6m Auger</u>	Hammer Data:
Borehole Backfill:	Location: <u>10m west of fence</u>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	Waypoint 245 E 27 07427 N 6386161	
							MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
							Topsoil - Brown, friable 40cm Brown loam. Whitish grey, soil. Silty clay, Fine grained in fingers.	

Appendix Q4 - Log sheet of Hand Auger 4 sample, Osborne Road.

Appendix Q5 below describes soil sampled at hand auger 5, Osborne Road.

<b>Project:</b> <b>Project Location:</b> <b>Project Number:</b> HA 5:		<b>Log of Boring _____</b> <b>Sheet 1 of 1</b>	
---	--	---	--

Date(s) Drilled	Logged By <i>Ben</i>	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Date
Borehole Backfill	Location <i>15m West Osborne Rd:</i>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	<i>E 2707421 N 6386164</i> <i>Waypoint 246:</i>	
							MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						<div style="font-size: 2em; margin-bottom: 10px;">100</div> <div style="font-size: 1.5em;">Rocky to dig - lots of little stones</div>	
	5							
	10							
	15							
	20							
	25							
	30							

Appendix Q5 - Log sheet of Hand Auger 5 sample, Osborne Road.



Appendix Q6 below describes soil sampled at hand auger 6, Osborne Road.

<b>Project:</b> HAG <b>Project Location:</b> <b>Project Number:</b>		<b>Log of Boring _____</b> <b>Sheet 1 of 1</b>	
<b>Date(s) Drilled:</b> 20/01/17		<b>Logged By:</b>	
<b>Drilling Method:</b>		<b>Drill Bit Size/Type:</b>	
<b>Drill Rig Type:</b>		<b>Drilling Contractor:</b>	
<b>Groundwater Level and Date Measured:</b>		<b>Sampling Method(s):</b>	
<b>Borehole Backfill:</b>		<b>Location:</b> WP 247 E2707418	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Brown topsoil	
	10cm						Transition to Brown loam	
	15cm							
	5							
	90cm						Progressing into silty clay.	
	10							
	15							
	20						Grayish white silty clay. Very Reducible	
	25							
	30							

N6336160

Brown

Whitish gray

Appendix Q6 - Log sheet of Hand Auger 6 sample, Osborne Road.

Appendix Q7 below describes soil sampled at hand auger 7, Osborne Road.

Project: <b>HA7</b>		Log of Boring _____	
Project Location:		Sheet 1 of 1	
Project Number: <b>20/01/07 25m West Osborne Rd</b>			

Date(s) Drilled	Logged By: <b>Bm</b>	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor: <b>1.6m Auger</b>	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill	Location: <b>25m West Osborne Rd Wp248</b>	

Elevation (feet)

Depth (feet)

Sample Type

Sample Number

Sampling Resistance, blow/ft

USCS Symbol

Graphic Log

E 2707412  
N 6386164

MATERIAL DESCRIPTION

Top soil: Apeled, friable brown top soil

40cm

Sample 2

Brownish friable orangey clayish like loam. Sample 2

80cm

Sample 3

Whitish gray → sandy silt. Friable. Quartz found in there. Super friable.

1m

1.2m

Whitish silt. Ribbons a little bit.

orange mottling beginning. Reduced conditions, Shiny bands in auger.

S4::

REMARKS AND OTHER TESTS

Appendix Q7 - Log sheet of Hand Auger 7 sample, Osborne Road.

Appendix Q8 below describes soil sampled at hand auger 8, Osborne Road.

Project: 12:53 HA8		Log of Boring _____	
Project Location:		Sheet 1 of 1	
Project Number: Waypoint 249 E 2767412		30m west Osborne Road	

Date(s) Drilled	Logged By: N6386163	Checked By:
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor Elevation 29m ASL	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill	Location	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Transition from friable loess into whitish gray	
	30m							
	5							
	80m						Whitish gray silty clay loam. Quite porous.	
	10							
	1m						Whitish gray massive? clay loam. Fine grained, clumpy.	
	15							
	20							
	25							
	30							

Appendix Q8 - Log sheet of Hand Auger 8 sample, Osborne Road.

Appendix Q9 below describes soil sampled at hand auger 9, Osborne Road.

<b>Project:</b> HA9 <b>Project Location:</b> <b>Project Number:</b>		<b>Log of Boring _____</b> <b>Sheet 1 of 1</b>	
---	--	---	--

Date(s) Drilled	Logged By	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill		Location Wp 250 E 2767395

W 6386167  
23m ASL

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER THINGS
	0						Top soil	
	5						Orange brown, very friable, apedal silt. Gritty in fingers. Feels gritty.	sharp contrast: Apparent change
	10						Grayish white, massive reduced clay. Clumpy. Very fine.	
	15							
	20							
	25							
	30							

Appendix Q9 - Log sheet of Hand Auger 9 sample, Osborne Road.



Appendix Q10 **Error! Reference source not found.** below describes soil sampled at hand auger 19, Osborne Road.

<b>Project:</b> HA 10: <b>Project Location:</b> 40m West Osborne Rd <b>Project Number:</b>		<b>Log of Boring</b> _____ Sheet 1 of 1	
Date(s) Drilled: 30M ASL	Logged By:	Checked By:	
Drilling Method:	Drill Bit Size/Type:	Total Depth of Borehole:	
Drill Rig Type:	Drilling Contractor:	Approximate Surface Elevation:	
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Date:	
Borehole Backfill:	Location WP 251 E 2707394 N 6386 88		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Top soil	
	5						Orangey brown Fine grained siltish loam	
	10						transitions into progressively greyer clay like loam.	
	15						Massive, sticky, plastic. <del>For</del> roll into Almost ribbons. Comes out of <del>auger</del> <sup>auger</sup> as massive loams.	
	20						1.2m - mottling begins	
	25							
	30							

**Appendix Q10** - Log sheet of Hand Auger 10 sample, Osborne Road.

Appendix Q11 below describes soil sampled at hand auger 11, Osborne Road.

Project: <span style="font-size: 1.2em;">HALL</span>		<b>Log of Boring</b> _____ Sheet 1 of 1	
Project Location: <span style="font-size: 1.2em;">45m from Osborne Rd</span>			
Project Number: _____			

Date(s) Drilled	Logged By	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill		Location <span style="font-size: 1.2em;">WP252 E2707390 N6386168</span>

	Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
		0						Top soil	
		15						Orange sandy like loam. Slightly sticky, slightly plastic	
		70						Transitions into white, plastic silt. Can make small ribbons	
		85						Same but mottling & more redness	

**Appendix Q11** - Log sheet of Hand Auger 11 sample, Osborne Road.

Appendix Q12 below describes soil sampled at hand auger 12, Osborne Road.

<b>Project:</b> <b>Project Location:</b> 50m West Osborne Rd <b>Project Number:</b>		<b>Log of Boring</b> _____ <b>Sheet 1 of 1</b>	
---	--	---	--

Date(s) Drilled	Logged By	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill	Location	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						<p style="text-align: center;">↓ Top soil. Dark brown</p> <p>Immediately into reducing conditions (Gleyed, mottled) Coarse silty loam. Can make ribbons; short &amp; not grs though.</p> <p>Transitioning downward to progressively finer clays. Sticky, plastic. Smeary. Fin. little black Nodules present.</p>	
	20m							
	1.8m							
	5							
	10							
	15							
	20							
	25							
	30							

**Appendix Q12** - Log sheet of Hand Auger 12 sample, Osborne Road.

Appendix Q13 below describes soil sampled at hand auger 13, Osborne Road.

Project: <u>HA 13</u>		Log of Boring _____	
Project Location: <u>55m West of Osborne</u>		Sheet 1 of 1	
Project Number: _____		Location <u>WP253 E 2707375</u>	

Date(s) Drilled	Logged By	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill	Location <u>WP253 E 2707375</u>	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						Top Soil	
	5						<u>20cm</u> → Gley, silty somewhat clayey. ↓ Friable, forms ribbons.	
	10							
	15						<u>20cm</u> → <u>BRIGHT</u> orange mottles. Stark differences to previous	
	20							
	25							
	30							

Appendix Q13 - Log sheet of Hand Auger 13 sample, Osborne Road.



Appendix Q14 below describes soil sampled at hand auger 14, Osborne Road.

<b>Project:</b> 60m east of Road. <b>Project Location:</b> <b>Project Number:</b>		<b>Log of Boring _____</b> <b>Sheet 1 of 1</b>	
---	--	---	--

Date(s) Drilled	Logged By	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill		Location WP 254

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	N 6386173 E 2907377 8'	
							MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						10cm top soil  ↳ Same as previous log. Silty white greyish white Clay sticky plastic loam.	
	5							
	10							
	15							
	20							
	25							
	30							

**Appendix Q15 - Log sheet of Hand Auger 14 sample, Osborne Road.**

<b>Project:</b> HA 15 <b>Project Location:</b> <b>Project Number:</b>		<b>Log of Boring _____</b> <b>Sheet 1 of 1</b>	
Date(s) Drilled	Logged By	Checked By	
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole	
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation	
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data	
Borehole Backfill	Location		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						31m Asl Wp 255 E 270736 N 6386177	
	5						↓ Top soil 40cm soil	
	10						- whitish grey loam. Plasticity silt.	
	15							
	20							
	25							
	30							

**Appendix Q15 - Log sheet of Hand Auger 15 sample, Osborne Road.**

***Secondary soil sampling- Osborne Road***

A second round of soil sampling took place on the same transect as the first round. These soil logs were deeper however, and were labelled hand auger sample A, B and C. These field soil description logs are attached below.

Appendix Q below details soil sampled at hand auger A, Osborne Road.

Tuesday 21st.      Wklypt. 258

Project: <b>Hand Auger A</b>		Log of Boring _____	
Project Location: _____		Sheet 1 of 1	
Project Number: <b>37°42'18"S      175°14'13"</b>			

Date(s) Drilled	Logged By	Checked By
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s)	Hammer Data
Borehole Backfill	Location	

Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0						topsoil	
5						Orange grey - silt. minor clay moist. slightly plastic	
10						Sand transition trace amount of clay - whitish yellow (fine sand) silt dominantly silt	@ 6.80
15						Clay varies btw trace to moderate	1.2m
20						Color change whitish grey slightly darker sandy silt v. trace clay	@ 1.32m @ 1.52m
25						Whit-grey Silt + trace clay + f. sand wet. St. Plast.	
30						f sand wht-grey trace silt. moist becoming med. coarse sand, pumice, qtz clasts + dark Fe minerals moist same color as above	lithic piece found but could have fallen in @ 1.71m
35						Coarse sandy grey-whit moist pumice, qtz, minor clasts + dark Fe based min. Similar to above but lighter	@ 2m
40						Same as above but lithic now present	@ 2.33
45						same but pumice more prominent	@ 2.50
50						Same but less pumice more quartz	@ 2.85

Cont. on back ↓

@ 3.5 Coarse Sand  
Med Silt + wht-grey, pumice, qtz, + Fe min clast  
wet.

@ 3.62 - Saturated + hole is collapsing

Appendix Q - Log sheet of hand auger A sample, Osborne Road.

Appendix R below details soil sampled at hand auger B, Osborne Road.

To 21<sup>st</sup> Feb

Project: <u>Hand Auger B</u>		Log of Boring _____	
Project Location:		Sheet 1 of 1	
Project Number: <u>37042 19'S 175° 14' 11"E</u>			

Date(s) Drilled: <u>WP259</u>	Logged By:	Checked By:
Drilling Method:	Drill Bit Size/Type:	Total Depth of Borehole:
Drill Rig Type:	Drilling Contractor:	Approximate Surface Elevation:
Groundwater Level and Date Measured:	Sampling Method(s):	Hammer Data:
Borehole Backfill:	Location:	

Water table = 2.8m

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						<u>Topsoil</u>	
	5						<u>ORG <sup>fine</sup> Clay - Silty (loam) moist</u> <u>mod plastic.</u>	<u>@280</u>
	10						<u>Silt minor clay st plastic</u> <u>Moist (well packed hard</u> <u>to Auger) mottled wht - yell</u> <u>mottled w/ orange sil fest.</u>	<u>@460</u>
	15						<u>Silt + some clay + silty plas'</u> <u>Wht gettng grey High</u> <u>moist</u>	<u>@800mm</u>
	20						<u>Silt + clay mixture. Rocks</u> <u>of silt w/ trace clay - aer</u> <u>all soil is silty clayey - silt</u> <u>st highly plastic, wet +</u> <u>dilatant wht - gry</u>	<u>G.I. 22</u>
	25						<u>f-sand. Moist + some silt</u> <u>Wht - gry - mottled ORG Brown</u>	<u>@1.89</u>
	30						<u>Silty sand minor clay</u> <u>wet. <del>st</del> wht - grey</u> <u>dilatant + fine f. sand</u> <u>so wet that when you shake</u> <u>it it is almost gelatinous</u> <u>H-mod plastic</u>	<u>@2.0</u>

↓

@ 2.9 Coarse Sand, some silt. Saturated  
Dilatant Gry-wht. Qtz, pumic + Fe minerals  
hole collapse @ 3.37 Due to gw

Appendix R - Log sheet of hand auger B sample, Osborne Road



Appendix S below describes soil sampled at hand auger C, Osborne Road.

Project: <u>Hand Auger C</u> Project Location: Project Number:		<b>Log of Boring</b> _____ Sheet 1 of 1	
Date(s) Drilled	Logged By	Checked By	
Drilling Method	Drill Bit Size/Type	Total Depth of Borehole	
Drill Rig Type	Drilling Contractor	Approximate Surface Elevation	
Groundwater Level and Date Measured	Sampling Method(s) <u>37°42'19S</u>	Hammer Data <u>175°14'10E</u>	
Borehole Backfill	Location <u>Waypoint 260</u>		

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blow/ft	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0						<u>TS</u> Yellow wht silt w/ minor clay mottled ORG. Yell	<u>240</u>
	5						<u>2</u> Sand w/ Mn. Present Clay content <sup>Banding</sup> <sub>increases w/ depth</sub>	<u>@400</u>
	10						<u>3</u> clay-silt. mottled w/ ORG. silt few to little present H Plast. wht-gry moist	<u>@1.0m</u>
	15						<u>4</u> Silty clay wht-gry Silt. Fest. <del>med</del> moist H Plastic nodular clay	<u>1.28m</u>
	20						<u>5</u> fsand trace silt. moist wht-gry	<u>1.4m</u>
	25						<u>6</u> M-f Sand wht-gry moist. Qtz, pumice clasts + Fe minerals. <del>st</del> Fest. large pumice <del>med</del> clasts sand = 5mm <del>med</del>	<u>1.5m</u> <u>1.63</u>
	30						<u>7</u> M-c Sand w/ lots of Qtz & Fe pumice wet. Large dark lithics w/ dark minerals present F. Qtz & grains = 2.5mm	

Note collapse @ 1.94m  
 ↓ becoming saturated 1.8m

Appendix S - Log sheet of hand auger C sample, Osborne Road.