Appendix 1

Core log descriptions.

Core Log - Omokoroa

Core: 1.2

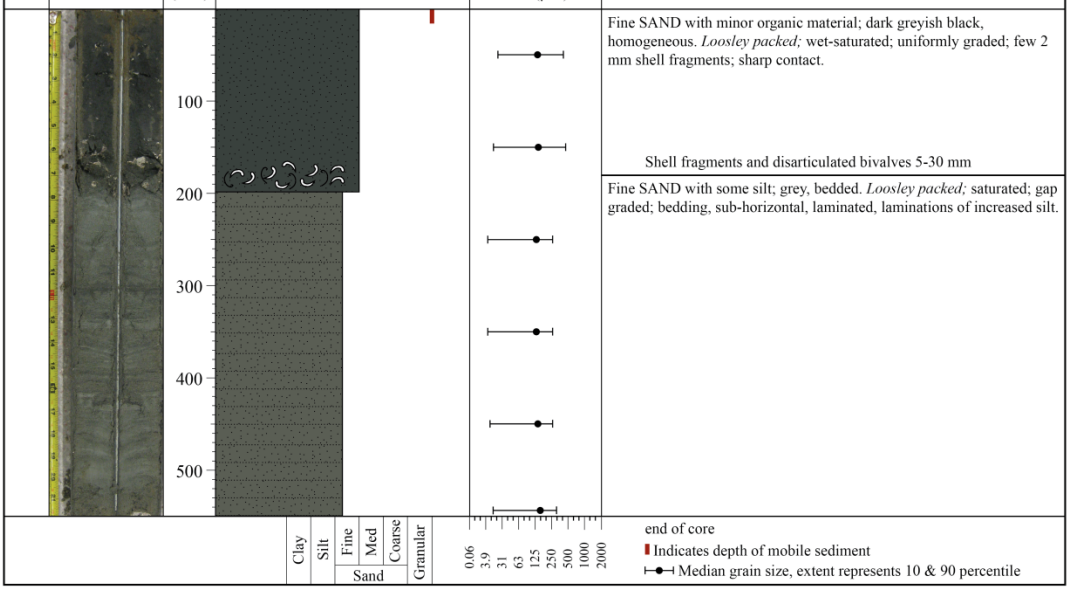
Date: 27/12/2014

Depth (mm): 550

Co-ordinates: E1868974 N5830275

Method: Ogeechee Sampler

Grid: NZTM



Core Log - Omokoroa

Core: 1.3

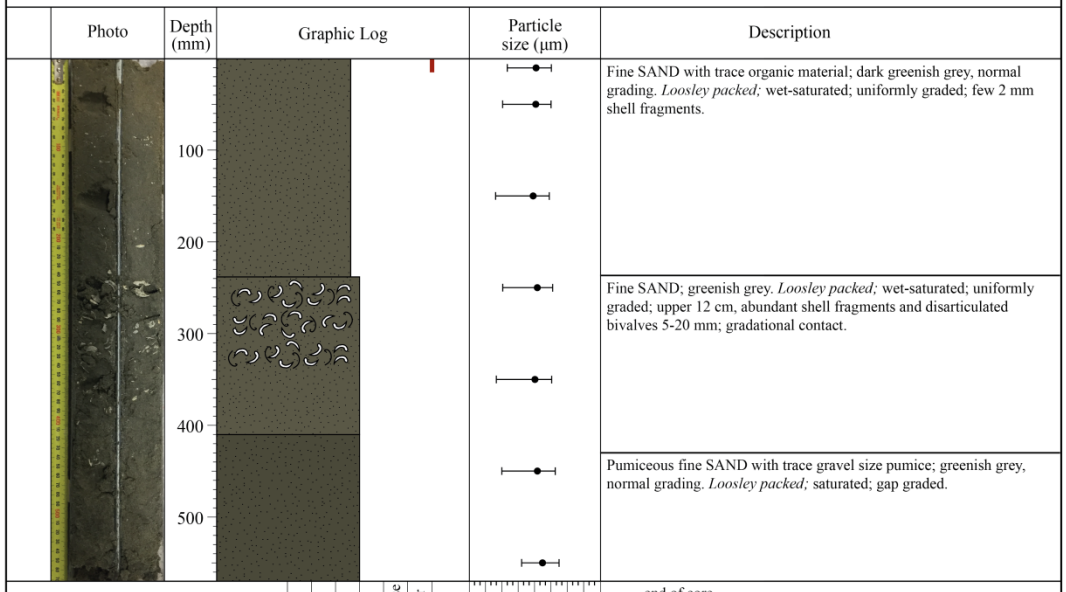
Date: 27/12/2014

Depth (mm): 570

Co-ordinates: E1869034 N5830249

Method: Ogeechee Sampler

Grid: NZTM



Core Log - Omokoroa

Core: 2.2

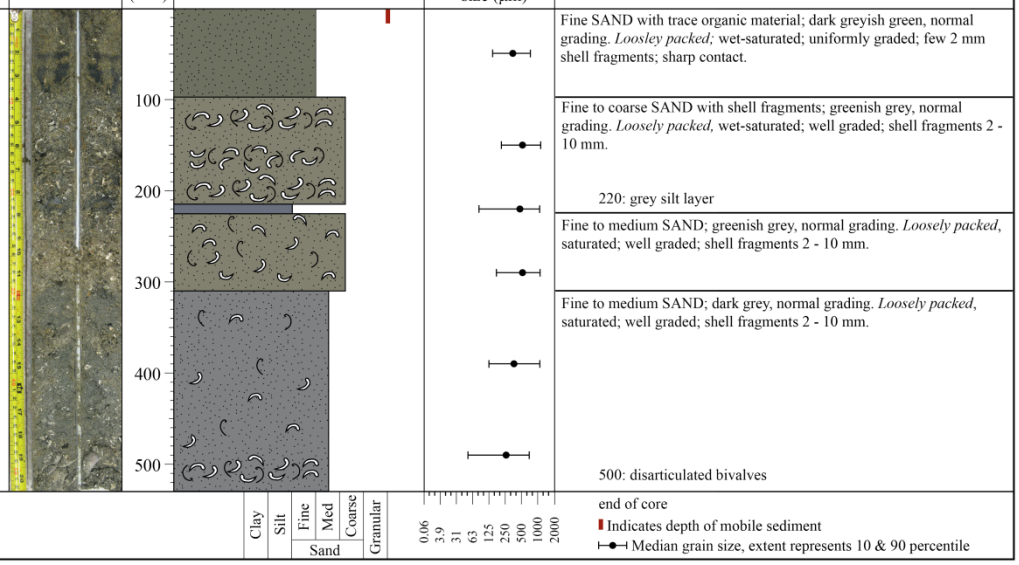
Depth (mm): 530

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869366 N5830493

Grid: NZTM



Core Log - Omokoroa

Core: 2.3

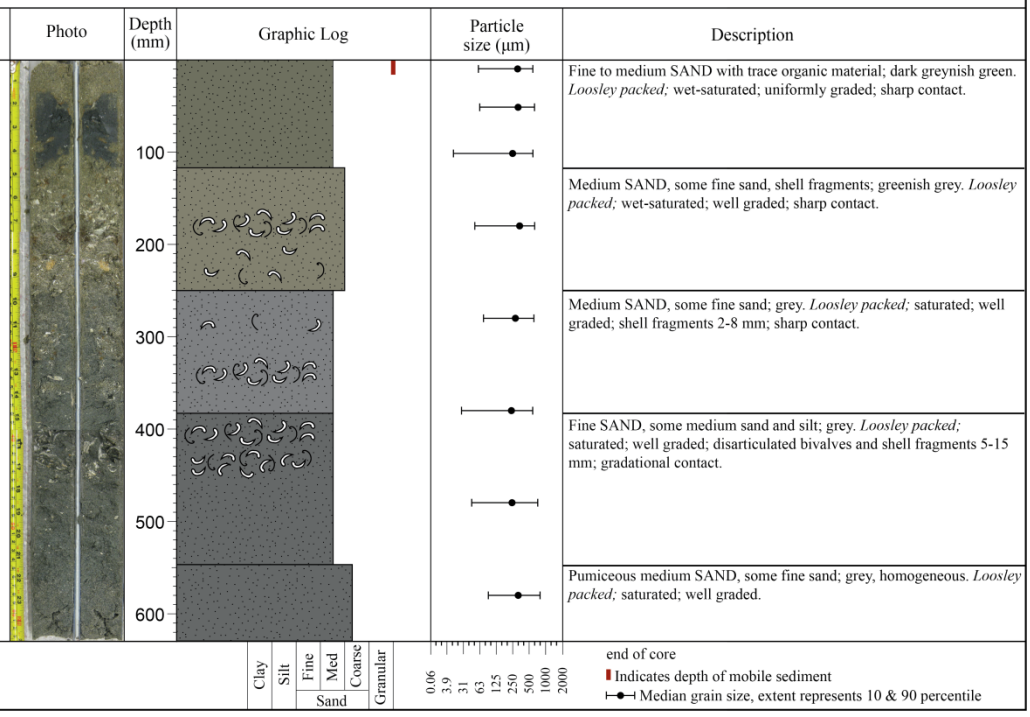
Depth (mm): 630

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869369 N5830441

Grid: NZTM



Core Log- Omokoroa

Core: 3.1

Depth (mm): 1046

Elevation (MSL): 0.834

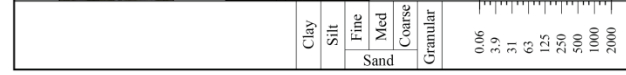
Date: 27/12/2014

Method: Ogeechee Sampler

Co-ordinates: E1869405 N5830581

Grid: NZTM

Depth (mm)	Description
0–570	Medium to coarse SAND; brownish orange. *Loosley packed;* moist; well graded; few shell fragments; sharp contact.
570–1170	Fine to coarse SAND; light grey, bedded. *Loosely packed*, wet-saturated; well graded; bedded, sub-horizontal, thin; shell fragments; scattered organic matter; gradational contact.
1170–1400	Pumiceous fine SAND; grey, homogeneous. *Loosely packed*, saturated; uniformly graded; silt stringer.



end of core

Indicates depth of mobile sediment

Median grain size, extent represents 10 & 90 percentile

Core Log - Omokoroa

Core: 3.2

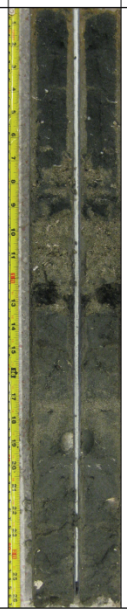
Depth (mm): 660

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869437 N5830581

Grid: NZTM



Depth (mm)	Particle size (µm)	Description
100		Fine SAND with minor organic material; dark greyish black, normal grading. *Loosley packed;* wet-saturated; uniformly graded; few 3-8 mm shell fragments; sharp contact.
200		Medium SAND with minor fine sand; light greenish grey, normally graded. *Loosley packed;* saturated; well graded; 3-8 mm shell fragments; sharp contact.
300		Organic material, bark
		Silty fine SAND; grey. *Loosley packed;* saturated; well graded; 1-5 mm shell fragments; sharp contact.
400		Fine SAND with trace medium sand; light greenish grey, inversly graded. *Loosley packed;* saturated; well graded; few pieces of organic material; disarticulated bivalve at base.
500		Silty fine SAND; grey. *Loosley packed;* saturated; well graded; 1-5 mm shell fragments.
600		Fine SAND; dark grey, normal grading. *Loosley packed;* wet-saturated; uniformly graded; few 3-8 mm shell fragments, few pieces of organic material, twig.

Clay | Silt | Fine | Med | Coarse Sand | Granular

0.06 3.9 31 63 125 250 500 1000 2000

end of core

Indicates depth of mobile sediment

Median grain size, extent represents 10 & 90 percentile

Core Log - Omokoroa

Core: 3.3

Depth (mm): 590

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869486 N5830582

Grid: NZTM

Depth (mm)	Particle size (µm)	Description
100		Fine SAND with trace organic material; dark greyish black, normal grading. *Loosely packed*, saturated; uniformly graded.
200		210-230: Disarticulated bivalves 5-20 mm
300		Fine to medium SAND; light greenish grey. *Loosely packed,* saturated; well graded; few 2-5 mm shell fragment.
		Silty fine SAND; grey, bedded. *Loosley packed;* saturated; well graded; bedding, sub-horizontal, laminated, increased silt; few 1 mm shell fragments; sharp contact.
400		
500		Fine to medium SAND; light greenish grey. *Loosely packed,* saturated; well graded; few 2-5 mm shell fragment.
		Silty fine SAND; grey. *Loosley packed;* saturated; well graded.

Clay | Silt | Fine | Med | Coarse Sand | Granular

0.06 3.9 31 63 125 250 500 1000 2000

end of core

Indicates depth of mobile sediment

Median grain size, extent represents 10 & 90 percentile

Core Log - Omokoroa

Core: 4.2

Depth (mm): 610

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869427 N5830890

Grid: NZTM

Depth (mm)	Particle size (µm)	Description
100		Fine SAND with trace organic material; dark greyish black, normal grading. *Loosley packed;* wet-saturated; uniformly graded; few 2 mm shell fragments; sharp contact.
200		
300		SILT; with trace fine sand; grey, normally graded. *Loosley packed,* wet-saturated; uniformly graded; moderately plastic; slightly dilatant; gradational contact over 2 cm.
400		
500		Fine SAND with trace silt and minor shell fragment; grey, normal grading. *Loosley packed;* wet-saturated; well graded.
600		

Clay | Silt | Fine | Med | Coarse | Sand | Granular

0.06 3.9 31 63 125 250 500 1000 2000

end of core

Indicates depth of mobile sediment

Median grain size, extent represents 10 & 90 percentile

Core Log - Omokoroa

Core: 4.3

Depth (mm): 520

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869478 N5830889

Grid: NZTM

Depth (mm)	Particle size (µm)	Description
100		Fine SAND with minor organic material; dark greenish grey, normal grading. *Loosley packed;* wet-saturated; uniformly graded; sharp contact.
200		
300		Medium to coarse SAND with shell fragments and disarticulated bivalves; grey. *Loosley packed;* wet-saturated; gap graded. Organic matter at boundary: firm.
400		
500		

Clay | Silt | Fine | Med | Coarse | Sand | Granular

0.06 3.9 31 63 125 250 500 1000 2000

end of core

Indicates depth of mobile sediment

Median grain size, extent represents 10 & 90 percentile

Core Log - Omokoroa

Core: 5.1

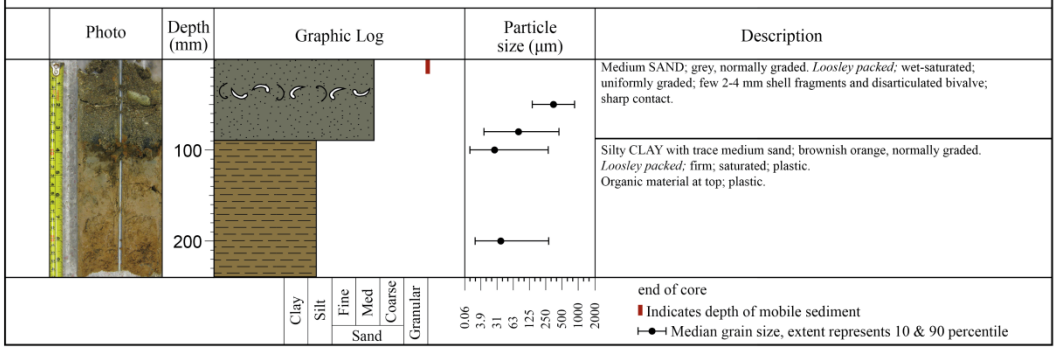
Depth (mm): 240

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1868933 N5831075

Grid: NZTM



Core Log - Omokoroa

Core: 5.2

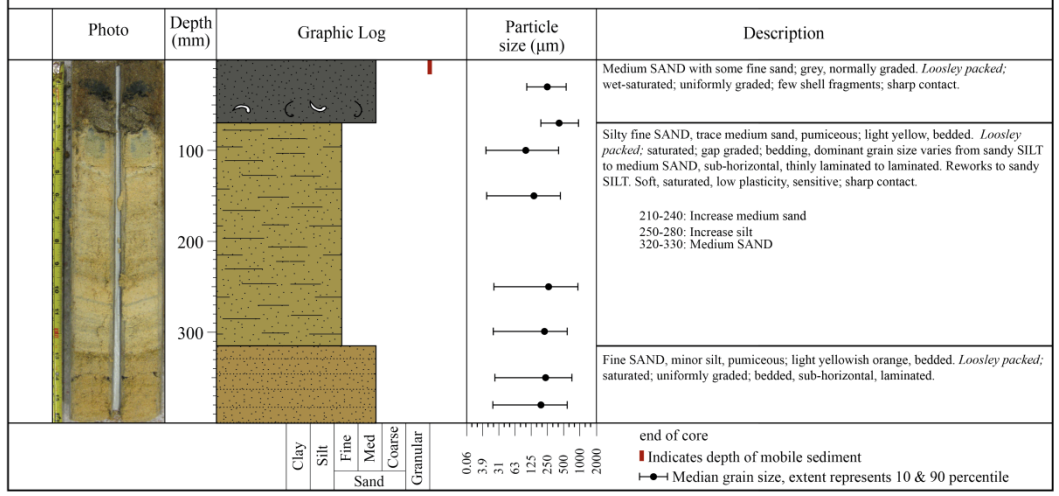
Depth (mm): 400

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1868923 N5831082

Grid: NZTM



Core Log - Omokoroa

Core: 5.3

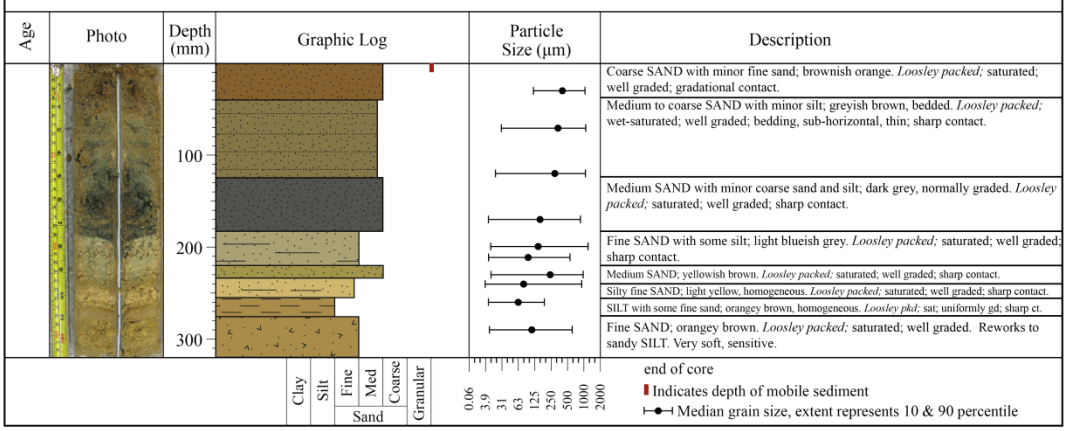
Depth (mm): 320

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1868901 N5831111

Grid: NZTM



Core Log - Omokoroa

Core: 6.1

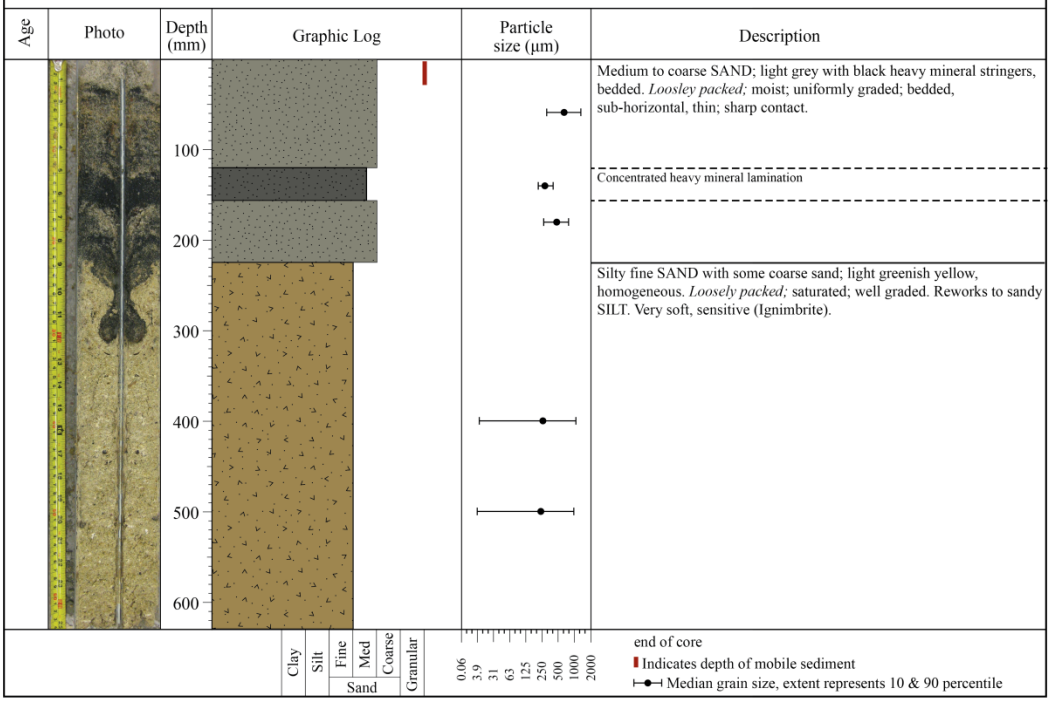
Depth (mm): 630

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1868438 N5830400

Grid: NZTM



Core Log - Omokoroa

Core: 6.2

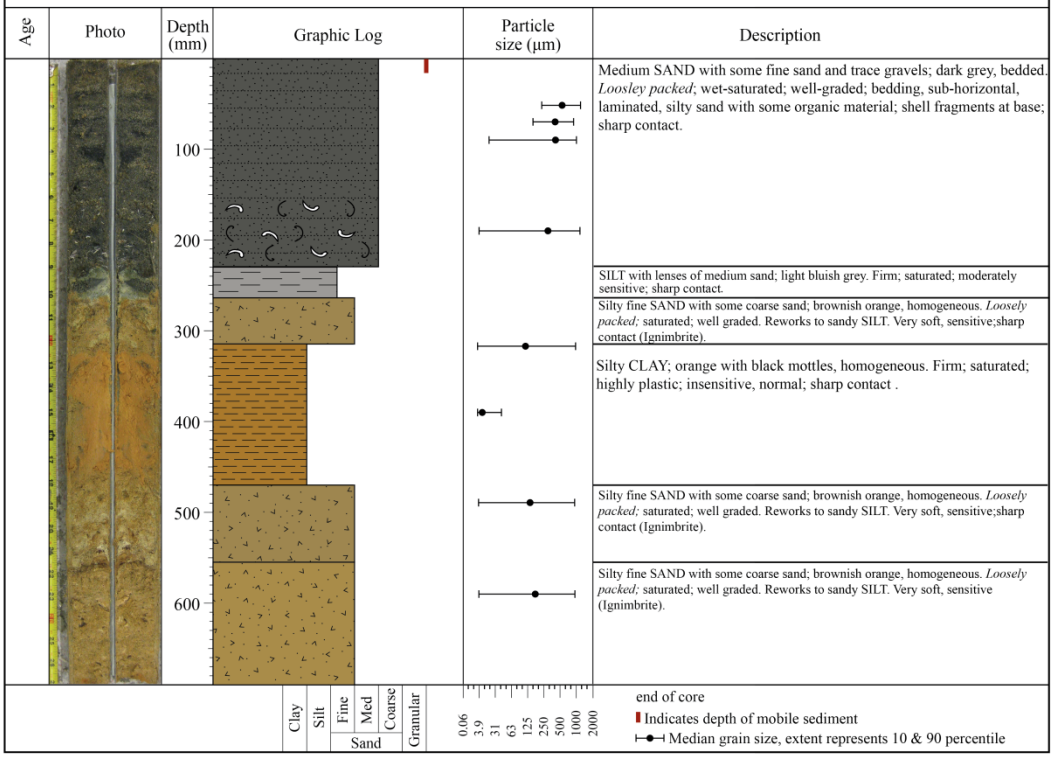
Depth (mm): 690

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1869034 N5830249

Grid: NZTM



Core Log - Omokoroa

Core: 6.3

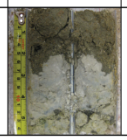
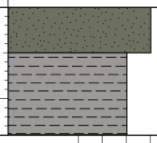
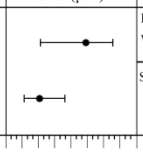
Depth (mm): 140

Method: Ogeechee Sampler

Date: 27/12/2014

Co-ordinates: E1868417 N5830464

Grid: NZTM

Photo	Depth (mm)	Graphic Log	Particle size (µm)	Description
	100			Fine to medium SAND; greenish grey, normal grading. *Loosely packed*; wet-saturated; sharp uneven contact. SILT; light bluish grey. Firm; saturated; moderately sensitive.

end of core

Indicates depth of mobile sediment

Median grain size, extent represents 10 & 90 percentile

Appendix 2.1

Age reports and calibration from accelerated mass spectrometry dating.

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Radiocarbon Dating Laboratory

Private Bag 3105
Hamilton,
New Zealand.
Ph +64 7 838 4278
email c14@waikato.ac.nz

Thursday, 19 March 2015

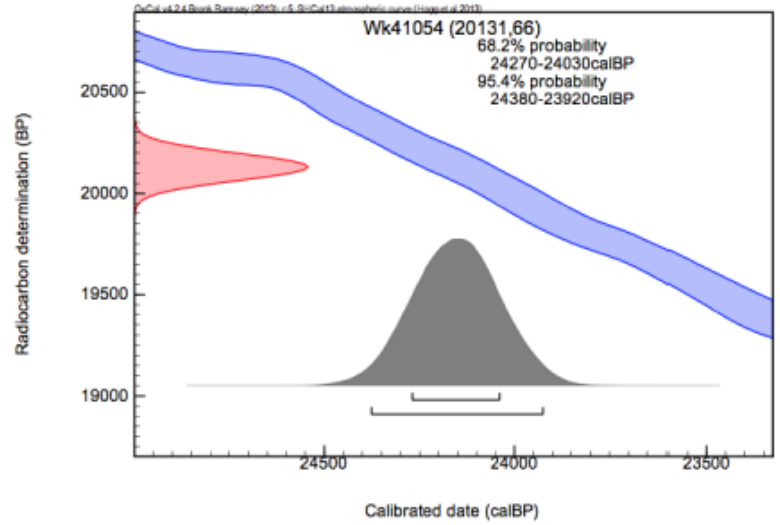
Report on Radiocarbon Age Determination for Wk- 41054

Submitter	A Christophers
Submitter's Code	A2
Site & Location	2.1, New Zealand
Sample Material	Soil, organics
Physical Pretreatment	Visible contaminants removed.
Chemical Pretreatment	Sample washed in hot HCl, rinsed and treated with multiple hot NaOH washes. The NaOH insoluble fraction was treated with hot HCl, filtered, rinsed and dried.

$D^{14}C$	-918.4 ±	0.7 ‰
$F^{14}C$‰	8.2 ±	0.1 ‰
Result	**20,131 ± 66 BP**	

(AMS measurement)

Comments
Please note: The Carbon-13 stable isotope value ($\delta^{13}C$) was measured on prepared graphite using the AMS spectrometer. The radiocarbon date has therefore been corrected for isotopic fractionation. However the AMS-measured $\delta^{13}C$ value can differ from the $\delta^{13}C$ of the original material and it is therefore not shown.



- Explanation of the calibrated Oxcal plots can be found at the Oxford Radiocarbon Accelerator Unit's calibration web pages (http://c14.arch.ox.ac.uk/embed.php?File=explanation.php)
- Result is *Conventional Age or Percent Modern Carbon (pMC)* following Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier.
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB and is measured on sample CO_2.
- $F^{14}C$% is also known as *Percent Modern Carbon (pMC)*.

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Thursday, 19 March 2015

Radiocarbon Dating Laboratory

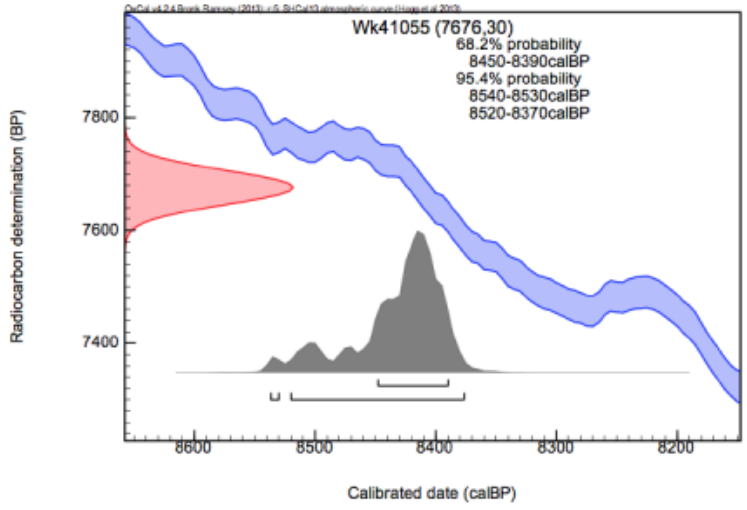
Report on Radiocarbon Age Determination for Wk- 41055

Submitter	A Christophers
Submitter's Code	A4
Site & Location	4.1, New Zealand
Sample Material	Soil, organics
Physical Pretreatment	Visible contaminants removed.
Chemical Pretreatment	Sample washed in hot HCl, rinsed and treated with multiple hot NaOH washes. The NaOH insoluble fraction was treated with hot HCl, filtered, rinsed and dried.

$D^{14}C$	-615.4 ±	1.5 ‰
$F^{14}C$%	38.5 ±	0.1 %
Result	7676 ± 30 BP	

(AMS measurement)

Comments
Please note: The Carbon-13 stable isotope value ($\delta^{13}C$) was measured on prepared graphite using the AMS spectrometer. The radiocarbon date has therefore been corrected for isotopic fractionation. However the AMS-measured $\delta^{13}C$ value can differ from the $\delta^{13}C$ of the original material and it is therefore not shown.



- Explanation of the calibrated Oxcal plots can be found at the Oxford Radiocarbon Accelerator Unit's calibration web pages (http://c14.arch.ox.ac.uk/embed.php?File=explanation.php)
- Result is *Conventional Age or Percent Modern Carbon (pMC)* following Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier.
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB and is measured on sample CO_2.
- $F^{14}C$% is also known as *Percent Modern Carbon (pMC)*.

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Thursday, 19 March 2015

Radiocarbon Dating Laboratory

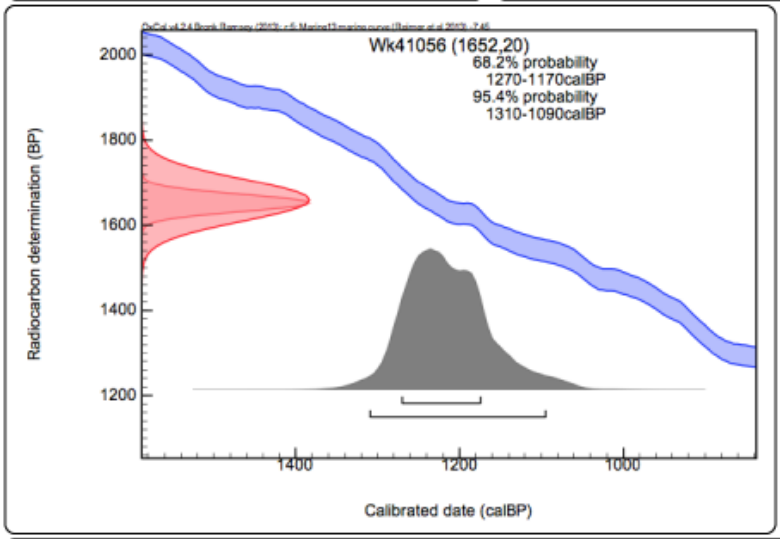
Report on Radiocarbon Age Determination for Wk- 41056

Submitter	A Christophers
Submitter's Code	A1
Site & Location	1.1, New Zealand
Sample Material	Cockle
Physical Pretreatment	Surfaces cleaned. Washed in an ultrasonic bath. Tested for recrystallization: aragonite.
Chemical Pretreatment	Sample acid washed using 0.1N HCl, rinsed and dried.

$\delta^{13}C$	0.0 ±	0.2 ‰
$D^{14}C$	-185.8 ±	2.0 ‰
$F^{14}C\%$	81.4 ±	0.2 %
Result	**1652 ± 20 BP**	

(AMS measurement)

Comments



- Explanation of the calibrated Oxcal plots can be found at the Oxford Radiocarbon Accelerator Unit's calibration web pages (http://c14.arch.ox.ac.uk/embed.php?File=explanation.php)
- Result is *Conventional Age or Percent Modern Carbon (pMC)* following Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier.
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB and is measured on sample CO_2.
- $F^{14}C\%$ is also known as *Percent Modern Carbon (pMC)*.

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Thursday, 19 March 2015

Radiocarbon Dating Laboratory

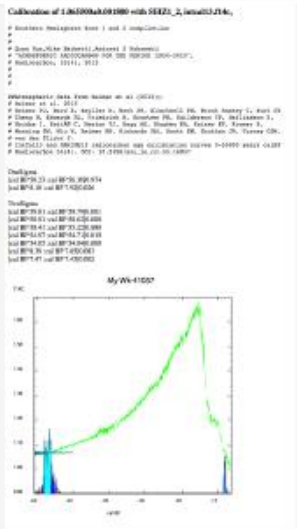
Report on Radiocarbon Age Determination for Wk- 41057

Submitter	A Christophers
Submitter's Code	A3
Site & Location	4.1, New Zealand
Sample Material	Pipi
Physical Pretreatment	Surfaces cleaned. Washed in an ultrasonic bath. Tested for recrystallization: aragonite.
Chemical Pretreatment	Sample acid washed using 0.1N HCl, rinsed and dried.

$\delta^{13}C$	0.0 ±	0.2 ‰
$D^{14}C$	65.5 ±	1.8 ‰
$F^{14}C\%$	106.6 ±	0.2 %
Result	**106.6 ± 0.2 %**	

(AMS measurement)

Comments



- Explanation of the calibrated Oxcal plots can be found at the Oxford Radiocarbon Accelerator Unit's calibration web pages (http://c14.arch.ox.ac.uk/embed.php?File=explanation.php)
- Result is *Conventional Age or Percent Modern Carbon (pMC)* following Stuiver and Polach, 1977, Radiocarbon 19, 355-363. This is based on the Libby half-life of 5568 yr with correction for isotopic fractionation applied. This age is normally quoted in publications and must include the appropriate error term and Wk number.
- Quoted errors are 1 standard deviation due to counting statistics multiplied by an experimentally determined Laboratory Error Multiplier.
- The isotopic fractionation, $\delta^{13}C$, is expressed as ‰ wrt PDB and is measured on sample CO_2.
- $F^{14}C\%$ is also known as *Percent Modern Carbon (pMC)*.

Appendix 2.2

Particle size results and textural parameters of surficial sediments are presented for both Omokoroa and Plummers Point along with particle size results for core samples.

Omokoroa surficial sediments

Sample Name	Easting	Northing	Mud	Fine Sand	Medium Sand	Coarse Sand
101	1868693	5829927	1.309082	15.2692	22.39168	61.03003
102	1868715	5829965	1.357211	4.988669	27.52395	66.13017
103	1868734	5830015	0	14.29925	32.29407	53.40668
104	1868747	5830056	1.432767	6.547978	32.04135	59.97791
105	1868784	5830090	0.088441	3.487606	23.15971	73.26424
106	1868812	5830125	1.184305	9.127174	34.6597	55.02882
107	1868838	5830175	0.081979	5.075944	23.40495	71.43713
108	1868864	5830207	0	8.196931	11.33812	80.46495
109	1868873	5830245	0	5.217322	16.28753	78.49515
110	1868913	5830287	0	2.670012	32.364	64.96599
111	1868944	5830321	0	2.234868	31.36091	66.40423
112	1868964	5830354	0	2.77252	25.34577	71.88171
113	1869005	5830383	1.113102	5.419382	23.54147	69.92605
114	1869039	5830409	0	7.233559	20.68519	72.08125
115	1869077	5830433	1.198807	15.04827	38.47422	45.27871
116	1869120	5830455	0	7.353411	34.45865	58.18794
117	1869166	5830480	0	12.9915	58.40779	28.6007
118	1869211	5830490	2.148285	12.80708	39.84544	45.19919
119	1869255	5830502	2.163891	5.624077	46.6094	45.60263
120	1869314	5830510	1.920398	1.601822	30.16864	66.30914
121	1869356	5830514	0	3.723889	45.74921	50.5269
122	1869379	5830513	0	4.729122	56.9935	38.27738
123	1869412	5830523	0	5.936865	49.98717	44.07597
124	1869431	5830504	17.44246	29.10457	28.27313	25.17985
125	1869377	5830516	8.432353	15.63368	33.81957	42.11441
126	1869346	5830477	13.68091	16.0749	37.37441	32.86977
127	1869303	5830464	10.46401	20.46671	40.60097	28.46831
128	1869219	5830448	5.693607	16.30376	41.64437	36.35826
129	1869146	5830411	10.66	21.52637	29.47105	38.34258
130	1869076	5830374	22.25481	25.60802	28.90006	23.23712
131	1869020	5830309	11.03148	29.26507	35.72539	23.97806
132	1868990	5830227	17.04885	28.57268	28.39421	25.98427
133	1868942	5830150	12.41752	34.65369	28.66221	24.26658
134	1868913	5830061	7.325176	34.53874	37.11964	21.01644
135	1868886	5829981	11.27731	43.81885	32.27403	12.62982

136	1869452	5830530	14.52676	38.41349	36.05643	11.00333
137	1869453	5830551	16.78356	41.49581	28.64895	13.07167
138	1869403	5830634	18.55671	31.24036	25.90569	24.29724
139	1869377	5830714	14.24753	26.17706	32.6695	26.90591
140	1869394	5830793	7.58104	25.699	32.93437	33.78559
141	1869409	5830881	22.81056	21.92282	30.98198	24.28464
142	1869406	5830961	5.352309	13.3345	35.94797	45.36523
143	1869445	5831035	15.89439	27.8456	34.28259	21.97741
144	1869454	5831057	0	2.619176	41.46641	55.91442
145	1869442	5831047	0	7.200793	64.45287	28.34634
146	1869421	5831008	0	0.905793	29.04975	70.04446
147	1869398	5830974	0	4.060365	28.19777	67.74186
148	1869391	5830938	0	5.454046	42.4277	52.11825
149	1869370	5830893	0	3.270011	35.03725	61.69274
150	1869369	5830848	0	1.03917	25.12641	73.83442
151	1869364	5830804	0	2.223984	29.20617	68.56985
152	1869364	5830764	0	9.424546	44.0424	46.53306
153	1869369	5830717	0	6.208628	38.95554	54.83583
154	1869379	5830676	0	1.695439	35.22308	63.08149
155	1869392	5830642	0	3.326332	32.44009	64.23358
156	1869398	5830588	0	3.451024	27.62701	68.92197
157	1869422	5830553	0	11.95698	29.3976	58.64542
158	1869432	5830535	0	2.785856	8.474451	88.73969
160	1869466	5831065	8.43583	15.53788	34.21533	41.81096
161	1869496	5831148	13.29895	23.48335	32.04366	31.17404
162	1869510	5831237	1.018008	3.111204	20.57566	75.29513
163	1869448	5831284	4.38468	22.51137	55.41003	17.69392
166	1869279	5831245	5.961092	19.00582	38.51348	36.51961
167	1869099	5831206	2.828212	6.154165	28.00295	63.01467
168	1869031	5831187	6.444527	17.8728	47.19434	28.48833
169	1868960	5831111	16.60607	24.71946	41.12471	17.54976
170	1868889	5831069	4.592551	6.856378	32.21715	56.33392
171	1868817	5831006	4.171367	34.50927	37.38512	23.93424
172	1868760	5830944	21.19043	34.48751	30.67974	13.64233
173	1868697	5830895	13.95937	17.99858	52.65708	15.38497
174	1868675	5830813	4.263513	24.32272	53.24405	18.16972
175	1868623	5830710	3.505757	15.59841	39.18945	41.70639
176	1868577	5830624	2.841751	17.71465	30.65673	48.78687
177	1868544	5830561	2.022819	13.34	35.77381	48.86337
178	1868484	5830495	13.31984	40.4575	36.47949	9.743165
179	1868445	5830436	4.280989	21.33503	32.7965	41.58748
180	1868453	5830395	0	0.005997	16.1592	83.8348
181	1868468	5830458	0	6.787438	38.23436	54.9782
182	1868464	5830488	0	1.120188	53.27161	45.6082
183	1868526	5830512	0	0.136326	26.04368	73.81999
184	1868550	5830546	0	0.090125	22.35084	77.55904

185	1868592	5830617	0	1.41124	37.04001	61.54875
187	1868614	5830651	0.201004	2.512691	30.6695	66.61681
188	1868642	5830688	0	0.04263	28.44298	71.51439
189	1868664	5830724	0	0.521886	39.23162	60.24649
190	1868692	5830787	0	0.351234	30.19662	69.45215
191	1868705	5830826	0	0.022065	16.02012	83.95781
192	1868698	5830882	3.707908	6.338363	54.39377	35.55996
193	1868727	5830922	43.81014	14.08186	11.67096	30.43704
194	1868779	5830935	3.702761	2.375999	9.279706	84.64153
195	1868797	5830973	3.782025	9.589205	42.92952	43.69925
196	1868830	5831015	0	2.694652	51.39072	45.91463
197	1868874	5831050	0.372081	2.153253	25.97762	71.49705
198	1868909	5831055	0	1.991929	31.38893	66.61914
199	1868957	5831080	0	0.983875	42.27309	56.74304
200	1868994	5831110	0	0.270342	23.402	76.32766
201	1869019	5831139	0.914071	1.606688	24.41468	73.06456
202	1869041	5831160	0	0.825251	26.34262	72.83213
203	1869064	5831223	0	0.944972	35.14705	63.90798
204	1869117	5831234	0	4.26417	35.19757	60.53826
205	1869166	5831208	0	0.15269	27.60663	72.24068
206	1869195	5831207	0	0.059941	18.91837	81.02169
207	1869282	5831240	0	0.061345	23.36019	76.57847
208	1869333	5831271	0	0.062443	19.94357	79.99399
209	1869388	5831275	1.318028	6.15414	28.46065	64.06719
210	1869426	5831266	0	6.455391	43.42881	50.1158
211	1869439	5831251	0	1.670272	30.86108	67.46865
212	1869484	5831221	0	1.624208	38.5657	59.81009
213	1869486	5831182	0	3.971731	56.7155	39.31277
214	1869469	5831117	0	1.167097	30.84031	67.9926
215	1869469	5831088	16.57057	18.92894	35.56188	28.93861
BR1	1869449	5830522	23.84012	31.88395	24.57093	19.705
BR2	1869446	5830518	12.74339	32.71937	25.93107	28.60617
LT	1869451	5830526	11.68365	49.11512	30.11455	9.086689

Omokoroa textural parameters

ID	Easting	Northing	Mean	Sorting	Skewness	Kurtosis
101	1868693	5829927	0.79	1.11	0.23	0.89
102	1868715	5829965	0.65	0.83	0.06	0.98
103	1868734	5830015	0.94	0.95	0.06	0.93
104	1868747	5830056	0.79	0.84	0.05	1.01
105	1868784	5830090	0.52	0.77	0.06	0.96
106	1868812	5830125	0.90	0.87	0.04	1.02
107	1868838	5830175	0.54	0.82	0.09	0.96
108	1868864	5830207	0.33	0.90	0.29	1.28
109	1868873	5830245	0.37	0.82	0.19	1.04
110	1868913	5830287	0.68	0.74	-0.03	0.94
111	1868944	5830321	0.67	0.72	-0.02	0.95
112	1868964	5830354	0.54	0.77	0.04	0.92
113	1869005	5830383	0.55	0.87	0.12	0.94
114	1869039	5830409	0.51	0.89	0.18	0.96
115	1869077	5830433	1.09	0.92	-0.03	0.96
116	1869120	5830455	0.79	0.85	-0.01	0.92
117	1869166	5830480	1.34	0.59	-0.01	0.94
118	1869211	5830490	1.09	0.89	-0.02	1.01
119	1869255	5830502	1.07	0.66	0.01	1.03
120	1869314	5830510	0.69	0.71	0.00	1.00
121	1869356	5830514	0.97	0.63	-0.06	1.00
122	1869379	5830513	1.16	0.53	-0.02	0.97
123	1869412	5830523	1.09	0.62	-0.03	0.98
124	1869431	5830504	2.23	1.98	0.36	1.42
125	1869377	5830516	1.26	1.45	0.25	1.62
126	1869346	5830477	1.79	1.69	0.47	1.80
127	1869303	5830464	1.63	1.37	0.35	1.71
128	1869219	5830448	0.54	0.82	0.09	0.96
129	1869146	5830411	1.58	1.59	0.32	1.31
130	1869076	5830374	2.49	2.10	0.44	1.15
131	1869020	5830309	1.88	1.47	0.31	1.49
132	1868990	5830227	2.19	1.96	0.35	1.41
133	1868942	5830150	1.99	1.66	0.21	1.41
134	1868913	5830061	1.85	1.24	0.21	1.36
135	1868886	5829981	2.21	1.39	0.26	1.55
136	1869452	5830530	2.32	1.55	0.41	1.63
137	1869453	5830551	2.48	1.71	0.34	1.47
138	1869403	5830634	2.33	2.04	0.33	1.32
139	1869377	5830714	1.98	1.79	0.41	1.52
140	1869394	5830793	1.57	1.42	0.25	1.32
141	1869409	5830881	2.56	2.23	0.53	1.21
142	1869406	5830961	1.12	1.21	0.17	1.42
143	1869445	5831035	2.13	1.83	0.40	1.78
144	1869454	5831057	0.88	0.64	-0.05	0.99
145	1869442	5831047	1.29	0.50	0.01	0.94
146	1869421	5831008	0.60	0.70	-0.04	0.93
147	1869398	5830974	0.60	0.82	0.03	0.90
148	1869391	5830938	0.95	0.70	-0.05	0.98
149	1869370	5830893	0.74	0.74	-0.04	0.95
150	1869369	5830848	0.51	0.73	-0.01	0.91

151	1869364	5830804	0.61	0.76	-0.01	0.92
152	1869364	5830764	1.05	0.76	-0.05	0.98
153	1869369	5830717	0.88	0.76	-0.04	0.97
154	1869379	5830676	0.74	0.68	-0.05	0.98
155	1869392	5830642	0.69	0.76	-0.02	0.94
156	1869398	5830588	0.59	0.79	0.02	0.93
157	1869422	5830553	0.81	0.96	0.09	0.93
158	1869432	5830535	0.16	0.66	0.14	0.98
160	1869466	5831065	1.28	1.46	0.28	1.71
161	1869496	5831148	1.77	1.79	0.37	1.69
162	1869510	5831237	0.46	0.80	0.11	0.97
163	1869448	5831284	1.60	0.69	0.09	1.08
166	1869279	5831245	1.34	1.24	0.17	1.47
167	1869099	5831206	0.72	0.91	0.11	1.02
168	1869031	5831187	1.46	1.09	0.27	1.73
169	1868960	5831111	2.26	1.75	0.54	1.78
170	1868889	5831069	0.87	1.08	0.19	1.37
171	1868817	5831006	1.67	1.08	-0.10	1.16
172	1868760	5830944	2.65	1.97	0.46	1.37
173	1868697	5830895	1.75	1.40	0.45	2.76
174	1868675	5830813	1.62	0.74	0.13	1.10
175	1868623	5830710	1.19	0.98	0.04	1.08
176	1868577	5830624	1.04	1.12	0.05	0.90
177	1868544	5830561	0.99	0.98	-0.04	0.89
178	1868484	5830495	2.21	1.45	0.37	1.99
179	1868445	5830436	1.26	1.19	0.10	1.08
180	1868453	5830395	0.38	0.61	-0.02	0.94
181	1868468	5830458	0.88	0.78	-0.03	0.95
182	1868464	5830488	1.04	0.46	-0.02	0.96
183	1868526	5830512	0.57	0.64	-0.05	0.94
184	1868550	5830546	0.46	0.68	-0.02	0.91
187	1868614	5830651	0.68	0.71	0.00	0.97
188	1868642	5830688	0.67	0.55	-0.05	0.96
189	1868664	5830724	0.85	0.52	-0.01	0.98
190	1868692	5830787	0.66	0.63	-0.05	0.96
191	1868705	5830826	0.32	0.66	0.01	0.91
192	1868698	5830882	1.22	0.63	0.04	1.07
193	1868727	5830922	3.44	3.19	0.25	0.73
194	1868779	5830935	0.26	0.94	0.30	1.70
195	1868797	5830973	1.12	0.83	0.03	1.09
196	1868830	5831015	1.05	0.53	-0.02	0.97
197	1868874	5831050	0.55	0.76	0.02	0.93
198	1868909	5831055	0.65	0.74	-0.03	0.93
199	1868957	5831080	0.89	0.54	-0.03	0.97
200	1868994	5831110	0.48	0.70	-0.02	0.91
201	1869019	5831139	0.52	0.76	0.03	0.93
202	1869041	5831160	0.54	0.71	-0.03	0.92
203	1869064	5831223	0.76	0.61	-0.03	0.96
204	1869117	5831234	0.77	0.75	-0.03	0.96
205	1869166	5831208	0.61	0.62	-0.05	0.95
206	1869195	5831207	0.38	0.68	0.01	0.90
207	1869282	5831240	0.52	0.64	-0.05	0.93
208	1869333	5831271	0.41	0.68	-0.01	0.91
209	1869388	5831275	0.69	0.86	0.07	0.97
210	1869426	5831266	0.99	0.70	-0.03	1.00

211	1869439	5831251	0.64	0.73	-0.04	0.93
212	1869484	5831221	0.82	0.63	-0.04	0.98
213	1869486	5831182	1.14	0.52	-0.01	0.97
214	1869469	5831117	0.64	0.70	-0.04	0.93
215	1869469	5831088	2.02	1.94	0.52	1.83
BR2_A	1869446	5830518	1.89	1.84	0.29	1.29
BR1_C	1869449	5830522	2.96	2.15	0.36	1.16
LT_C	1869451	5830526	2.15	1.28	0.20	1.31
LT_B	1869451	5830526	2.52	1.39	0.29	1.51
LT_A	1869451	5830526	2.39	1.19	0.24	1.42
BR2_B	1869446	5830518	2.06	1.71	0.21	1.20
BR2_C	1869446	5830518	1.88	1.55	0.19	1.15
BR1_A	1869449	5830522	2.15	1.92	0.35	1.43
BR1_B	1869449	5830522	2.71	2.25	0.36	1.09

Plummers Point surficial sediments

Sample Name	Easting	Northing	Mud	Fine Sand	Medium Sand	Coarse Sand
T234	1868955	5828179	0	4.656403	43.949	51.3946
T225	1868603	5828310	0.098319	1.13215	19.65858	79.11095
T226	1868649	5828310	0	1.794644	34.32189	63.88347
T240	1869101	5828086	26.87685	56.48622	11.13719	5.499746
T230	1868824	5828333	0	2.018457	38.28448	59.69707
T217	1868501	5828134	0	0.853411	29.05173	70.09486
T218	1868488	5828172	0	2.04367	35.40102	62.55531
T219	1868467	5828207	0	0.700916	28.26595	71.03314
T222	1868446	5828294	0	8.367167	47.30711	44.32572
T237	1869013	5828065	0	3.78866	45.75575	50.45559
T235	1868988	5828153	0	6.167809	61.93991	31.89229
T227	1868695	5828330	0	3.075462	38.75225	58.17229
T231	1868851	5828291	0	1.050987	42.34632	56.6027
T238	1869023	5828011	0	4.340468	48.87097	46.78856
T236	1869005	5828108	0	3.254973	44.78329	51.96173
T233	1868922	5828218	1.08838	4.540574	49.78405	44.58699
T221	1868429	5828287	0	6.382246	50.38928	43.22847
T224	1868568	5828297	0	2.847901	35.30843	61.84367
T223	1868502	5828297	0	3.63386	46.68712	49.67902
T232	1868893	5828255	0	6.296795	60.00856	33.69465
T220	1868439	5828250	1.058929	2.051464	26.63884	70.25077
T228	1868751	5828331	0	1.386758	45.10989	53.50335
T250	1868396	5828297	21.03809	31.63192	26.2723	21.05768
T242	1869040	5828248	7.102933	24.80343	32.98285	35.11079
T247	1868594	5828483	9.383213	37.32171	29.17786	24.11721
T251	1868387	5828208	18.98076	29.64108	21.79272	29.58545
T243	1869015	5828323	11.69042	34.78472	33.32479	20.20007
T241	1869060	5828159	16.34722	38.24658	21.76185	23.64435
T229	1868791	5828346	2.496786	18.5174	39.03579	39.95003
T248	1868506	5828456	8.022114	17.79679	34.61971	39.56139
T245	1868777	5828486	19.69284	54.01385	21.35113	4.942181
T249	1868437	5828397	18.21218	30.04279	29.25992	22.48512
T246	1868685	5828497	17.7028	54.52029	19.34604	8.43087
T244	1868865	5828451	2.89154	16.12019	39.40474	41.58352

Plummers Point textural parameters

ID	Easting	Northing	Mean	Sorting	Skewness	Kurtosis
217	1868501	5828134	0.61	0.70	-0.04	0.93
218	1868488	5828172	0.75	0.70	-0.05	0.97
219	1868467	5828207	0.59	0.69	-0.04	0.93
220	1868439	5828250	0.59	0.75	0.01	0.96
221	1868429	5828287	1.11	0.61	-0.01	0.98
222	1868446	5828294	1.09	0.68	-0.03	0.96
223	1868502	5828297	1.00	0.59	-0.02	0.97
224	1868568	5828297	0.76	0.71	-0.04	0.97
225	1868603	5828310	0.42	0.70	0.03	0.93
226	1868649	5828310	0.74	0.68	-0.03	0.98
227	1868695	5828330	0.83	0.69	-0.05	0.97
228	1868751	5828331	0.95	0.52	-0.01	0.97
229	1868791	5828346	1.25	0.95	0.04	1.01
230	1868824	5828333	0.82	0.64	-0.04	0.98
231	1868851	5828291	0.90	0.53	-0.02	0.98
232	1868893	5828255	1.22	0.52	0.00	0.96
233	1868922	5828218	1.09	0.59	0.00	0.98
234	1868955	5828179	0.96	0.66	-0.04	0.98
235	1868988	5828153	1.24	0.51	0.00	0.95
236	1869005	5828108	0.95	0.61	-0.04	0.99
237	1869013	5828065	0.98	0.62	-0.04	0.98
238	1869023	5828011	1.04	0.59	-0.03	0.97
240	1869101	5828086	3.27	1.61	0.16	1.52
241	1869060	5828159	2.30	1.86	0.22	1.19
242	1869040	5828248	1.57	1.38	0.29	1.28
243	1869015	5828323	2.05	1.54	0.31	1.44
244	1868865	5828451	1.22	0.95	0.13	1.14
245	1868777	5828486	2.98	1.71	0.40	1.65
246	1868685	5828497	2.77	1.63	0.23	1.62
247	1868594	5828483	1.95	1.53	0.21	1.31
248	1868506	5828456	1.38	1.43	0.32	1.64
249	1868437	5828397	2.33	1.96	0.40	1.35
250	1868396	5828297	2.50	2.03	0.36	1.20
251	1868387	5828208	2.21	2.07	0.30	1.11

Particle size cores

	d (0.1)	d (0.5)	d (0.9)
1.1(100cm)	2.13	19.574	85.941
1.1(110cm)	1.623	14.624	74.354
1.1(120cm)	1.466	14.317	74.516
1.1(15cm)	259.435	463.593	817.701
1.1(25cm)	292.023	531.617	975.736
1.1(35cm)	191.43	530.92	1218.244
1.1(45cm)	221.5	531.434	1105.602
1.1(54cm)	66.125	384.206	827.807
1.1(56cm)	17.762	255.624	785.85
1.1(5cm)	267.672	469.097	837.066
1.1(60cm)	166.869	435.72	970.354
1.1(70cm)	35.805	318.929	870.499
1.1(80cm)	7.332	77.261	283.608
1.1(90cm)	3.384	28.108	84.565
1.1(CC)	2.29	34.091	213.972
1.2(15cm)	16.808	147.252	488.153
1.2(25cm)	7.46	138.54	287.9
1.2(35cm)	7.909	134.03	284.154
1.2(45cm)	10.305	147.594	284.927
1.2(55cm)	19.38	166.346	325.672
1.2(5cm)	24.688	149.209	443.316
1.2(Top)	16.819	158.673	541.666
1.3(15cm)	19.15	136.876	262.539
1.3(25cm)	33.847	140.716	260.207
1.3(35cm)	21.644	134.104	258.048
1.3(45cm)	31.979	158.413	322.645
1.3(55cm)	79.361	185.164	394.432
1.3(5cm)	35.028	143.095	265.363
1.3(Top)	52.656	146.129	291.733
2.1(100cm)	38.901	253.948	824.063
2.1(109cm)	22.448	183.295	481.916
2.1(10cm)	282.187	527.547	1076.228
2.1(15cm)	252.266	517.141	1107.496
2.1(20cm)	154.538	422.818	839.048
2.1(30cm)	126.845	391.528	896.653
2.1(37cm)	4.624	72.783	242.174
2.1(41cm)	164.209	445.175	859.924
2.1(45cm)	149.378	435.446	898.803
2.1(53cm)	127.347	491.049	1038.743
2.1(5cm)	303.936	560.821	1132.863
2.1(64cm)	224.962	500.594	986.136
2.1(70cm)	310.393	573.493	1056.756
2.1(80cm)	178.079	570.477	1214.844
2.1(90cm)	53.89	447.116	1190.241
2.2(15cm)	219.657	539.625	1259.509
2.2(22cm)	82.169	433.958	1088.368
2.2(29cm)	169.865	507.864	1221.329
2.2(39cm)	126.311	398.325	1153.95
2.2(49cm)	57.277	275.551	766.111
2.2(5cm)	148.106	362.363	738.852
2.2(Top)	104.262	399.809	846.151
2.3(18cm)	67.68	350.059	670.794
2.3(28cm)	79.349	324.977	660.03
2.3(38cm)	27.567	198.414	646.657
2.3(3cm)	64.617	331.358	630.388
2.3(48cm)	57.181	246.898	738.348
2.3(58cm)	97.616	336.653	869.479
2.3(8cm)	13.034	251.204	588.067
2.3(Top)	60.255	306.482	594.268
3.1(100cm)	167.627	356.323	642.491
3.1(107cm)	93.135	362.71	711.781
3.1(10cm)	353.883	684.622	1276.763
3.1(117cm)	207.723	544.905	1105.321
3.1(123cm)	90.292	476.544	1164.9
3.1(126cm)	81.888	295.253	674.955
3.1(133cm)	135.923	319.058	625.667
3.1(137cm)	43.257	178.551	450.709
3.1(147cm)	93.627	246.128	657.04
3.1(157cm)	60.643	185.813	384.007
3.1(167cm)	3.413	31.518	341.524
3.1(173cm)	114.614	228.83	439.251
3.1(20cm)	387.813	704.83	1289.148
3.1(30cm)	308.311	581.599	1080.685
3.1(40cm)	325.372	646.349	1222.19
3.1(50cm)	293.19	645.222	1242.331
3.1(5cm)	289.57	560.271	1064.513
3.1(60cm)	323.746	670.059	1271.982

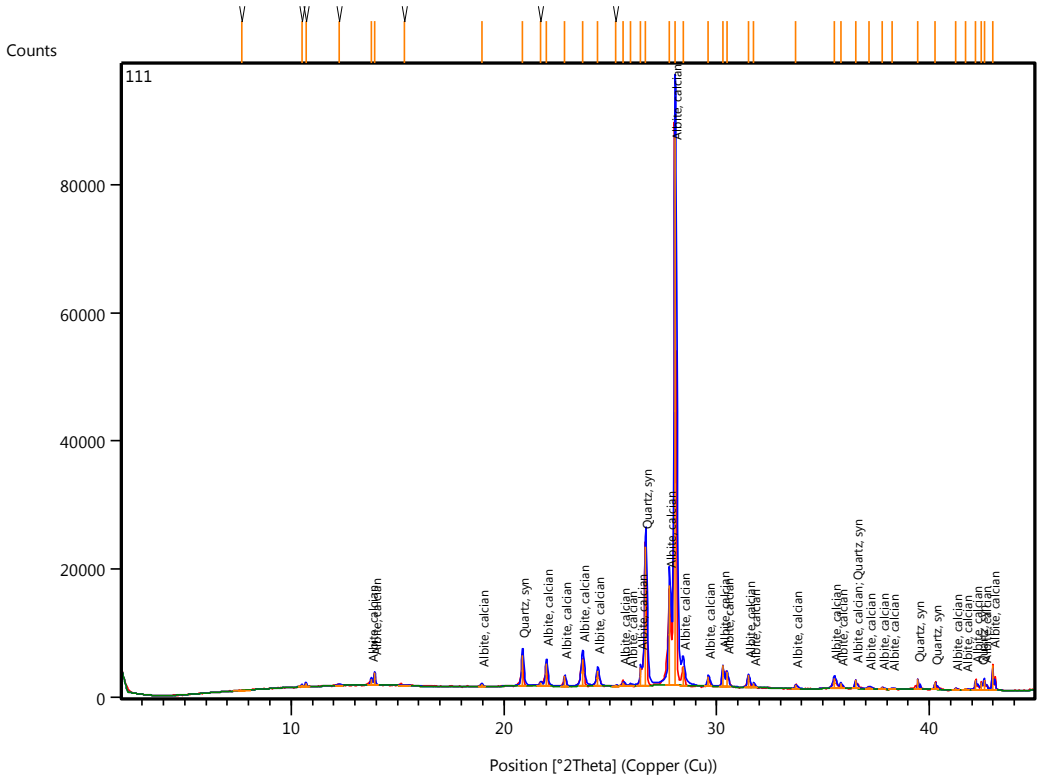
3.1(70cm)	183.058	498.589	1112.491	**4.2(18cm)**	12.172	136.191	412.576
3.1(80cm)	140.261	378.694	902.538	**4.2(28cm)**	2.408	20.478	124.141
3.1(80cm)	148.181	397.85	994.163	**4.2(38cm)**	3.383	27.703	183.122
3.1(80cm1)	148.181	397.85	994.163	**4.2(3cm)**	112.614	451.718	950.879
3.1(88cm)	195.388	401.59	778.347	**4.2(48cm)**	24.077	157.098	391.766
3.1(90cm)	91.569	337.589	649.275	**4.2(58cm)**	18.431	182.868	448.24
3.1(CC)	82.247	258.589	556.615	**4.2(8cm)**	33.967	161.149	448.947
3.2(13cm)	36.558	298.777	738.056	**4.2(Top)**	86.555	413.261	854.318
3.2(23cm)	13.872	291.803	776.26	**4.3(15cm)**	14.67	158.148	393.366
3.2(26cm)	140.338	411.338	908.51	**4.3(25cm)**	36.124	296.357	841.971
3.2(36cm)	10.025	129.637	586.735	**4.3(35cm)**	101.795	312.971	631.583
3.2(3cm)	99.868	397.938	1127.464	**4.3(45cm)**	158.204	384.362	924.264
3.2(46cm)	64.249	205.829	547.514	**4.3(5cm)**	27.305	161.478	350.984
3.2(56cm)	26.469	164.726	591.728	**4.3(Top)**	34.253	185.966	418.377
3.2(Top)	79.295	299.67	979.142	**5.1(10cm)**	1.803	26.225	260.256
3.3(15cm)	24.612	161.535	414.822	**5.1(20cm)**	2.31	36.31	267.523
3.3(25cm)	14.208	176.043	531.167	**5.1(5cm)**	148.541	351.126	891.764
3.3(35cm)	16.947	151.475	383.672	**5.1(8cm)**	5.604	81.991	437.451
3.3(49cm)	49.541	264.128	605.827	**5.2(10cm)**	7.509	107.298	423.14
3.3(55cm)	14.482	169.067	453.874	**5.2(15cm)**	7.853	147.458	463.138
3.3(5cm)	14.827	124.809	285.555	**5.2(25cm)**	22.638	258.461	957.303
4.1(100cm)	36.654	412.552	992.287	**5.2(30cm)**	21.353	230.483	622.351
4.1(110cm)	25.993	358.622	850.314	**5.2(35cm)**	25.569	238.912	691.835
4.1(120cm)	90.084	429.035	975.164	**5.2(38cm)**	20.825	197.886	595.698
4.1(130cm)	37.646	344.502	858.821	**5.2(3cm)**	131.559	334.907	726.334
4.1(140cm)	58.561	386.865	988.706	**5.2(7cm)**	199.062	454.076	988.685
4.1(15cm)	130.764	566.458	1228.08	**5.3(12cm)**	17.475	339.72	1130.47
4.1(26cm)	251.772	602.276	1257.031	**5.3(17cm)**	7.236	196.275	942.602
4.1(28cm)	216.488	440.083	959.245	**5.3(20cm)**	9.031	177.308	1214.565
4.1(33cm)	291.399	547.718	1018.18	**5.3(21cm)**	7.336	108.6	671.195
4.1(38cm)	243.644	631.227	1304.142	**5.3(23cm)**	18.726	339.904	1325.443
4.1(3cm)	202.915	444.94	949.288	**5.3(24cm)**	4.778	82.026	931.426
4.1(46cm)	308.259	595.978	1171.558	**5.3(26cm)**	5.514	61.633	191.12
4.1(5cm)	228.494	531.271	1126.862	**5.3(29cm)**	9.808	116.464	605.538
4.1(60cm)	3.383	43.101	199.114	**5.3(3cm)**	123.981	492.605	1162.98
4.1(65cm)	1.231	6.521	21.102	**5.3(7cm)**	28.067	349.651	1196.351
4.1(70cm)	1.79	20.416	123.427	**6.1(14cm)**	270.911	470.592	873.277
4.1(80cm)	3.123	55.337	511.323	**6.1(18cm)**	219.933	314.948	453.117
4.1(90cm)	3.382	113.854	588.472	**6.1(40cm)**	5.261	299.271	1126.257
4.1(CC)	21.73	352.219	864.937	**6.1(50cm)**	4.6	246.349	1041.933

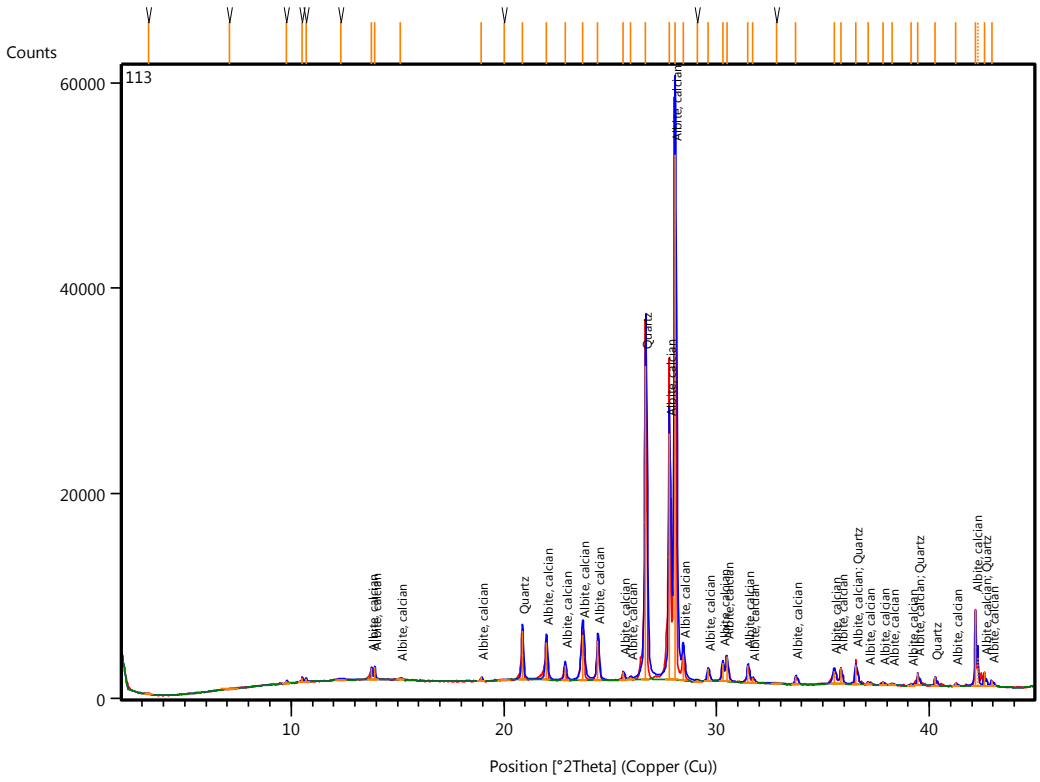
6.1(60cm)	11.013	343.813	1174.222	**6.2(5cm)**	233.528	572.324	1262.141
6.1(6cm)	290.859	577.3	1199.755	**6.2(7cm)**	179.067	459.856	1082.48
6.2(19cm)	26.486	410.775	1103.16	**6.3(10cm)**	4.785	30.773	102.972
6.2(29cm)	4.38	274.301	1265.906	**6.3(4cm)**	35.038	234.829	780.472
6.2(32cm)	3.35	121.436	1045.533				
6.2(39cm)	0.377	5.509	54.72				
6.2(49cm)	4.14	186.242	985.427				
6.2(59cm)	4.218	219.614	999.41				

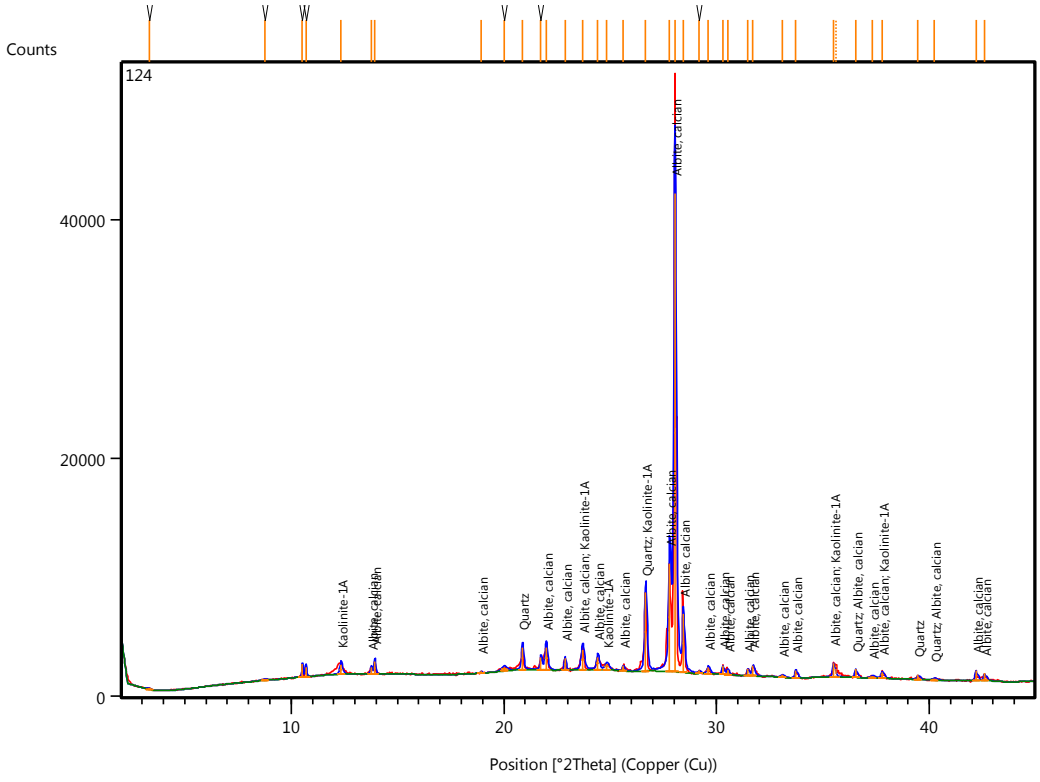
Appendix 2.3

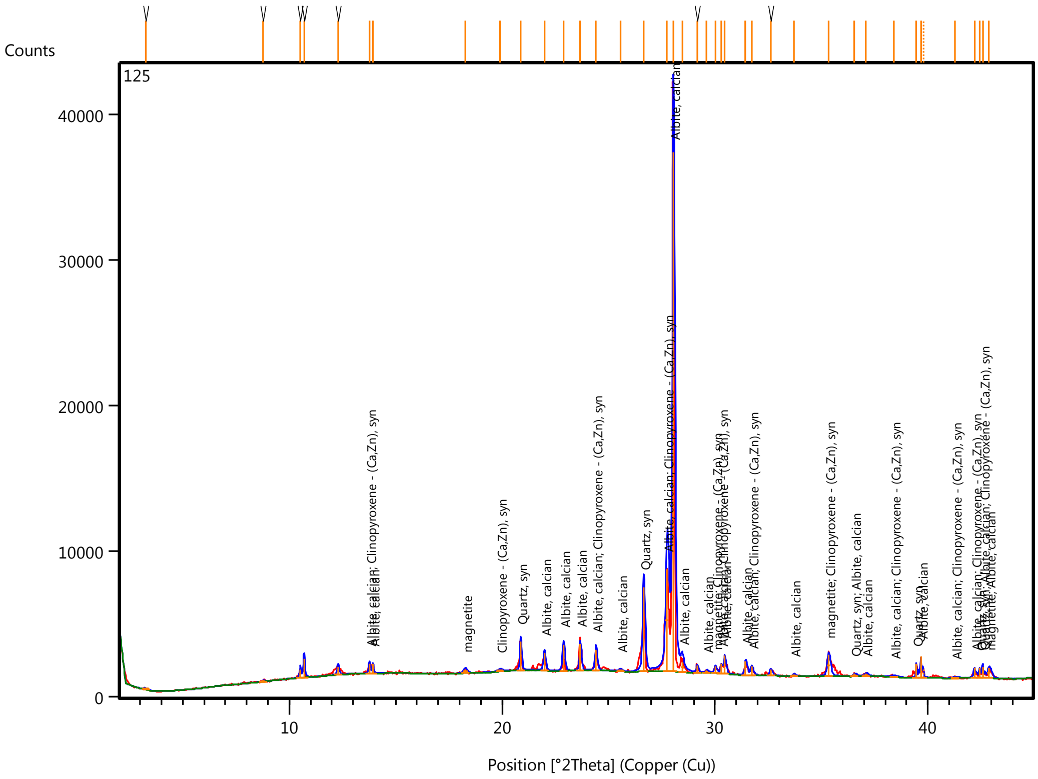
The following presents the data obtained for X-ray diffraction using Highscore software.

Surficial sediments

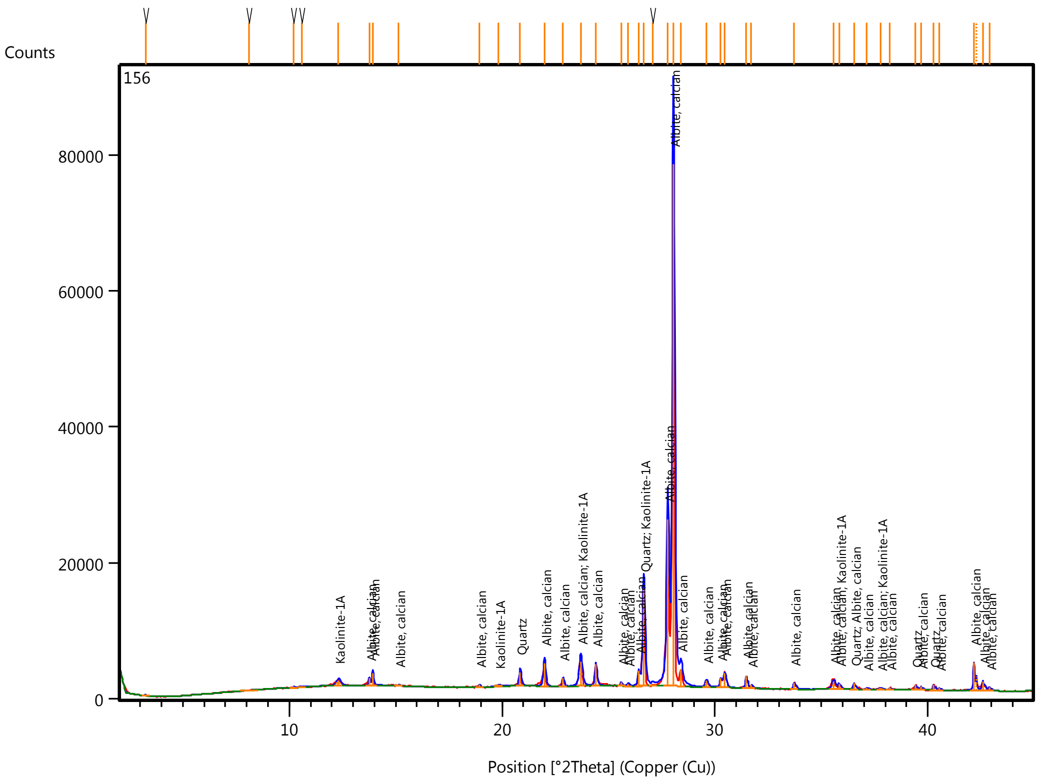



Counts
113
60000
40000
20000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))

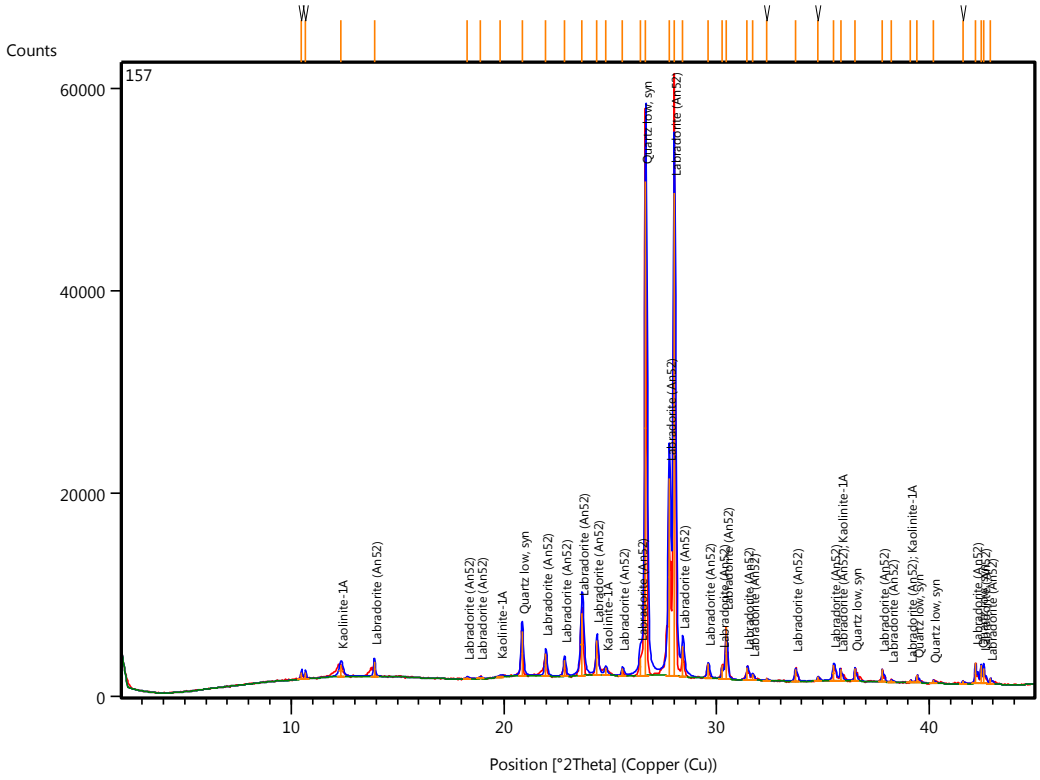

Counts
124
40000
20000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))

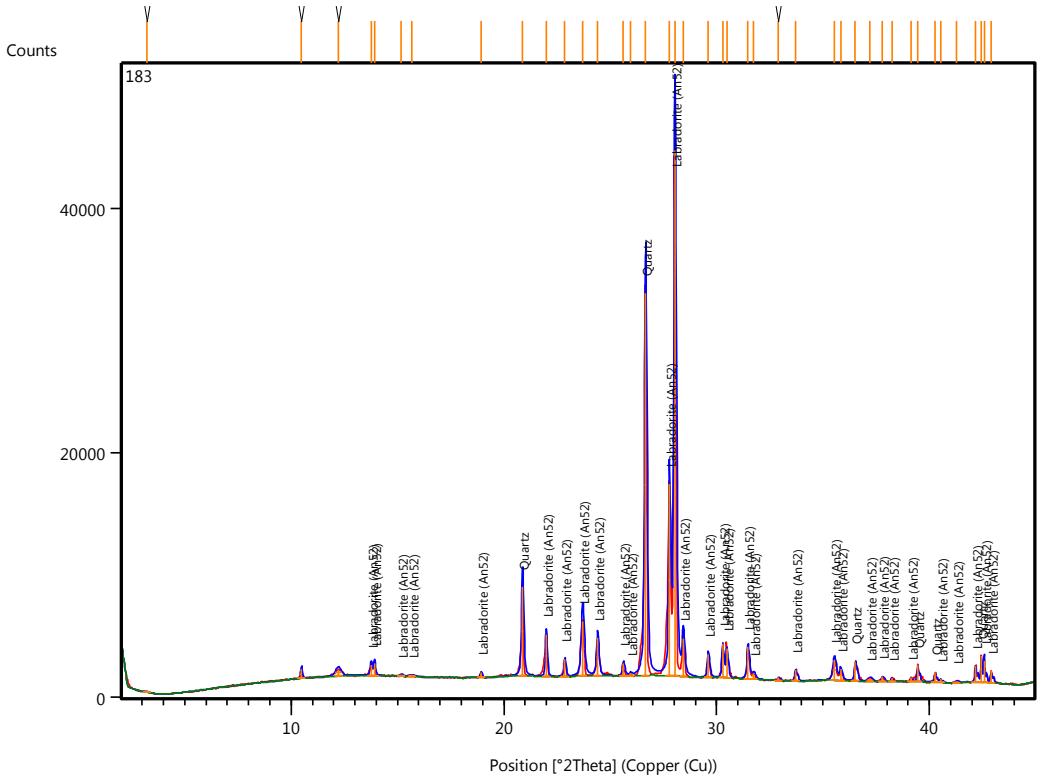


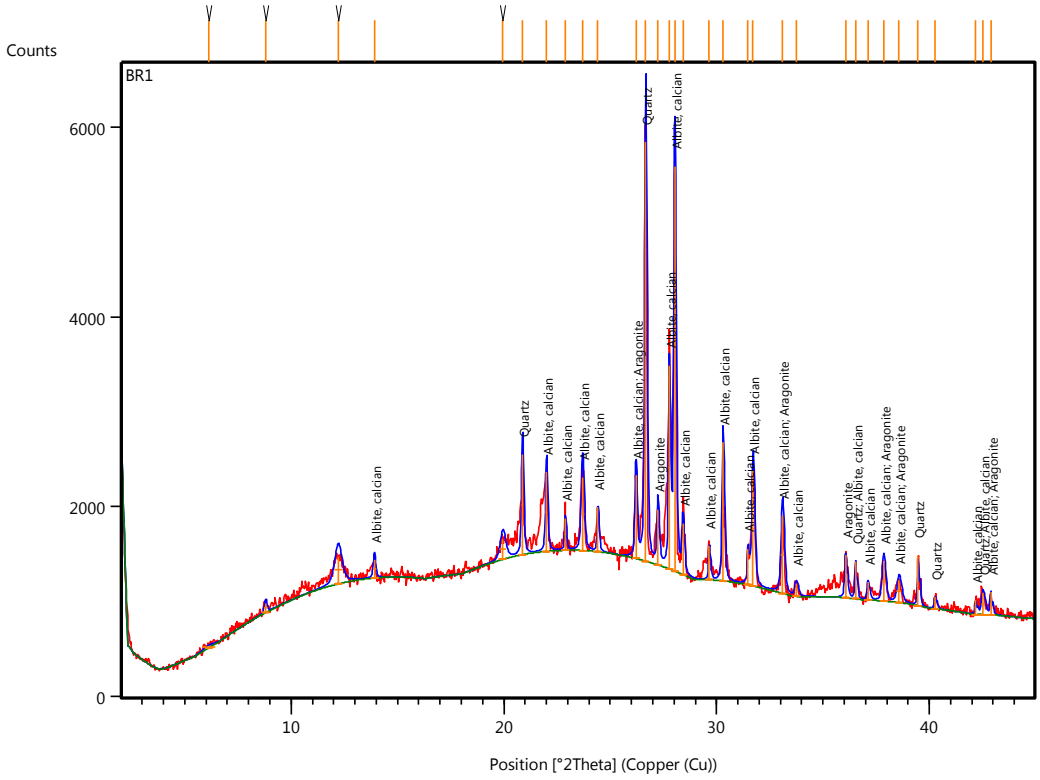
Counts
125
40000
30000
20000
10000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))

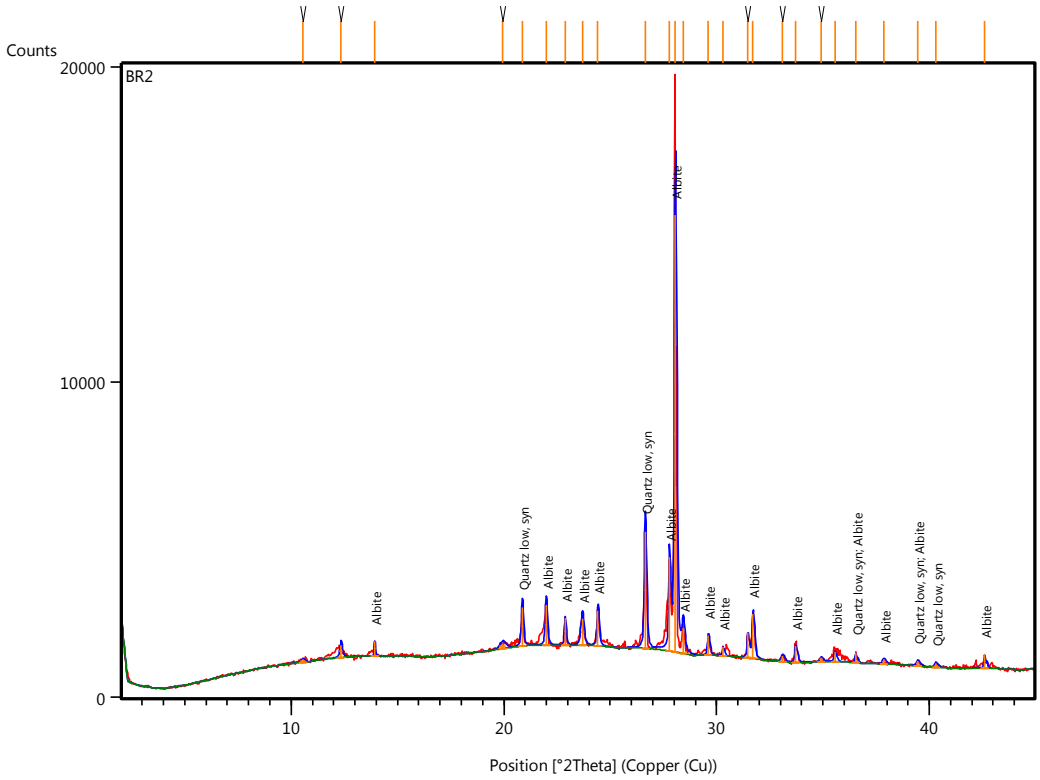


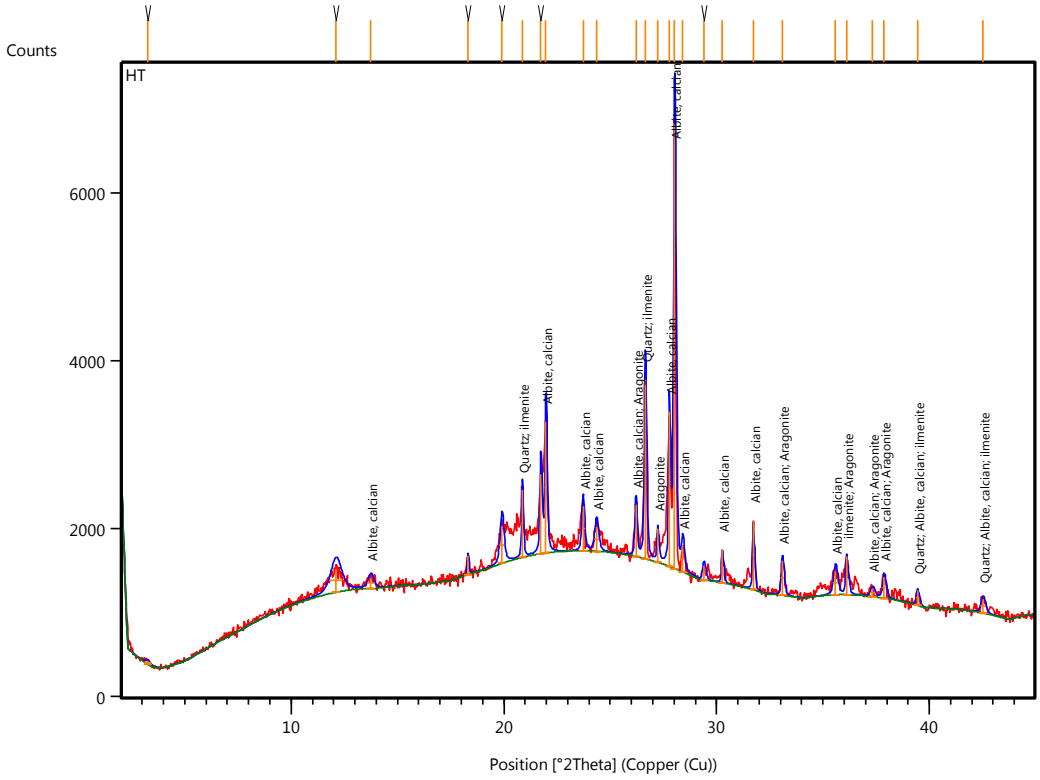
Counts
156
80000
60000
40000
20000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))

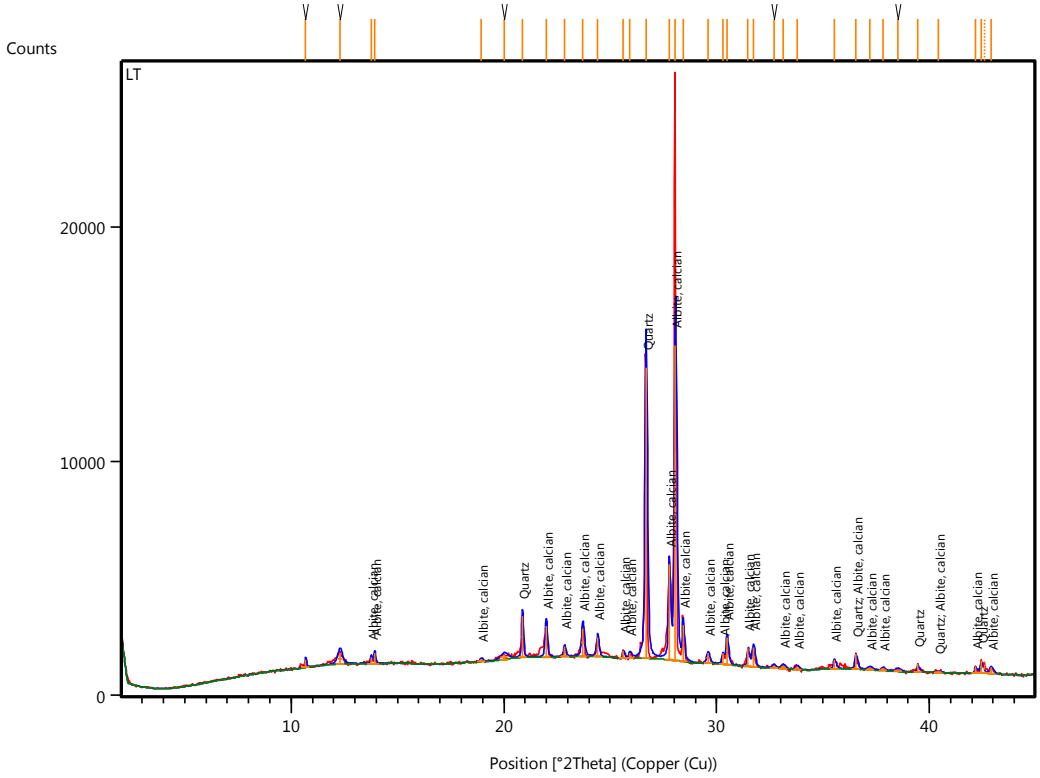

Counts
157
60000
40000
20000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Kaolinite-1A
Labradorite (An52)
Quartz low, syn

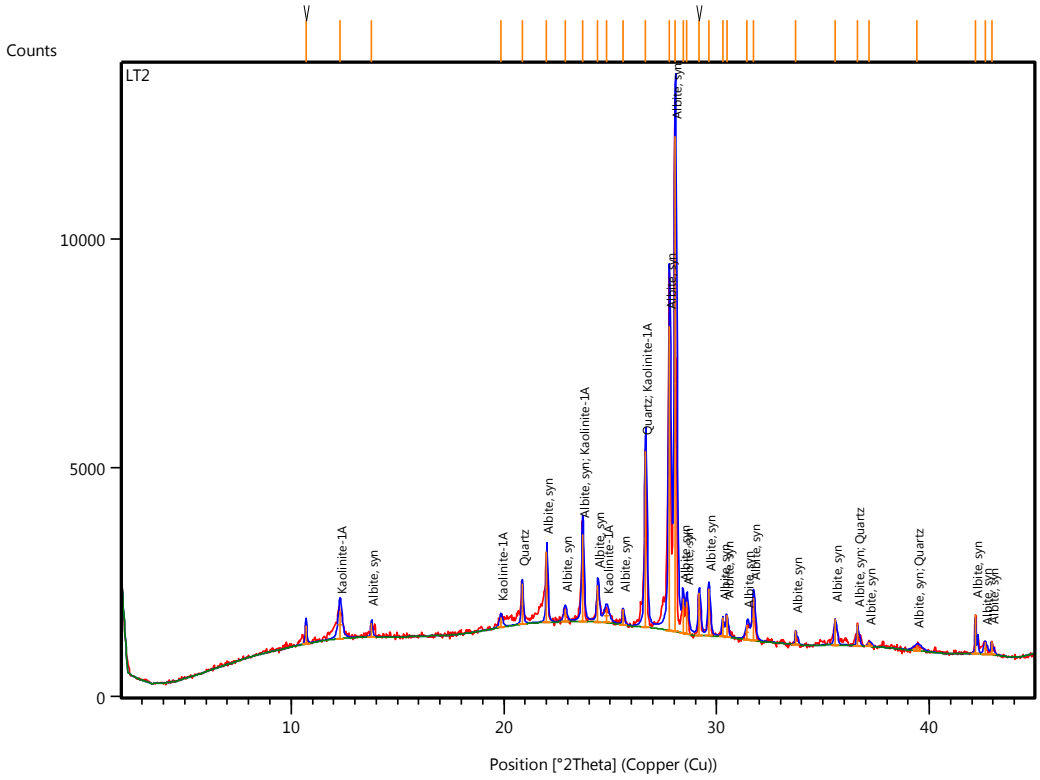

Counts
183
40000
20000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Quartz
Labradorite (An52)


Counts
BR1
6000
4000
2000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Albite, calcian
Quartz
Albite, calcian; Aragonite
Aragonite

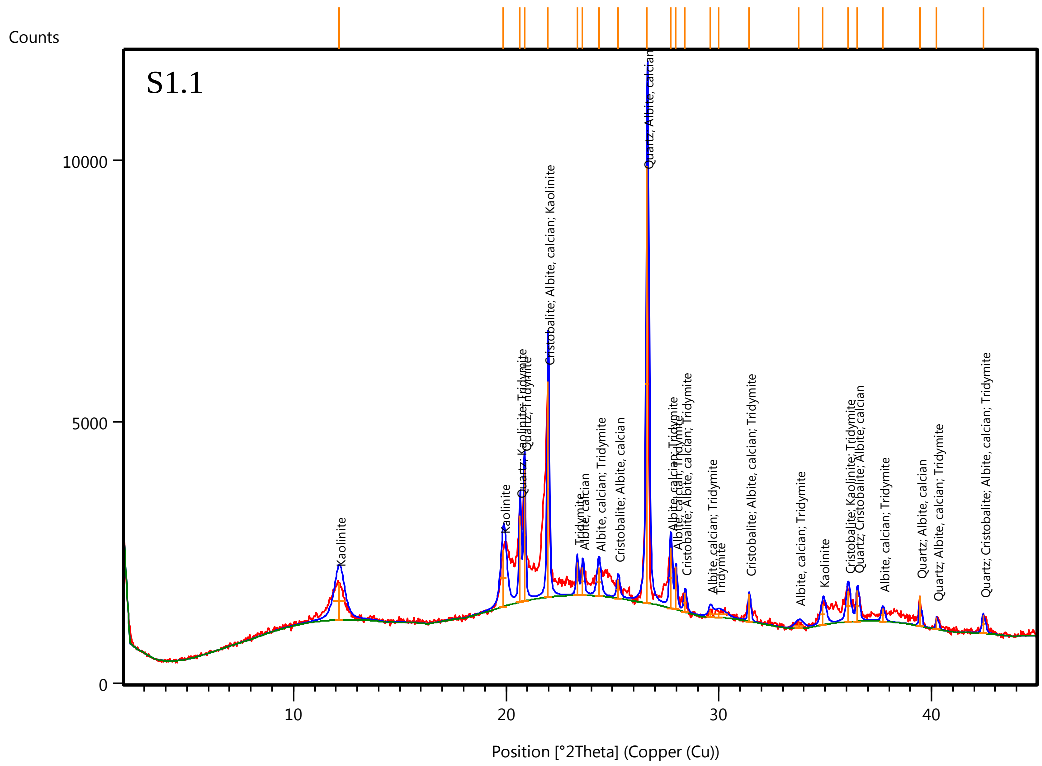

Counts
BR2
20000
10000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Albite
Quartz low, syn
Quartz low, syn; Albite

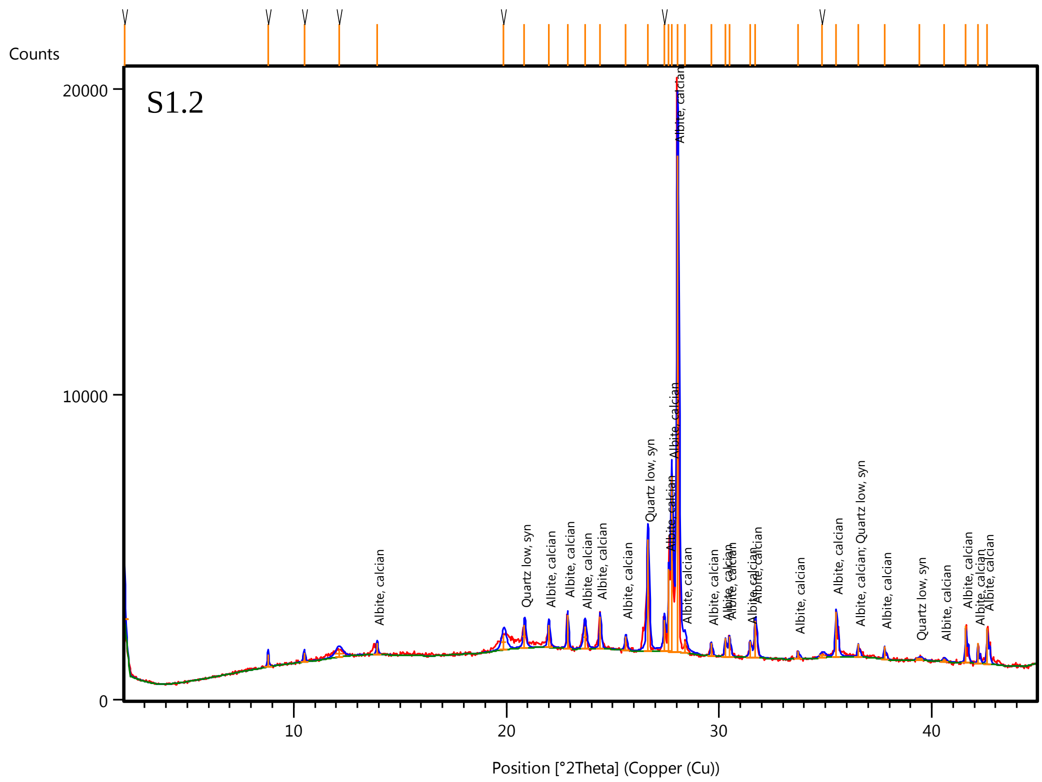

Counts
HT
6000
4000
2000
0
10
20
30
40
Albite, calcian
Quartz; Ilmenite
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian; Aragonite
Quartz; Ilmenite
Aragonite
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian; Aragonite
Albite, calcian
Ilmenite; Aragonite
Albite, calcian; Aragonite
Albite, calcian; Aragonite
Quartz; Albite, calcian; Ilmenite
Quartz; Albite, calcian; Ilmenite
Position [°2Theta] (Copper (Cu))

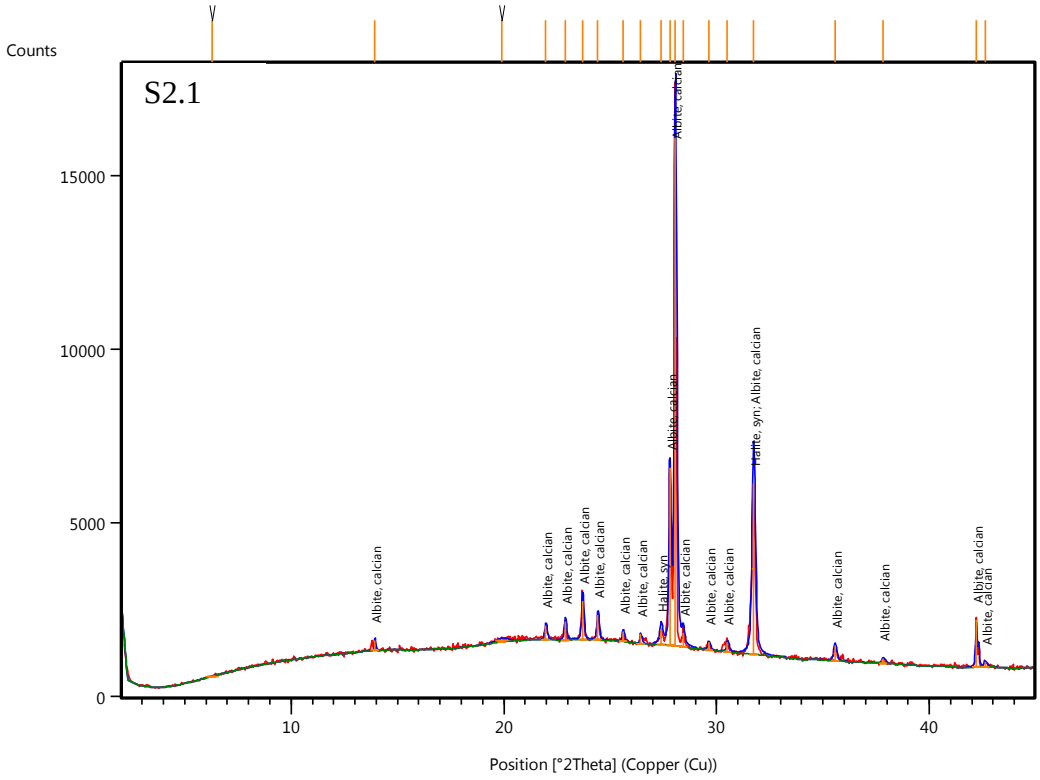

Counts
LT
20000
10000
0
10
20
30
40
Albite, calcian
Albite, calcian
Albite, calcian
Quartz
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Quartz; Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Quartz
Quartz; Albite, calcian
Albite, calcian
Albite, calcian
Position [°2Theta] (Copper (Cu))

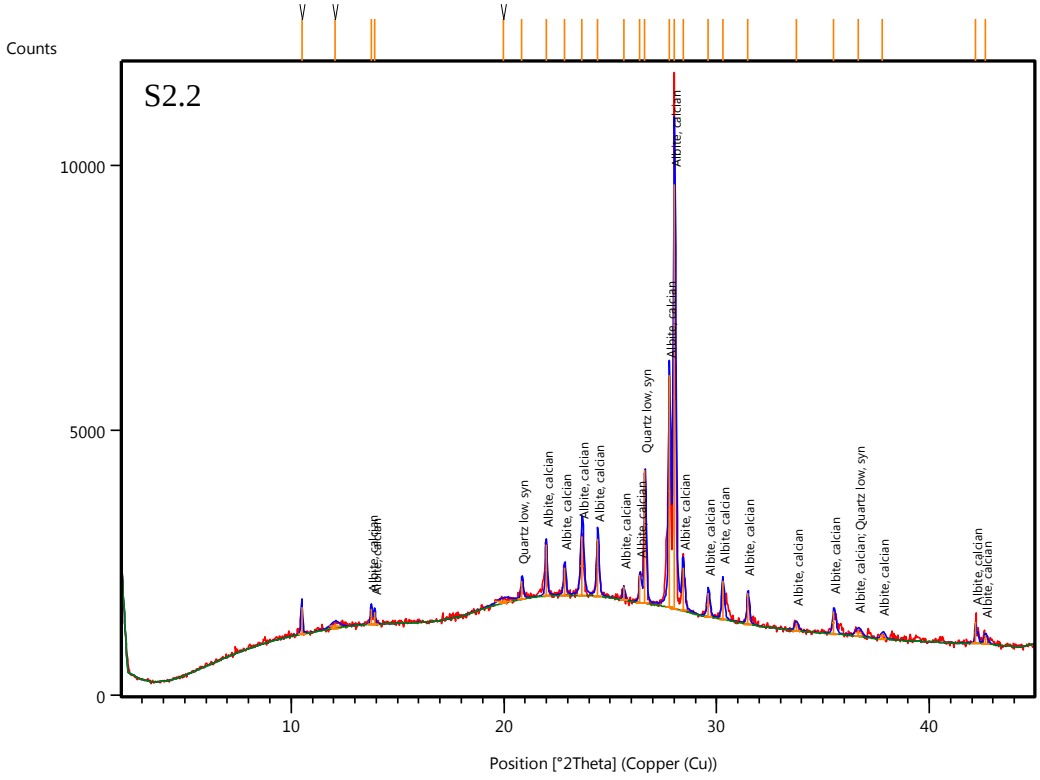

Counts
LT2
10000
5000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Kaolinite-1A
Albite, syn
Kaolinite-1A
Quartz
Albite, syn
Albite, syn
Albite, syn; Kaolinite-1A
Albite, syn
Kaolinite-1A
Albite, syn
Quartz; Kaolinite-1A
Albite, syn
Albite, syn
Albite, syn
Albite, syn
Albite, syn
Albite, syn
Albite, syn
Albite, syn
Albite, syn
Albite, syn; Quartz
Albite, syn
Albite, syn; Quartz
Albite, syn
Albite, syn

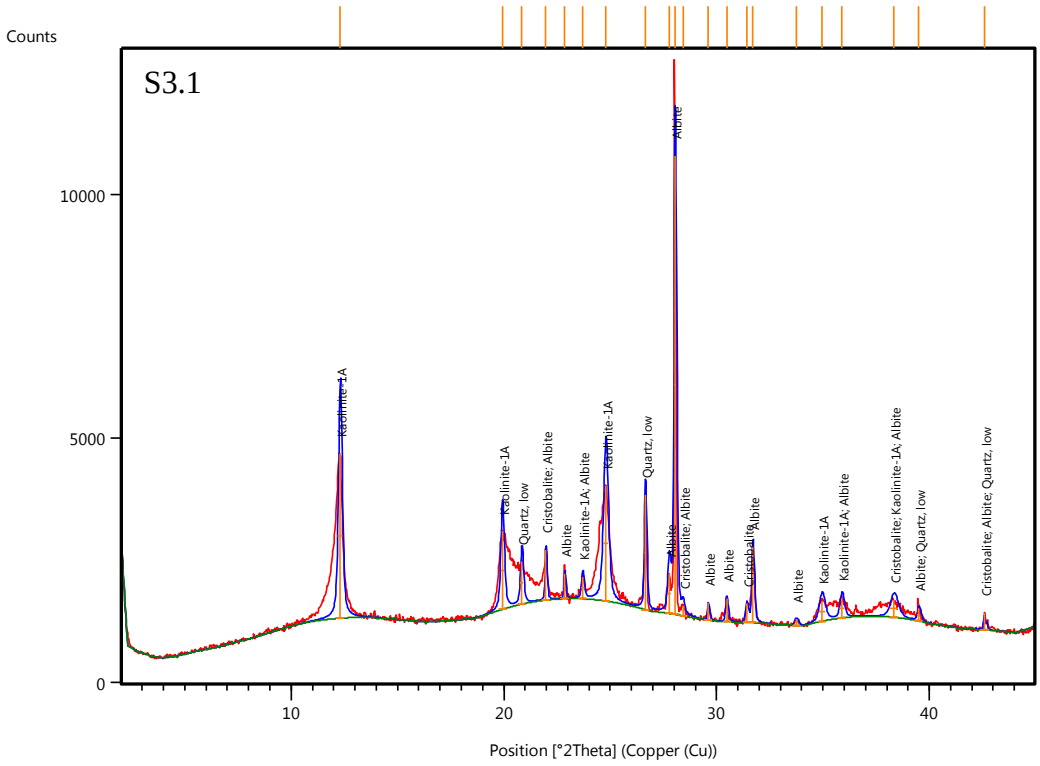
Cliff Samples

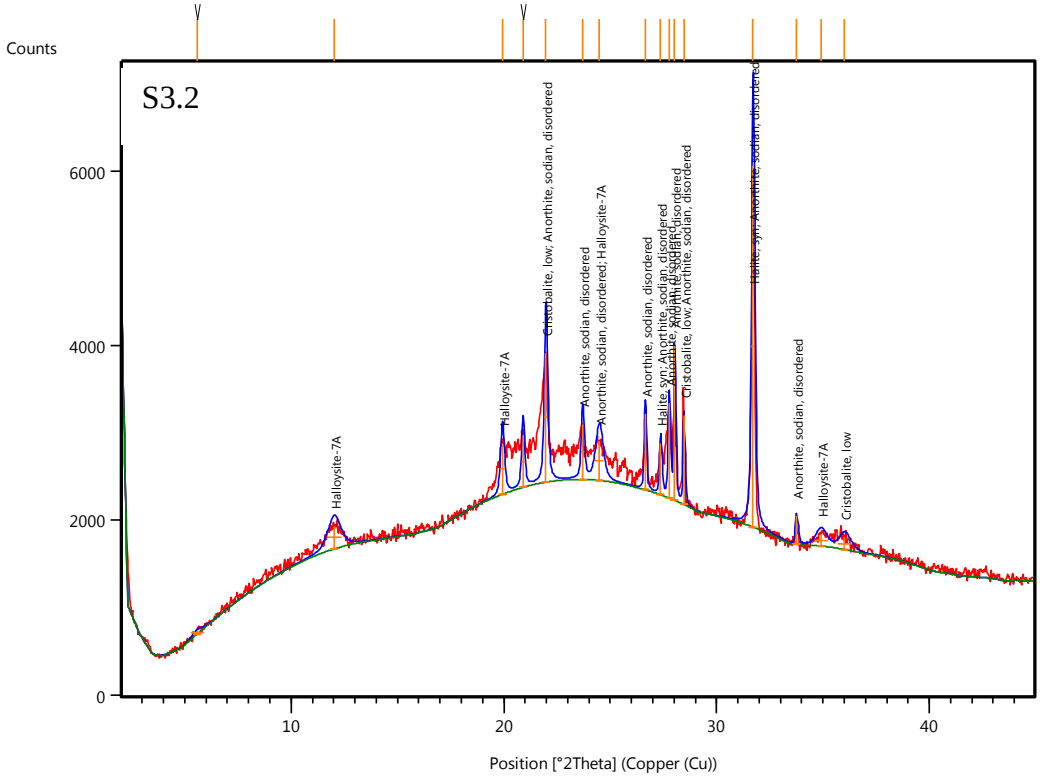


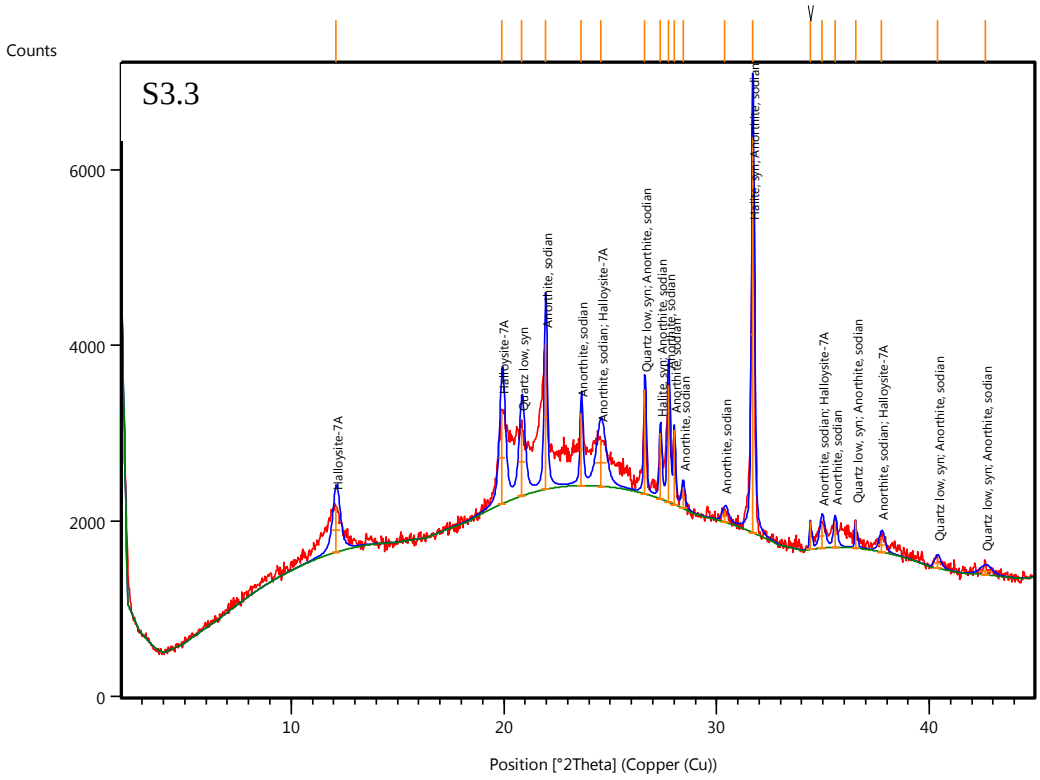


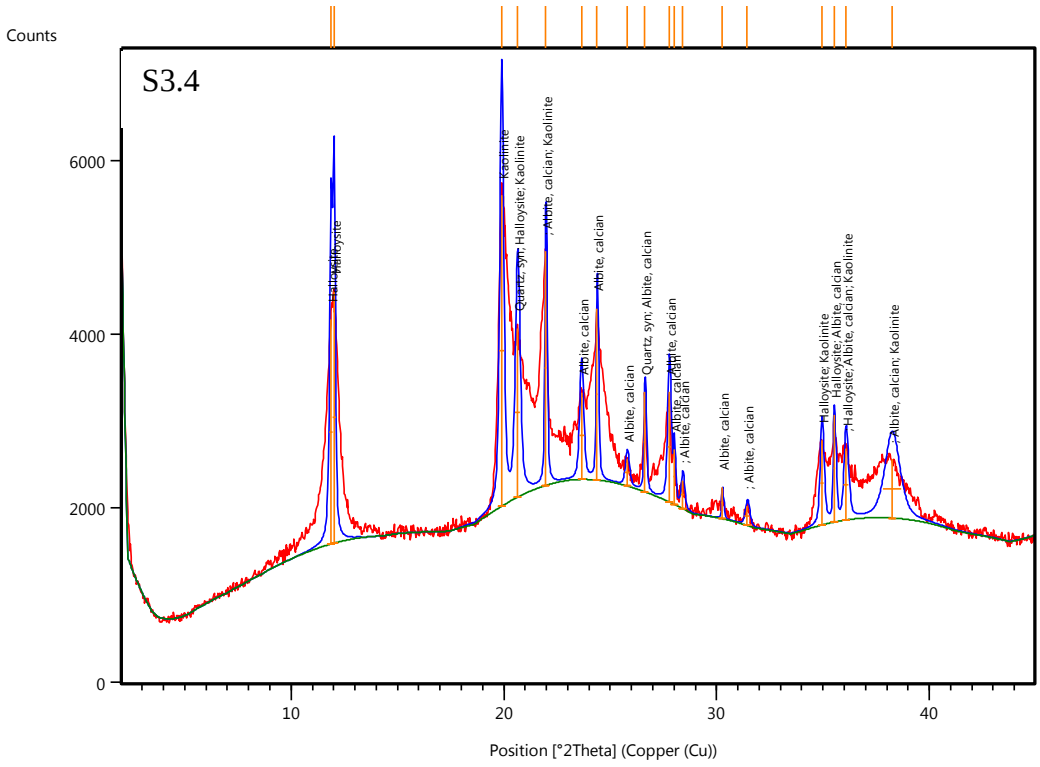

Counts
S2.1
15000
10000
5000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Halite, syn
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Halite, syn; Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian

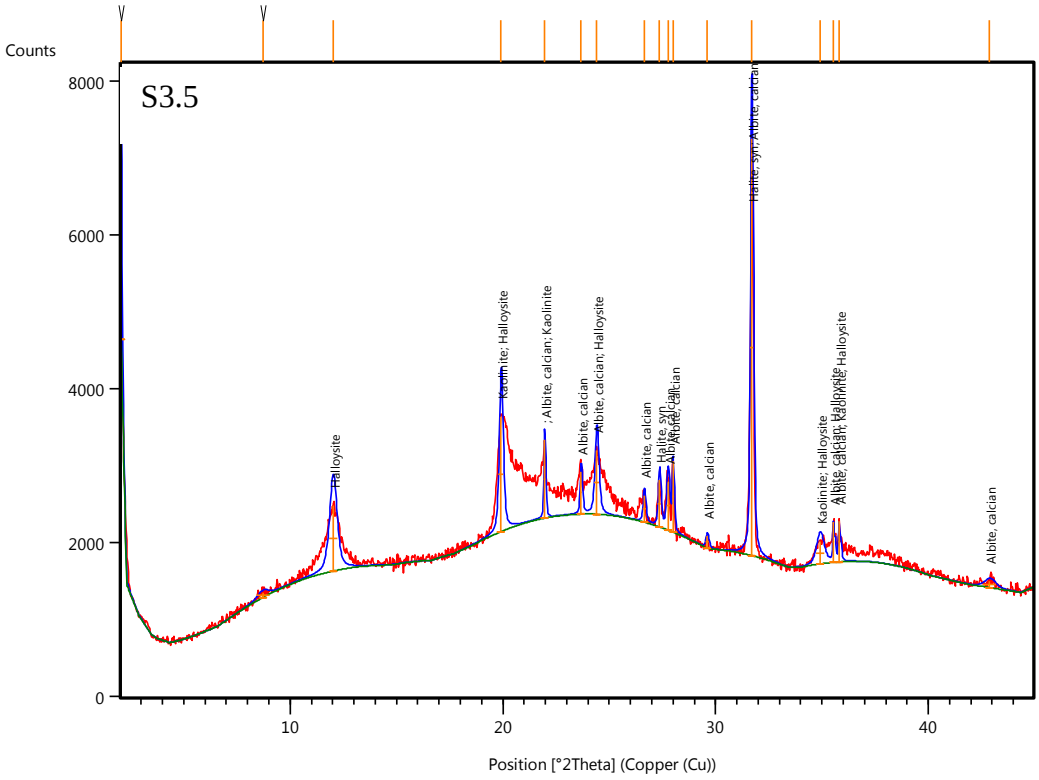

Counts
S2.2
10000
5000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Albite, calcian
Albite, calcian
Quartz low, syn
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Quartz low, syn
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian; Quartz low, syn
Albite, calcian
Albite, calcian
Albite, calcian

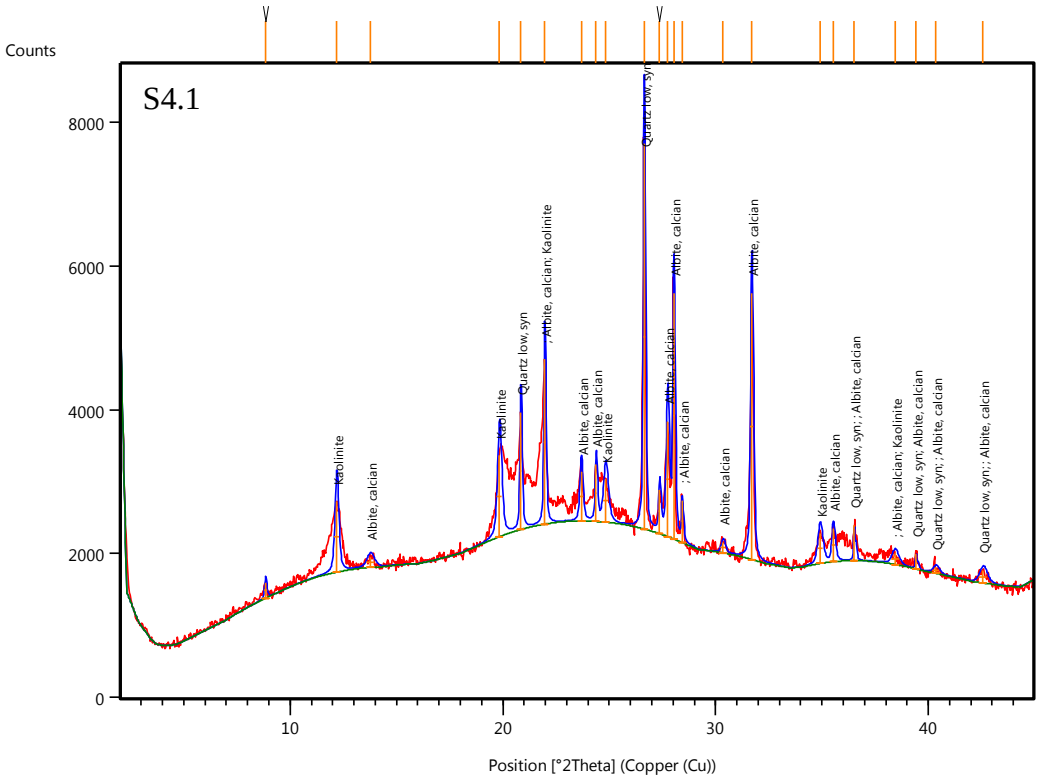

S3.1
Counts
10000
5000
0
Kaolinite-1A
Kaolinite-1A
Quartz, low
Cristobalite; Albite
Albite
Kaolinite-1A; Albite
Kaolinite-1A
Quartz, low
Albite
Albite
Cristobalite; Albite
Albite
Albite
Cristobalite
Albite
Kaolinite-1A
Kaolinite-1A; Albite
Cristobalite; Kaolinite-1A; Albite
Albite; Quartz, low
Cristobalite; Albite; Quartz, low
10
20
30
40
Position [°2Theta] (Copper (Cu))

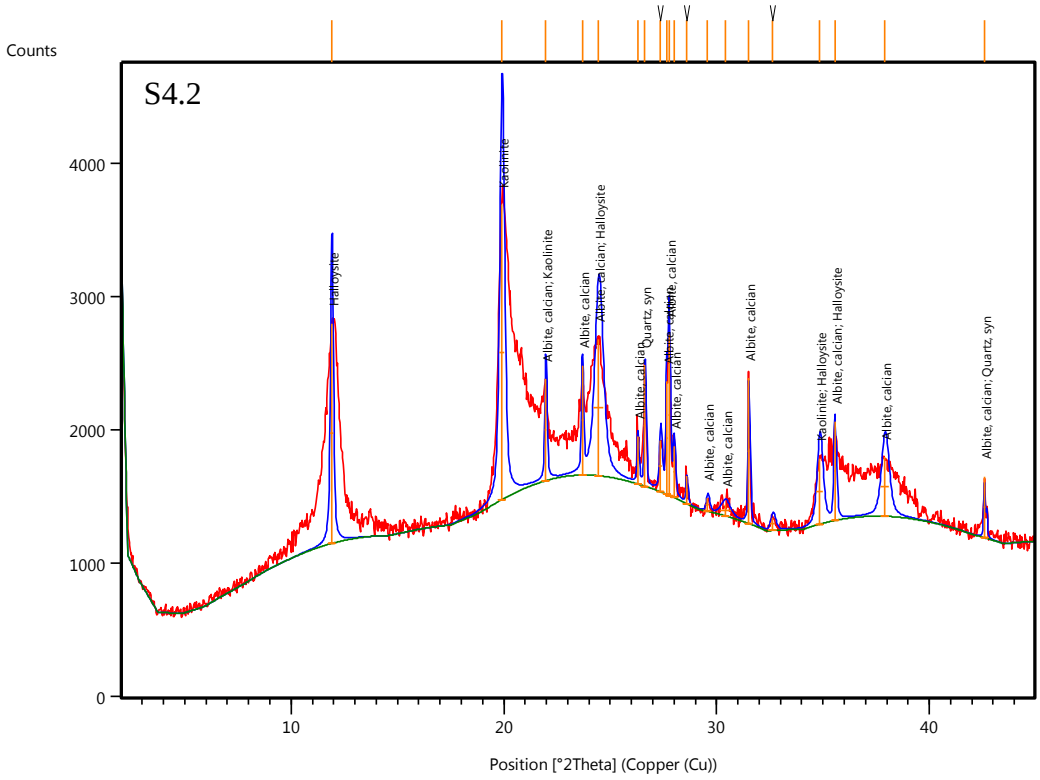

S3.2
Counts
6000
4000
2000
0
Halloysite-7A
Halloysite-7A
Cristobalite, low; Anorthite, sodian, disordered
Anorthite, sodian, disordered
Anorthite, sodian, disordered; Halloysite-7A
Anorthite, sodian, disordered
Halite, syn; Anorthite, sodian, disordered
Anorthite, sodian, disordered
Cristobalite, low; Anorthite, sodian, disordered
Halite, syn; Anorthite, sodian, disordered
Anorthite, sodian, disordered
Halloysite-7A
Cristobalite, low
10
20
30
40
Position [°2Theta] (Copper (Cu))

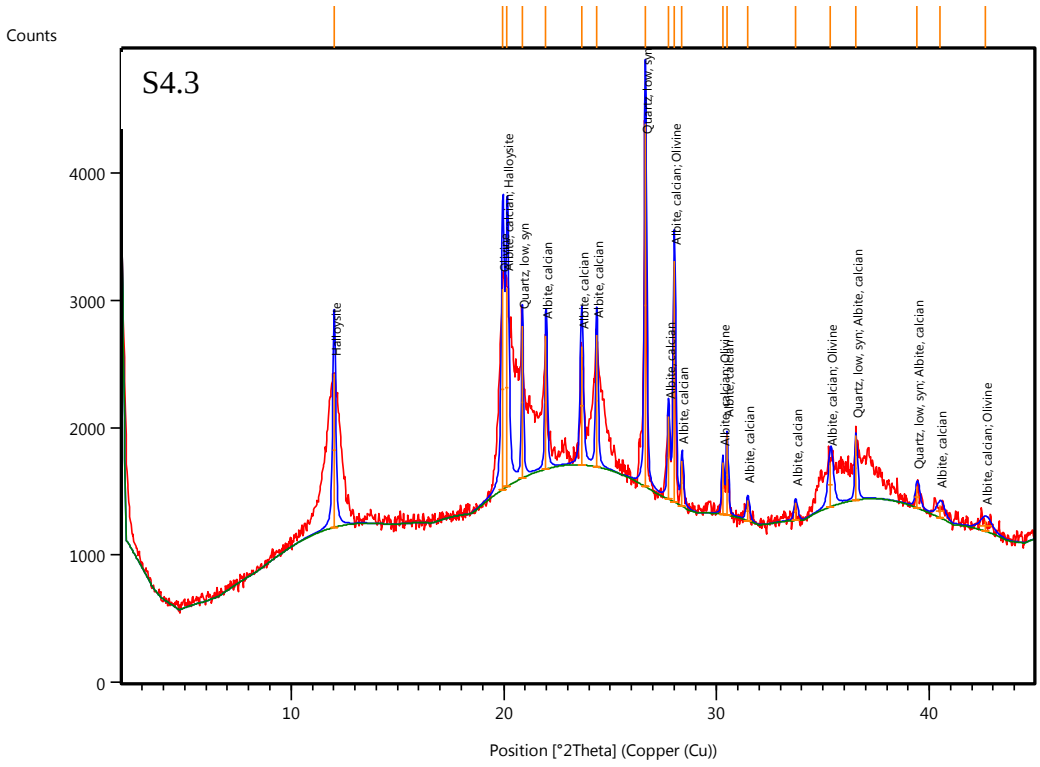

Counts
S3.3
6000
4000
2000
0
10
20
30
40
Halloysite-7A
Halloysite-7A
Quartz low, syn
Anorthite, sodian
Anorthite, sodian
Anorthite, sodian; Halloysite-7A
Quartz low, syn; Anorthite, sodian
Halite, syn; Anorthite, sodian
Anorthite, sodian
Anorthite, sodian
Anorthite, sodian
Anorthite, sodian
Anorthite, sodian; Halloysite-7A
Anorthite, sodian
Quartz low, syn; Anorthite, sodian
Anorthite, sodian; Halloysite-7A
Quartz low, syn; Anorthite, sodian
Quartz low, syn; Anorthite, sodian
Position [°2Theta] (Copper (Cu))

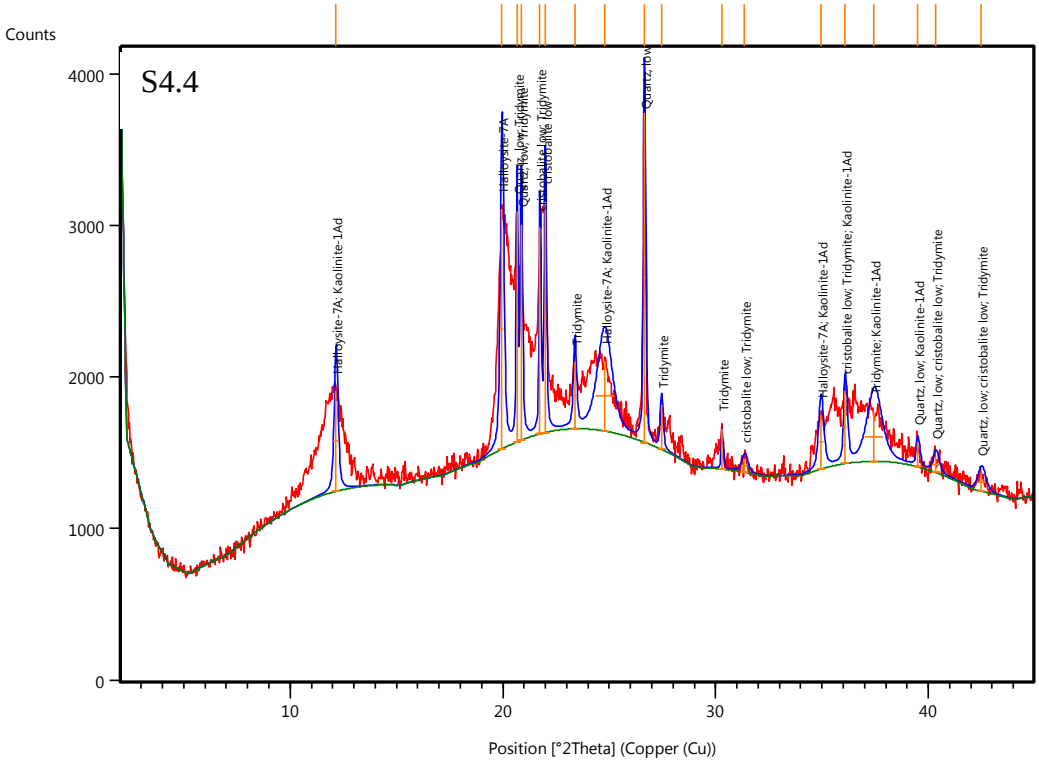

Counts
S3.4
6000
4000
2000
0
10
20
30
40
Halite; Halloysite
Kaolinite
Quartz, syn; Halloysite; Kaolinite
Albite, calcian; Kaolinite
Albite, calcian
Albite, calcian
Quartz, syn; Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Halloysite; Kaolinite
Halloysite; Albite, calcian
Halloysite; Albite, calcian; Kaolinite
Albite, calcian; Kaolinite
Position [°2Theta] (Copper (Cu))

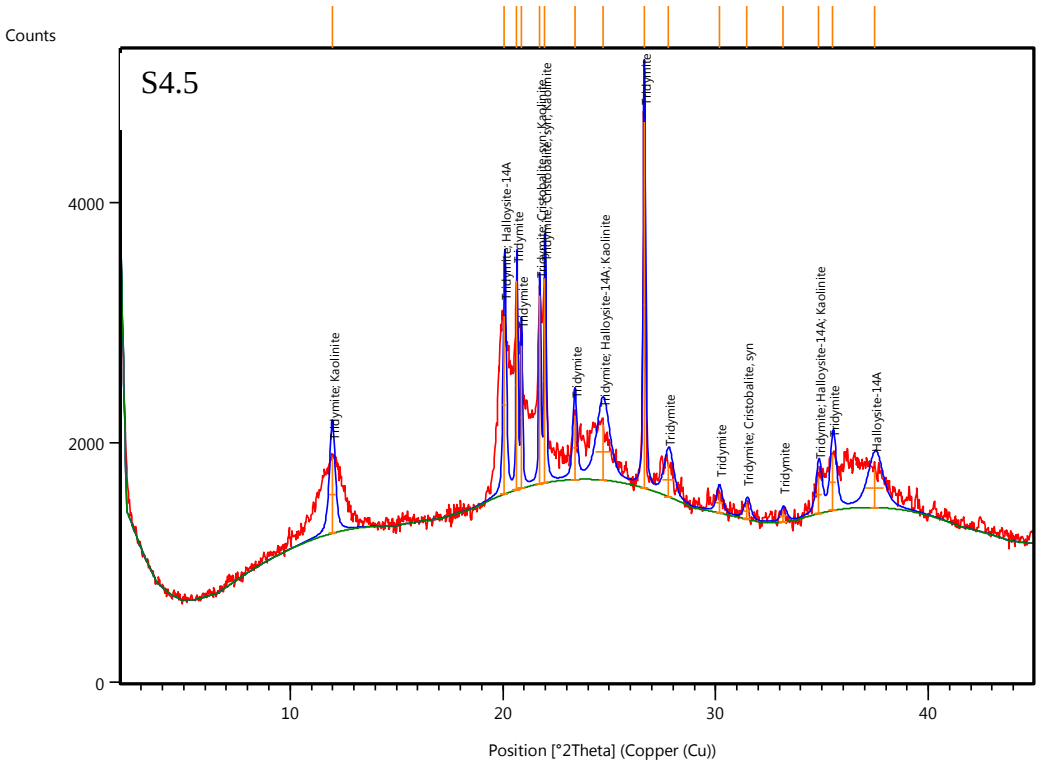

Counts
S3.5
8000
6000
4000
2000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Halloysite
Kaolinite; Halloysite
; Albite, calcian; Kaolinite
Albite, calcian
Albite, calcian; Halloysite
Albite, calcian
Halite, syn
Albite, calcian
Albite, calcian
Halite, syn; Albite, calcian
Kaolinite; Halloysite
Albite, calcian; Kaolinite
Albite, calcian

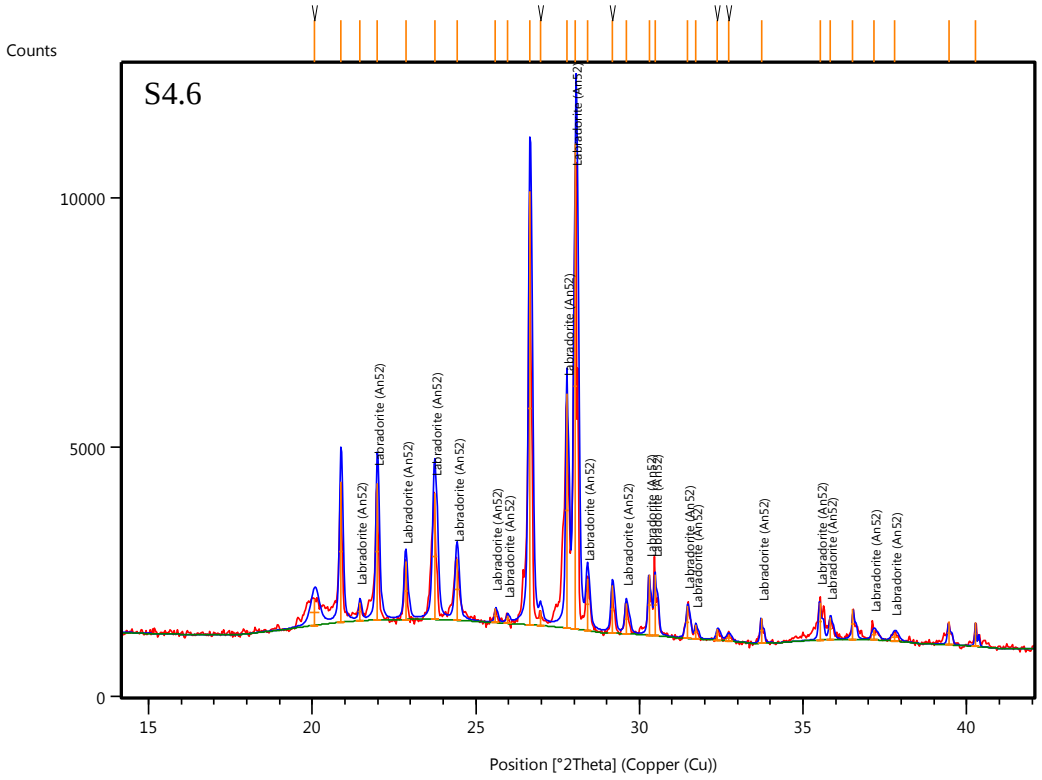

Counts
S4.1
8000
6000
4000
2000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Kaolinite
Albite, calcian
Kaolinite
Quartz low, syn
; Albite, calcian; Kaolinite
Albite, calcian
Albite, calcian
Kaolinite
Quartz low, syn
Albite, calcian
; Albite, calcian
Albite, calcian
Albite, calcian
Kaolinite
Albite, calcian
Quartz low, syn; ; Albite, calcian
; Albite, calcian; Kaolinite
Quartz low, syn; Albite, calcian
Quartz low, syn; ; Albite, calcian
Quartz low, syn; ; Albite, calcian

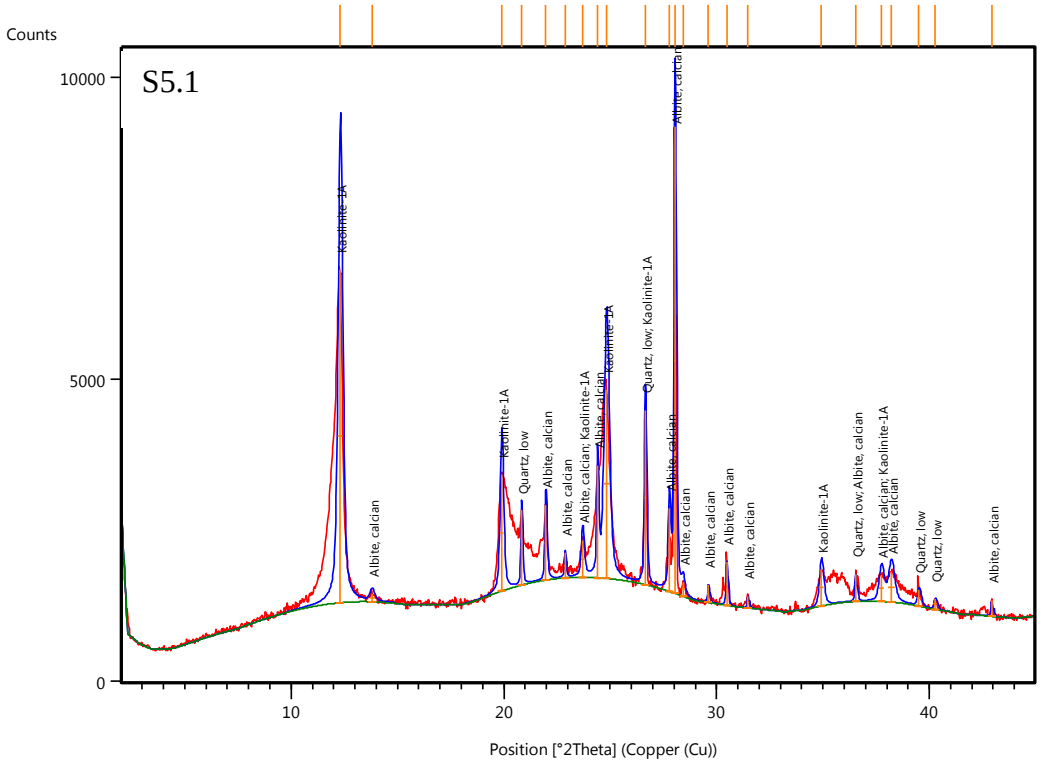

Counts
S4.2
4000
3000
2000
1000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Halloysite
Kaolinite
Albite, calcian; Kaolinite
Albite, calcian
Albite, calcian; Halloysite
Quartz, syn
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Kaolinite; Halloysite
Albite, calcian; Halloysite
Albite, calcian
Albite, calcian; Quartz, syn


Counts
S4.3
4000
3000
2000
1000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Halloysite
Albite, calcian; Halloysite
Quartz, low, syn
Albite, calcian
Albite, calcian
Albite, calcian
Quartz, low, syn
Albite, calcian; Olivine
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian
Albite, calcian; Olivine
Quartz, low, syn; Albite, calcian
Quartz, low, syn; Albite, calcian
Albite, calcian
Albite, calcian; Olivine


Counts
S4.4
4000
3000
2000
1000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Halloysite-7A; Kaolinite-1Ad
Halloysite-7A
Quartz, low; Tridymite
Tridymite
Quartz, low
Halloysite-7A; Kaolinite-1Ad
Tridymite
Tridymite
cristobalite low; Tridymite
Halloysite-7A; Kaolinite-1Ad
cristobalite low; Tridymite; Kaolinite-1Ad
Tridymite; Kaolinite-1Ad
Quartz, low; Kaolinite-1Ad
Quartz, low; cristobalite low; Tridymite
Quartz, low; cristobalite low; Tridymite


Counts
S4.5
4000
2000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Tridymite; Kaolinite
Tridymite; Halloysite-14A
Tridymite
Tridymite
Tridymite
Tridymite; Halloysite-14A; Kaolinite
Tridymite
Tridymite
Tridymite
Tridymite; Cristobalite, syn
Tridymite
Tridymite; Halloysite-14A; Kaolinite
Tridymite
Halloysite-14A


Counts
S4.6
10000
5000
0
15
20
25
30
35
40
Position [°2Theta] (Copper (Cu))
Labradorite (An52)


Counts
S5.1
10000
5000
0
10
20
30
40
Position [°2Theta] (Copper (Cu))
Kaolinite-1A
Albite, calcian
Quartz, low
Quartz, low; Kaolinite-1A
Albite, calcian; Kaolinite-1A
Quartz, low; Albite, calcian

Appendix 3

Full account of tidal harmonic analysis results.

Bramley Drive

Constituent	Frequency	Amplitude (m)	Amplitude error	Phase	Phase error	Signal to noise ratio
MSF	0.0028219	0.0223	0.084	272.80	0.83	2150.07
2Q1	0.0357064	0.0039	0.005	265.72	108.23	0.53
Q1	0.0372185	0.0026	0.005	2.63	123.52	0.23
***O1**	0.0387307	0.0098	0.007	163.95	43.02	2
NO1	0.0402686	0.0045	0.006	7.13	82.49	0.61
***K1**	0.0417807	0.0365	0.006	318.26	10.42	33
J1	0.0432929	0.0080	0.006	244.50	52.96	1.7
OO1	0.0448308	0.0032	0.005	298.21	117.93	0.37
UPS1	0.0463430	0.0014	0.005	162.80	193.65	0.063
***N2**	0.0789992	0.1485	0.046	13.71	19.22	10
***M2**	0.0805114	0.7620	0.045	323.71	3.48	2.9e+002
***S2**	0.0833333	0.1092	0.046	326.44	26.86	5.6
ETA2	0.0850736	0.0098	0.035	84.05	201.58	0.077
***MO3**	0.1192421	0.0038	0.002	129.74	32.36	3.2
MK3	0.1222921	0.0029	0.002	118.64	46.60	1.8
SK3	0.1251141	0.0019	0.002	194.74	67.40	1.1
***MN4**	0.1595106	0.0118	0.007	149.88	38.80	2.8
***M4**	0.1610228	0.0300	0.008	97.18	14.00	13
MS4	0.1638447	0.0078	0.008	120.86	54.18	0.95
S4	0.1666667	0.0005	0.005	175.19	258.27	0.0086
***2MK5**	0.2028035	0.0036	0.001	258.76	22.02	8.3
2SK5	0.2084474	0.0003	0.001	83.92	190.67	0.091
***2MN6**	0.2400221	0.0201	0.012	308.40	30.68	2.9
***M6**	0.2415342	0.0362	0.011	267.67	15.55	10
2MS6	0.2443561	0.0114	0.011	262.76	50.65	1.2
2SM6	0.2471781	0.0001	0.007	50.53	260.60	0.00033
3MK7	0.2833149	0.0009	0.001	32.99	74.63	0.92
***M8**	0.3220456	0.0043	0.002	12.85	28.74	5.1

Opureora Point

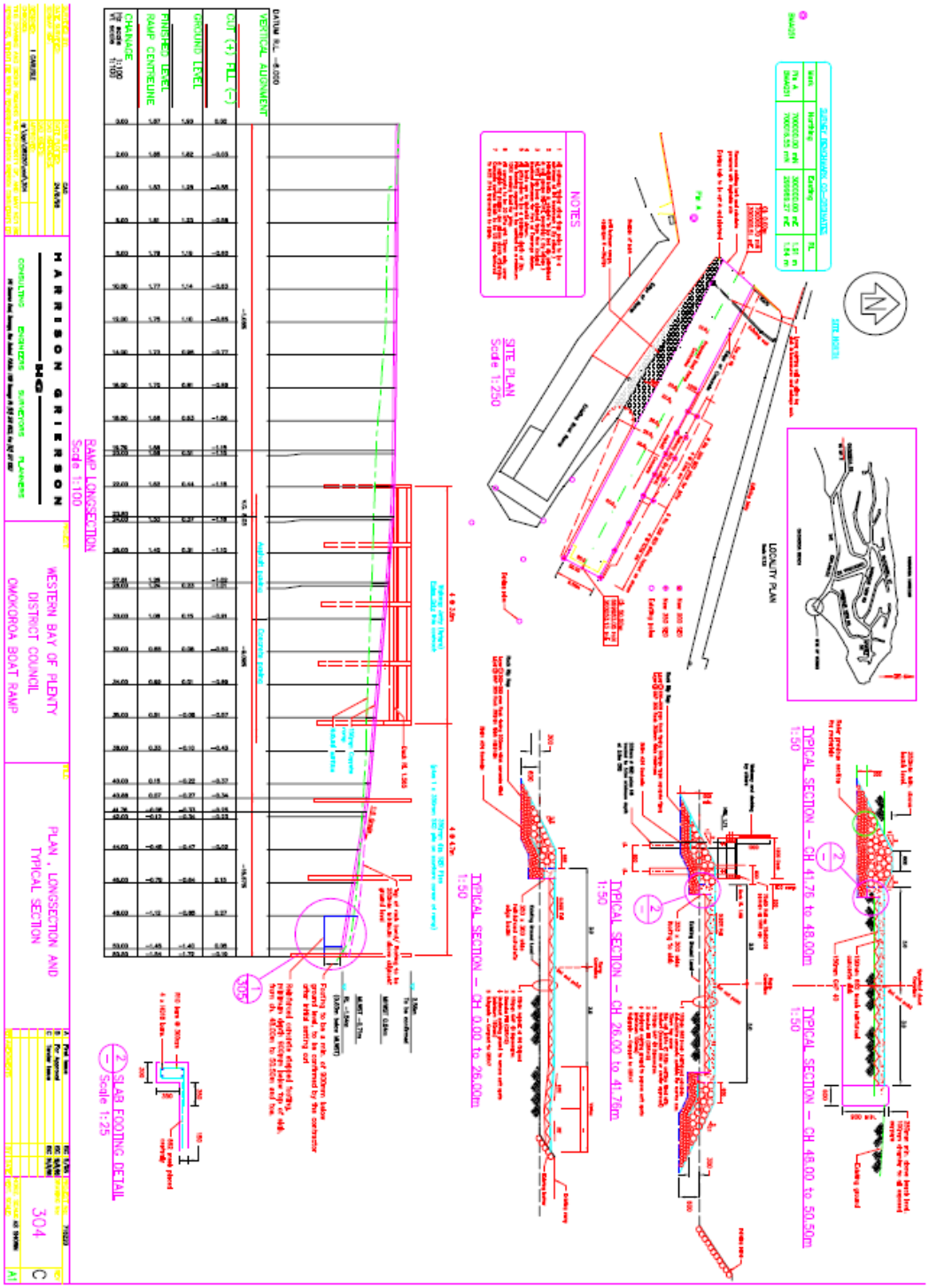
Constituent	Frequency	Amplitude (m)	Amplitude error	Phase	Phase error	Signal to noise ratio
MSF	0.0028219	0.0271	0.075	263.79	162.96	0.13
2Q1	0.0357064	0.0010	0.002	203.90	132.76	0.26
Q1	0.0372185	0.0023	0.002	19.29	75.84	0.92
***O1**	0.0387307	0.0112	0.003	120.36	13.35	16
NO1	0.0402686	0.0065	0.003	306.08	24.21	5.3
***K1**	0.0417807	0.0347	0.003	238.43	4.47	1.9e+002
J1	0.0432929	0.0071	0.003	150.25	21.07	7.1
OO1	0.0448308	0.0030	0.003	197.56	50.81	1.3
UPS1	0.0463430	0.0004	0.002	84.04	193.65	0.05
***N2**	0.0789992	0.1439	0.041	264.20	16.62	12
***M2**	0.0805114	0.7262	0.048	200.08	3.55	2.3e+002
***S2**	0.0833333	0.1044	0.048	170.57	26.00	4.8
ETA2	0.0850736	0.0110	0.034	284.33	173.97	0.1
***MO3**	0.1192421	0.0036	0.002	306.52	31.54	3.2
***M3**	0.1207671	0.0030	0.002	200.78	40.61	2.6
MK3	0.1222921	0.0024	0.002	260.95	40.51	1.9
SK3	0.1251141	0.0013	0.002	324.50	92.93	0.64
***MN4**	0.1595106	0.0099	0.005	276.16	33.65	3.3
***M4**	0.1610228	0.0238	0.006	204.57	12.07	17
MS4	0.1638447	0.0061	0.006	190.13	56.37	1.2
S4	0.1666667	0.0011	0.005	152.26	206.00	0.06
***2MK5**	0.2028035	0.0026	0.001	304.88	21.86	7.9
2SK5	0.2084474	0.0009	0.001	52.60	52.20	1.4
***2MN6**	0.2400221	0.0166	0.006	323.77	25.13	6.7
***M6**	0.2415342	0.0286	0. 007	264.96	12.06	17
2MS6	0.2443561	0.0089	0.006	227.00	40.88	2.3
2SM6	0.2471781	0.0004	0.004	108.13	220.37	0.0095
3MK7	0.2833149	0.0006	0.001	294.53	68.06	0.84
***M8**	0.3220456	0.0013	0.001	211.33	58.14	1.2

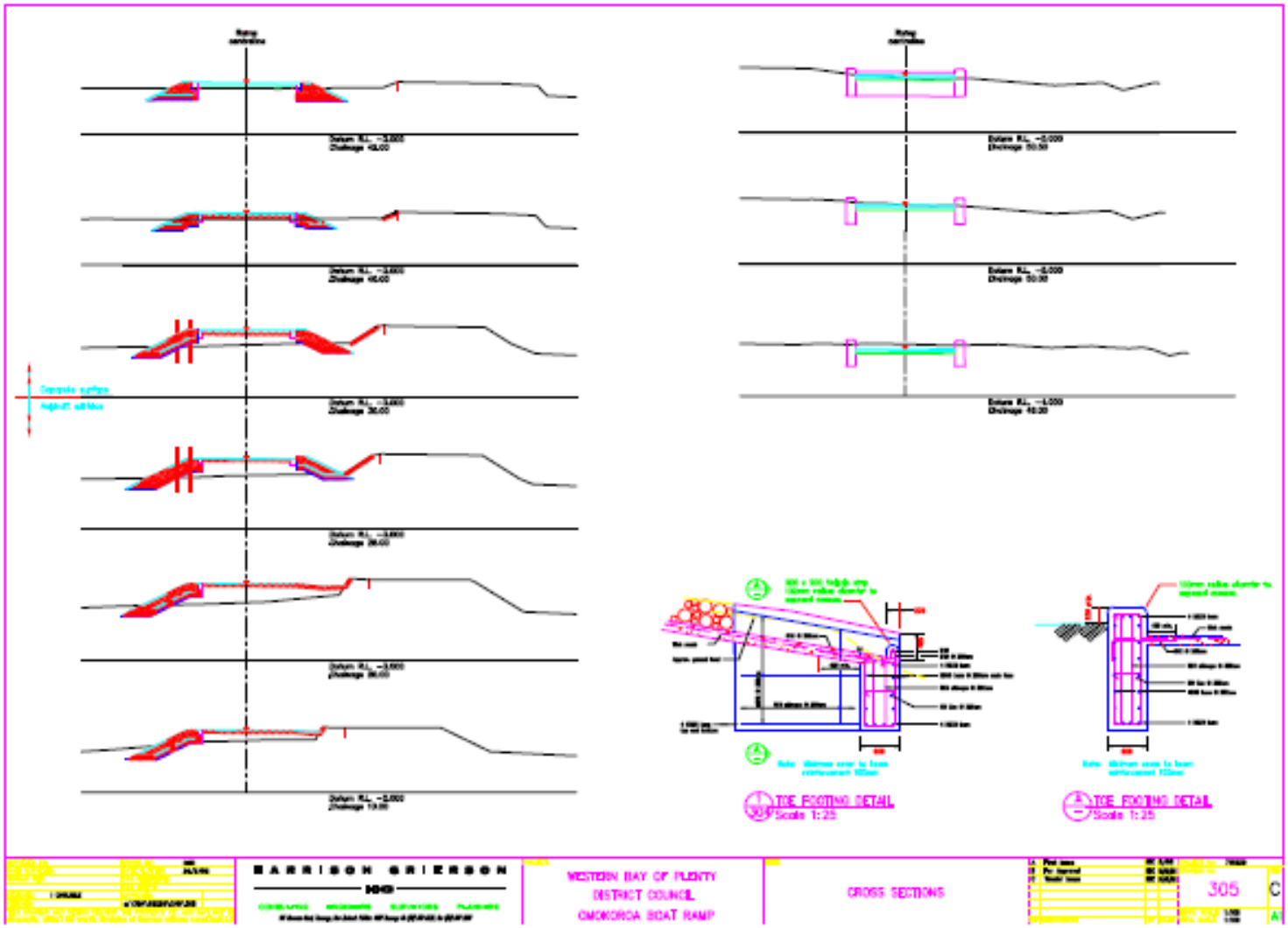
Te Puna

Constituent	Frequency	Amplitude (m)	Amplitude error	Phase	Phase error	Signal to noise ratio
MSF	0.0028219	0.0194	0.092	5.14	197.67	0.044
2Q1	0.0357064	0.0015	0.003	259.98	132.17	0.24
Q1	0.0372185	0.0023	0.003	103.88	91.59	0.5
***O1**	0.0387307	0.0103	0.003	4.83	17.48	10
NO1	0.0402686	0.0066	0.003	347.15	31.04	3.7
***K1**	0.0417807	0.0346	0.003	27.40	6.28	1e+002
J1	0.0432929	0.0086	0.004	29.39	22.05	5.9
OO1	0.0448308	0.0040	0.004	48.58	54.81	1
UPS1	0.0463430	0.0023	0.003	43.73	82.53	0.48
***N2**	0.0789992	0.1475	0.043	192.30	18.32	12
***M2**	0.0805114	0.7285	0.043	229.47	3.98	2.9e+002
***S2**	0.0833333	0.1050	0.045	315.70	23.48	5.4
ETA2	0.0850736	0.0105	0.033	141.80	198.40	0.099
***MO3**	0.1192421	0.0032	0.001	218.52	23.14	5.5
***M3**	0.1207671	0.0031	0.001	63.33	27.45	5
MK3	0.1222921	0.0029	0.001	72.64	25.62	5.1
SK3	0.1251141	0.0014	0.001	247.09	58.97	0.99
***MN4**	0.1595106	0.0125	0.006	235.70	30.15	4.1
***M4**	0.1610228	0.0280	0.007	264.59	13.80	17
MS4	0.1638447	0.0074	0.006	8.70	47.49	1.5
S4	0.1666667	0.0009	0.005	140.65	201.02	0.04
***2MK5**	0.2028035	0.0033	0.001	143.62	16.92	15
2SK5	0.2084474	0.0009	0.001	119.02	61.13	1.1
***2MN6**	0.2400221	0.0160	0.006	307.65	21.50	7.3
***M6**	0.2415342	0.0278	0.007	349.78	15.04	16
2MS6	0.2443561	0.0089	0.006	68.01	43.93	2.2
2SM6	0.2471781	0.0005	0.005	27.75	245.34	0.012
3MK7	0.2833149	0.0007	0.001	193.42	71.39	0.67
***M8**	0.3220456	0.0030	0.001	359.19	29.33	4.3

Appendix 4

Boat ramp construction plans. Unable to confirm if they are the final version - measurements were taken that correlate to dimensions of the boat ramp.





BARRISON GRIERSON

WESTERN BAY OF PLENTY DISTRICT COUNCIL
OMOKOROA BOAT RAMP

CROSS SECTIONS

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