



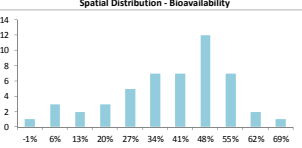
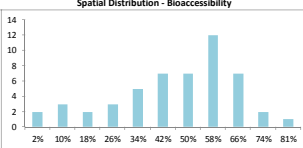
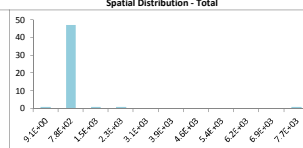
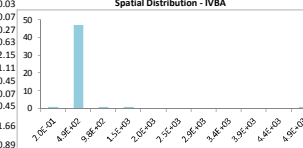
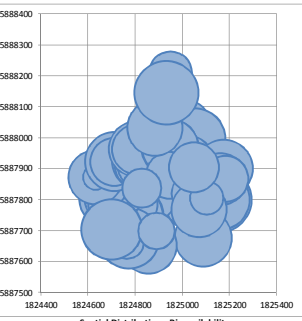
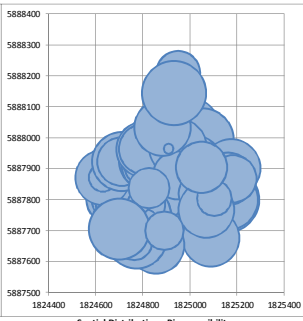
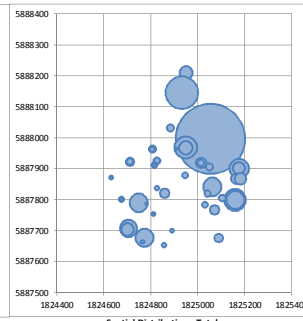
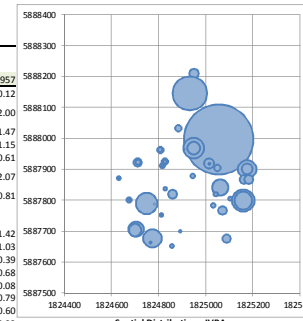
APPENDIX G

Bioaccessibility Datasets and Statistical Analyses

Statistical tests for contaminated land data, taken from CEH (2008) to meet the requirements of MFE (2011)
 Apply only to a single averaging area, and not to data from judgemental sampling or to soils from different strata.
 This spreadsheet can handle 4 contaminants by 50 data points.

Moanatairi - Lead (exc samples > 500 mm bgl)		Choose distribution: Normal		Shapiro-Wilk Test for normality		CLR5 tests for excessive LODs: >25%		Grubbs Test to identify high outliers	
		Guideline value		W _{stat}		1 - manually check effect of W		2.957 2.957 2.957 2.957	
		210 210		0.947 0.947		0.306 0.305		0.947 0.947	
		100% 100%		0.306 0.305		0.959 0.959			
All units	mg/kg unless stated	Eastings	Northings	Depth	IVBA	Total Bioaccessibility	Bioavailability	Pass	Pass
103 Fergusson Dve	Topsoil with minor roots, brown, soft.	1825015	5888045	0	51	125	41%	33%	51
103 Fergusson Dve	SILT with minor clay and sand, brown mottled light brown, moist. Medium to coarse grained sand.	1825015	5888045	400	25	350	7%	3%	350
211 Tararu Rd	Topsoil, Sandy silty, brown, moist.	1825054	5887997	0	29	174	17%	12%	29
211 Tararu Rd	SAND, orange brown, moist. Fine to medium grained.	1825054	5887997	400	4900	7700	64%	53%	4900
202 Kurauai St	Topsoil, brown, moist, soft.	1825014	5887920	0	97	180	54%	45%	97
202 Kurauai St	SAND, light brown, moist. Fine to medium grained. Perched groundwater encountered at 450 mm bgl.	1825014	5887920	0	3.8	65	6%	2%	3.8
1101 Queen St	Topsoil, brown, moist.	1825174	5887901	0	340	590	58%	48%	340
1101 Queen St	Sandy GRAVEL with some rocks up to 10cm in diameter, black, moist. Coarse sand, medium to coarse gravel.	1825174	5887901	400	115	240	Not used as bulk of particles too big to be readily ingested		115
103 Haven St	Topsoil with minor grass roots, dark brown.	1825158	5887800	0	500	730	68%	57%	500
103 Haven St	CLAY with some shells and some coarse gravel (black), minor sand, brown, moist.	1825158	5887800	400	320	520	62%	51%	320
117 Tararu Rd	Topsoil with minor gravel, brown, moist. Coarse grained.	1825060	5887842	0	260	520	50%	41%	260
405 Burke St	Topsoil with minor sand, dark brown, moist.	1825088	5887677	0	69	125	55%	46%	69
110 Kurauai St	Topsoil, minor grass roots, brown, moist, soft.	1825011	5887784	0	22	53	42%	34%	22
117 Moanatairi St	Topsoil, some roots, dark brown, soft.	1824859	5887820	0	84	147	57%	47%	84
201 Burke St	Topsoil, some gravel, brown, moist.	1824856	5887653	0	16.7	31	54%	44%	16.7
110 Centennial Ave	Topsoil, minor roots, brown, moist, soft.	1824812	5887754	0	9.6	22	44%	36%	9.6
110 Centennial Ave	Silty CLAY with some sand, occasional gravel up to 7 cm diameter, light brown. Hard.	1824812	5887754	400	5.1	12.2	42%	34%	5.1
409 Enzor St	Topsoil, dark brown, moist, soft.	1824674	5887802	0	22	46	48%	39%	22
409 Enzor St	SILT with some clay and some gravel, light brown, moist. Coarse gravel.	1824674	5887802	400	3.8	12	32%	25%	3.8
104 Margaret Pl	Topsoil, minor roots, brown, moist, soft.	1824748	5887790	0	440	540	81%	69%	440
103 Margaret Pl	FILL, topsoil with large gravel, brown, moist.	1824773	5887677	0	240	340	50%	40%	240
437 Fergusson Dve	Topsoil, minor roots, brown, moist, soft.	1824704	5887708	0	230	450	51%	42%	230
437 Fergusson Dve	SILT with some clay and sand, brown mottled light brown, moist, soft.	1824704	5887708	400	27	61	44%	36%	27
417 Fergusson Dve	Sandy SILT with some cobbles up to 10cm diameter (Fill), brown, moist.	1824631	5887873	0	13.3	26	51%	42%	13.3
417 Fergusson Dve	Clayey SILT with some sand, occasional gravel, light brown, dry. Hard, medium to coarse grained sand.	1824631	5887873	400	1.2	9.1	13%	9%	1.2
401 Fergusson Dve	Topsoil, dark brown, moist.	1824711	5887923	0	66	112	59%	49%	66
401 Fergusson Dve	Clayey SILT with some sand, light brown, moist. Wet from 300 mmbgl.	1824711	5887923	400	25	62	40%	33%	25
207 Moanatairi St	Topsoil, some roots, moist, soft.	1824826	5887927	0	42	70	60%	50%	42
207 Moanatairi St	Clayey SILT with occasional gravel, light brown mottled red, moist. Wet from 400 mmbgl.	1824826	5887927	400	16.4	48	34%	27%	16.4
206 Centennial Ave	Topsoil, some roots, dark brown, dry.	1824815	5887913	0	22	53	42%	34%	22
206 Centennial Ave	SILT with minor clay, dark brown, moist. Hard.	1824815	5887913	400	7	21	33%	26%	7
303 Fergusson Dve	Topsoil, brown, moist, soft.	1824806	5887964	0	41	77	53%	44%	41
303 Fergusson Dve	SILT with some shells and some sand, glass pieces, brown, moist.	1824806	5887964	400	20	46	43%	35%	20
209 Kurauai St	Topsoil, some shells, dark brown, moist, soft.	1824948	5887969	0	440	790	56%	46%	440
209 Kurauai St	Sandy SILT with some crushed rocks, light brown, wet. Medium grained sand.	1824948	5887969	400	160	290	55%	46%	160
107 Burke St	Silty fine-coarse SAND, light brown mottled white. Medium dense; white	1824764	5887664	500	4.3	19.5	22%	17%	4.3
110 Centennial Ave	SILT with minor medium sand, light brownish orange. Soft dry.	1824781	5887788	500	1	11.9	8%	5%	1
101 Coromandel St	Sandy SILT with minor clay, brownish orange with mottled white. Firm; moist; sand, fine-coarse.	1825161	5887868	500	78	168	46%	38%	78
103 Coromandel St	Fine SAND with minor fine gravel, dark brown mottled white. Loose, dry.	1825181	5887869	0	83	220	38%	30%	83
204 Enzor St	Silty fine-medium SAND, brown. Medium dense, dry.	1824945	5887880	0	19.8	51	39%	31%	19.8
303 Enzor St	Fine-coarse SAND, mottled light brown and white. Loose; dry.	1824826	5887838	500	9.2	33	28%	22%	9.2
1178 Fergusson Dve	Sandy SILT, dark brown. Very soft; moist; sand medium to coarse.	1824949	5888210	0	94	280	34%	27%	94
207 Fergusson Dve	Medium SAND with minor medium-coarse gravel. Dark brown. Loose. Dry.	1824883	5888033	0	45	85	53%	44%	45
437 Fergusson Dve	Sandy SILT, brown. Soft; moist; sand, fine-coarse	1824700	5887705	0	156	250	62%	52%	156
114 Kurauai St	Silty CLAY, brownish orange. Very soft; 0.5-0.6m moist.	1825042	5887821	500	17.3	57	30%	24%	17.3
314 Kurauai St	Fine SAND with minor medium to coarse gravel; dark brown. Loose; dry.	1824932	5888146	0	1190	1730	69%	58%	1190
105 Moanatairi St	Silty CLAY with minor sand, mottled light brown and white. Firm; moist.	1824891	5887700	500	5.7	23	25%	19%	5.7
208 Moanatairi St	Medium SAND with minor fine-medium gravel; brownish orange. Medium dense; dry.	1824909	5887965	500	0.2	11.4	2%	-1%	0.2
109 Tararu Rd	Silty medium SAND; brown. Loose; dry.	1825070	5887768	500	77	148	52%	43%	77
113 Tararu Rd	Silty fine SAND with minor fine gravel; brown. Medium dense; moist.	1825103	5887806	500	15.2	73	21%	15%	15.2
201 Tararu Rd	Silty fine SAND; brownish orange. Loose; dry.	1825049	5887905	0	35	79	44%	36%	35

Minimum	0.2	9.1	1.2%	#NUM!
Maximum	4900	7700	81%	69%
Arithmetic mean	208	354	43%	35%
95%ile upper confidence limit (UCL95)	373	611	47%	39%
When total lead > 400 only				
Minimum			50%	41%
Maximum			81%	69%
Arithmetic mean			62%	52%
Count			10	10
UCL95			68%	57%
When total lead < 400 only				
Minimum			2%	-1%
Maximum			62%	52%
Arithmetic mean			38%	30%
Count			40	41



Bin Lid	Count
9.1E+00	1
1.5E+00	47
2.0E+00	1
3.0E+00	0
4.0E+00	0
5.0E+00	0
6.0E+00	0
7.0E+00	0

Bin Lid	Count
0.017544	2
0.097271	3
0.176998	2
0.256725	3
0.336452	5
0.416179	7
0.495906	7
0.575634	12
0.655361	7
0.735088	2
0.814815	1

Bin Lid	Count
-0.0126	1
0.057404	3
0.127404	2
0.197405	3
0.267405	5
0.337405	7
0.407406	7
0.477406	12
0.547407	7
0.617407	2
0.687407	1