CSD Plan - SO 461691

Survey Number	SO 461691
Surveyor Reference	DOC 2885
Surveyor	Samuel Donald Beasley
Survey Firm	Terrain Surveying Ltd
Surveyor Declaration	I Samuel Donald Beasley, being a licensed cadastral surveyor, certify that: (a) this dataset provided by me and its related survey are accurate, correct and in accordance with the Cadastral Survey Act 2002 and the Rules for Cadastral Survey 2010, and (b)the survey was undertaken by me or under my personal direction. Declared on 27 Mar 2015 05:32 PM

Survey Details

Dataset Description	SECTIONS 1 - 6 and 8		
Purpose	Legalisation		
Status	Approved as to Survey	**Type**	Survey
Land District	North Auckland	**Survey Class**	Class B
Meridional Circuit	Mount Eden 2000		

Survey Dates

Surveyed Date	25/03/2013	**Certified Date**	27/03/2015
Submitted Date	27/03/2015 17:32:54	**Survey Approval Date**	02/04/2015
Deposit Date			

Referenced Surveys

Survey Number	Land District	Bearing Correction
SO 27601	North Auckland	0°01'00"
SO 43263	North Auckland	0°01'00"
SO 43861	North Auckland	0°00'00"
SO 44172	North Auckland	0°00'00"
SO 46522	North Auckland	0°00'00"
SO 52722	North Auckland	0°00'00"
DP 106918	North Auckland	0°00'00"
DP 144388	North Auckland	0°00'00"
DP 149809	North Auckland	0°00'00"
DP 174870	North Auckland	0°00'00"
DP 23269	North Auckland	0°01'00"
DP 65010	North Auckland	0°00'00"
DP 87224	North Auckland	0°00'00"
SO 17416	North Auckland	0°00'00"
SO 17417	North Auckland	0°00'00"
SO 18252	North Auckland	0°01'00"
SO 19095	North Auckland	0°00'00"
SO 26703	North Auckland	0°01'00"
SO 36149	North Auckland	0°00'00"
SO 40901	North Auckland	0°01'00"

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Referenced Surveys

Survey Number	Land District	Bearing Correction
SO 41469	North Auckland	0°01'00"
SO 44598	North Auckland	0°01'00"
SO 45139	North Auckland	0°00'00"
SO 45505	North Auckland	0°00'00"
SO 52996	North Auckland	0°00'00"
SO 55925	North Auckland	0°01'00"
SO 57213	North Auckland	0°00'00"
SO 57216	North Auckland	0°00'00"
SO 57221	North Auckland	0°00'00"
SO 57223	North Auckland	0°00'00"
SO 57224	North Auckland	0°00'00"
SO 57225	North Auckland	0°00'00"
SO 58728	North Auckland	0°00'00"
SO 58729	North Auckland	0°00'00"
DP 106915	North Auckland	0°00'00"
DP 152653	North Auckland	0°00'00"
DP 23142	North Auckland	0°01'00"
DP 99085	North Auckland	0°00'00"
SO 21083	North Auckland	0°01'00"
SO 21423	North Auckland	0°01'00"
SO 57212	North Auckland	0°00'00"
SO 57214	North Auckland	0°00'00"
SO 57217	North Auckland	0°00'00"
SO 57220	North Auckland	0°00'00"
SO 64497	North Auckland	0°00'00"
SO 66773	North Auckland	0°00'00"
DP 106921	North Auckland	0°00'00"
SO 42471	North Auckland	0°01'00"
SO 51206	North Auckland	0°00'00"
SO 55699	North Auckland	0°00'00"
SO 56539	North Auckland	0°00'00"
SO 57218	North Auckland	0°00'00"
SO 57222	North Auckland	0°00'00"
SO 58725	North Auckland	0°00'00"
SO 66014	North Auckland	0°00'00"
DP 55607	North Auckland	0°00'00"
SO 2096	North Auckland	0°01'00"
DP 202060	North Auckland	0°00'00"
DP 199563	North Auckland	0°00'00"

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Referenced Surveys

Survey Number	Land District	Bearing Correction
SO 70598	North Auckland	0°00'00"
DP 314899	North Auckland	0°00'00"
SO 67191	North Auckland	0°00'00"
DP 329133	North Auckland	0°00'00"
SO 329551	North Auckland	0°00'00"
DP 334836	North Auckland	0°00'00"
LT 340712	North Auckland	0°00'00"
DP 350126	North Auckland	0°00'00"
DP 403465	North Auckland	0°00'00"
SO 46520	North Auckland	0°00'00"
SO 51536	North Auckland	0°00'00"
DP 163540	North Auckland	0°00'00"
SO 57219	North Auckland	0°00'00"

Territorial Authorities

Whangarei District

Comprised In

CT 50543
CT NA81A/696
GN NZGZ 2009 p2123
GN NZGZ 2001 p3228

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area T Survey Office Plan 461691	Easement		
Area U Survey Office Plan 461691	Easement		
Area W Survey Office Plan 461691	Land Covenant		
Section 8 Survey Office Plan 461691	Legalisation	75.4030 Ha	
Area V Survey Office Plan 461691	Easement		
Section 1 Survey Office Plan 461691	Legalisation	20.6550 Ha	
Section 2 Survey Office Plan 461691	Legalisation	64.2640 Ha	
Section 3 Survey Office Plan 461691	Legalisation	72.1000 Ha	
Section 4 Survey Office Plan 461691	Legalisation	5.2300 Ha	
Section 5 Survey Office Plan 461691	Legalisation	93.1900 Ha	
Section 6 Survey Office Plan 461691	Legalisation	242.8930 Ha	
Area A Survey Office Plan 461691	Easement		
Area B Survey Office Plan 461691	Easement		
Area C Survey Office Plan 461691	Easement		
Area D Survey Office Plan 461691	Easement		
Area E Survey Office Plan 461691	Easement		
Area F Survey Office Plan 461691	Easement		

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Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area G Survey Office Plan 461691	Easement		
Area H Survey Office Plan 461691	Easement		
Area I Survey Office Plan 461691	Easement		
Area J Survey Office Plan 461691	Easement		
Area K Survey Office Plan 461691	Easement		
Area L Survey Office Plan 461691	Easement		
Area M Survey Office Plan 461691	Easement		
Area O Survey Office Plan 461691	Easement		
Section 65 Block VII Ruakaka Survey District	Fee Simple Title	12.3740 Ha	
Area N Survey Office Plan 461691	Easement		
Area P Survey Office Plan 461691	Easement		
Area Q Survey Office Plan 461691	Easement		
Area R Survey Office Plan 461691	Easement		
Area S Survey Office Plan 461691	Easement		
Total Area		586.1090 Ha	

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
RUAKAKA BEACH ROAD	DD 18 SO 44991	ob0	184°10'02"	M		5,610.31	M	
DD 18 SO 44991	IB I SO 461691	ob3	4°54'02"	M		5,579.63	M	
IB I SO 461691	MAIR ROAD	ob4	20°49'28"	M		6,944.53	M	
MAIR ROAD	DD 5	ob5	288°51'20"	M		989.48	M	
DD 5	RM 30 SO 58728	ob8	194°43'56"	M		3,584.91	M	
RM 30 SO 58728	RUAKAKA BEACH ROAD	ob9	191°46'50"	M		3,378.52	M	
RUAKAKA BEACH ROAD	IB I SO 461691	ob1	117°44'00"	M		77.90	M	
MAIR ROAD	RM 30 SO 58728	ob6	210°25'15"	M		3,649.72	M	
MAIR ROAD	SM 3 SO 58725	ob7	289°30'55"	A	DP 199563	1,032.80	A	DP 199563
SM 3 SO 58725	DD 5	ob10	124°15'00"	A	SO 58725	44.82	A	SO 58725
SM 3 SO 58725	RM 101 SO 56539	ob11	157°32'55"	A	DP 199563	1,066.67	A	DP 199563
RM 101 SO 56539	MAIR ROAD	ob13	41°27'30"	A	DP 199563	855.06	A	DP 199563
SM 3 SO 58725	RM G SO 52277	ob12	111°17'40"	A	DP 199563	1,125.92	A	DP 199563
RM G SO 52277	RM 101 SO 56539	ob15	228°02'34"	A	SO 56539	862.90	A	SO 56539
RM 101 SO 56539	RM 102 SO 56539	ob14	223°52'24"	A	SO 56539	914.31	A	SO 56539
RM 102 SO 56539	RM 103 SO 56539	ob17	216°24'49"	A	SO 58728	1,401.60	A	SO 58728
RM 103 SO 56539	RM 24 SO 58728	ob18	101°32'15"	A	SO 58728	105.35	A	SO 58728
RM 24 SO 58728	IS 33 SO 58728	ob19	202°25'30"	A	SO 58728	315.40	A	SO 58728
IS 33 SO 58728	RM 31 SO 58728	ob58	202°25'30"	A	SO 58728	318.49	A	SO 58728
RM 31 SO 58728	RM 30 SO 58728	ob21	109°13'45"	A	SO 58728	341.34	A	SO 58728
RM 31 SO 58728	RM 32 SO 58728	ob22	202°25'30"	A	SO 58728	41.14	A	SO 58728
RM 32 SO 58728	TE ONE STREET	ob256	212°23'30"	A	LT 340712	94.00	A	LT 340712
TE ONE STREET	IB 1 DP 350126	ob257	203°12'10"	A	DP 350126	2,077.63	A	DP 350126
IB 1 DP 350126	IB 2 DP 350126	ob258	178°11'30"	A	DP 350126	315.87	A	DP 350126
IB 2 DP 350126	PRINCES ROAD	ob259	244°23'25"	A	DP 350126	407.29	A	DP 350126
PRINCES ROAD	IS 1 DP 329133	ob260	280°41'10"	A	DP 329133	76.59	A	DP 329133
IS 1 DP 329133	SM 15 SO 58729	ob261	177°21'15"	A	DP 329133	452.41	A	DP 329133
SM 15 SO 58729	SM 16 SO 58729	ob262	211°11'20"	A	SO 58729	384.67	A	SO 58729
SM 16 SO 58729	RM 109 SO 56539	ob263	147°04'08"	A	SO 58729	704.42	A	SO 58729
RM 109 SO 56539	L (Ruakaka SD)	ob264	183°41'05"	A	SO 58729	643.94	A	SO 58729
L (Ruakaka SD)	RM 110 SO 56539	ob266	125°40'36"	A	SO 56539	676.19	A	SO 56539
RM 110 SO 56539	RM 111 SO 56539	ob268	169°29'03"	A	SO 56539	864.95	A	SO 56539
RM 111 SO 56539	2461	ob269	240°37'00"	A	SO 56539	1,032.13	A	SO 56539
2461	RM 112 SO 56539	ob270	127°16'30"	A	SO 56539	799.94	A	SO 56539
RM 112 SO 56539	2491	ob271	185°23'25"	A	SO 56539	1,237.80	A	SO 56539
2491	RM 114 SO 56539	ob272	167°55'40"	A	SO 56539	1,143.94	A	SO 56539
RM 114 SO 56539	DD 18 SO 44991	ob274	295°39'25"	A	SO 70598	209.28	A	SO 70598
RM G SO 52277	IB VI SO 5569	ob16	297°58'00"	A	SO 55699	98.13	A	SO 55699
IB VI SO 5569	PEG 26 SO 55699	ob23	321°10'00"	A	SO 55699	1.76	A	SO 55699
UNMK 61 SO 67191	PEG 27 SO 55699	ob445	241°48'00"	A	DP 199563	19.63	A	DP 199563

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
PEG 27 SO 55699	PEG VI SO 55699	ob26	241°48'00"	A	DP 199563	328.12	A	DP 199563
PEG VI SO 55699	PEG VII SO 55699	ob27	204°05'00"	A	DP 199563	81.98	A	DP 199563
PEG VII SO 55699	PEG VIII SO 55699	ob28	221°40'00"	A	DP 199563	323.58	A	DP 199563
PEG VIII SO 55699	PEG (1) SO 55699	ob29	221°40'00"	A	DP 199563	27.70	A	DP 199563
UNMK 60 SO 67191	UNMK 33 SO 57212	ob447	158°05'00"	A	SO 45505	13.18	A	SO 57212
UNMK 33 SO 57212	UNMK 388 SO 45505	ob301	158°05'00"	A	SO 45505	4.74	C	
UNMK 388 SO 45505	UNMK 34 SO 57212	ob392	158°05'00"	A	SO 45505	8.44	C	
UNMK 34 SO 57212	PEG 35 SO 45505	ob302	158°05'00"	A	SO 45505	3.25	A	SO 57212
PEG 35 SO 45505	IS VII SO 45505	ob32	259°53'00"	A	SO 45505	14.77	A	SO 45505
IS VII SO 45505	RM 101 SO 56539	ob33	337°46'40"	A	SO 57213	44.06	A	SO 57213
IS VII SO 45505	PEG 37 SO 45505	ob34	183°06'00"	A	SO 45505	13.36	A	SO 45505
PEG 37 SO 45505	UNMK 72 SO 57213	ob35	338°05'00"	A	SO 45505	3.21	C	
UNMK 72 SO 57213	UNMK 390 SO 45505	ob305	338°05'00"	A	SO 45505	8.70	C	
UNMK 390 SO 45505	UNMK 327 SO 57213	ob394	338°05'00"	A	SO 45505	4.48	C	
UNMK 425 SO 67191	PEG (1) SO 18252	ob451	338°05'00"	A	SO 45505	136.43	A	SO 67191
PEG (1) SO 18252	PEG (1) SO 55699	ob40	41°41'00"	A	SO 18252	22.45	A	SO 18252
PEG (1) SO 18252	PEG (1) SO 63946	ob41	221°41'00"	A	SO 18252	449.03	A	SO 18252
PEG (1) SO 63946	PEG (5) SO 63946	ob42	243°23'00"	A	SO 21083	181.25	A	SO 21083
PEG (5) SO 63946	PEG (4) SO 63946	ob43	196°00'00"	A	SO 21083	151.68	A	SO 21083
PEG (4) SO 63946	PEG (6) SO 63946	ob44	206°11'00"	A	SO 21083	221.55	A	SO 21083
PEG (6) SO 63946	PEG (1) DP 55607	ob45	236°35'00"	A	SO 21083	140.64	A	SO 21083
PEG (1) DP 55607	PEG 46 DP 436718	ob46	248°51'00"	A	DP 55607	249.35	A	DP 55607
PEG 46 DP 436718	PEG 47 DP 55607	ob47	248°51'00"	A	DP 55607	125.03	A	DP 55607
PEG 47 DP 55607	PEG 48 DP 55607	ob48	248°51'00"	A	DP 55607	12.85	A	DP 55607
PEG 48 DP 55607	PEG 49 DP 55607	ob49	216°24'30"	A	DP 55607	100.30	A	DP 55607
PEG 49 DP 55607	PEG 51 DP 55607	ob50	216°24'30"	A	DP 55607	111.79	A	DP 55607
UNMK 516 SO 67191	PEG (50) DP 55607	ob459	216°24'30"	A	DP 55607	12.48	A	SO 67191
PEG (50) DP 55607	UNMK 328 SO 57214	ob52	186°10'30"	A	DP 55607	119.75	A	SO 57214
UNMK 328 SO 57214	PEG (42) DP 55607	ob309	186°10'30"	A	DP 55607	0.95	A	SO 57214
PEG (42) DP 55607	UNMK 329 SO 57214	ob53	186°10'30"	A	DP 55607	12.01	A	SO 57214
UNMK 329 SO 57214	PEG 2 DP 419012	ob310	186°10'30"	A	DP 55607	75.08	C	
PEG 2 DP 419012	PEG 4 DP 419012	ob54	186°10'30"	A	DP 55607	120.70	A	DP 55607
PEG 4 DP 419012	PEG (15) DP 55607	ob55	207°10'30"	A	DP 55607	248.24	A	DP 55607
PEG (15) DP 55607	PEG 56 DP 55607	ob57	192°20'00"	A	DP 55607	281.45	A	DP 55607
PEG 56 DP 55607	IT IVA DP 152653	ob59	154°20'00"	A	DP 152653	22.98	A	DP 152653
IT IVA DP 152653	IT IX SO 47853	ob61	237°02'00"	A	DP 152653	102.58	A	DP 152653
IT IX SO 47853	IS 33 SO 58728	ob62	117°33'30"	A	DP 152653	134.30	A	DP 152653
PEG 4 DP 419012	IB XIX DP 55607	ob56	77°37'00"	A	SO 52722	0.84	A	SO 52722
IB XIX DP 55607	PEG XX DP 55607	ob225	6°13'00"	A	SO 52722	70.27	A	SO 52722
PEG XX DP 55607	IB XXI DP 55607	ob402	6°13'00"	A	SO 52722	35.73	A	SO 52722
IB XXI DP 55607	IB 3AA SO 57214	ob216	24°12'00"	A	SO 57225	13.72	A	SO 57225
IB 3AA SO 57214	IT II SO 57225	ob226	10°16'50"	A	SO 57225	207.31	A	SO 57225
IT II SO 57225	PEG (50) DP 55607	ob217	282°54'00"	A	SO 57225	20.08	A	SO 57225

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
IB 3AA SO 57214	IT I SO 57225	ob227	37°53'40"	A	SO 66773	37.74	A	SO 66773
IT I SO 57225	IT VIII SO 57225	ob231	113°33'00"	A	SO 57225	139.38	A	SO 57225
IT VIII SO 57225	IT VII SO 57225	ob408	112°30'30"	A	SO 57225	247.43	A	SO 57225
IT VII SO 57225	IT IA SO 52722	ob409	186°18'40"	A	SO 57225	92.97	A	SO 57225
IT IA SO 52722	IB I SO 52722	ob410	298°51'40"	A	SO 52722	311.24	A	SO 52722
IB I SO 52722	PEG XX DP 55607	ob411	277°54'30"	A	SO 52722	107.36	A	SO 52722
RM 24 SO 58728	RM 25 SO 58728	ob20	22°25'30"	A	SO 58728	192.11	A	SO 58728
RM 25 SO 58728	RM 26 SO 58728	ob331	112°23'05"	A	SO 58728	343.77	A	SO 58728
RM 26 SO 58728	RM 27 SO 58728	ob332	193°50'20"	A	SO 58728	193.78	A	SO 58728
RM 27 SO 58728	IT XII DP 152653	ob335	202°26'05"	A	DP 152653	224.44	A	DP 152653
IT XII DP 152653	IS 28 SO 58728	ob336	202°26'05"	A	DP 152653	68.18	A	DP 152653
IS 28 SO 58728	RM 29 SO 58728	ob333	202°26'05"	A	SO 58728	210.64	A	SO 58728
RM 29 SO 58728	RM 30 SO 58728	ob334	218°14'10"	A	SO 58728	116.75	A	SO 58728
PEG 56 DP 55607	PEG 210 SO 45079	ob60	230°34'00"	A	DP 152653	90.54	A	DP 152653
PEG 210 SO 45079	PEG 384 SO 52722	ob224	112°40'30"	A	SO 52722	22.77	A	SO 52722
PEG 384 SO 52722	PEG 398 SO 52722	ob386	50°36'00"	A	SO 52722	86.84	A	SO 52722
PEG 398 SO 52722	PEG 399 SO 52722	ob406	12°20'00"	A	SO 52722	285.82	A	SO 52722
PEG 399 SO 52722	PEG (1) SO 52722	ob407	27°10'30"	A	SO 52722	249.35	A	SO 52722
PEG (1) SO 52722	PEG 407 SO 52722	ob414	6°10'30"	A	SO 52722	81.88	A	SO 52722
PEG 407 SO 52722	UNMK 408 SO 52722	ob415	112°25'30"	A	SO 52722	383.19	A	DP 152653
UNMK 408 SO 52722	PEG 409 SO 52722	ob417	112°25'30"	A	SO 52722	10.76	A	SO 52722
PEG 409 SO 52722	IT IA SO 52722	ob418	194°28'40"	A	SO 52722	20.86	A	SO 52722
PEG 409 SO 52722	PEG 66 DP 152653	ob419	112°25'30"	A	SO 52722	40.73	A	DP 152653
PEG 66 DP 152653	PEG 69 DP 152653	ob63	193°41'40"	A	DP 152653	142.54	A	DP 152653
PEG 69 DP 152653	UNMK 70 DP 152653	ob374	193°41'40"	A	DP 152653	10.19	A	DP 152653
UNMK 70 DP 152653	PEG 67 SO 45139	ob376	193°41'40"	A	DP 152653	251.96	A	DP 152653
PEG 67 SO 45139	RM LVI SO 45139	ob64	247°25'30"	A	SO 45139	2.16	A	SO 45139
RM LVI SO 45139	RM 27 SO 58728	ob66	92°09'00"	A	SO 58728	2.14	A	SO 58728
PEG 67 SO 45139	PEG 73 DP 152653	ob65	202°25'30"	A	DP 152653	205.86	A	DP 152653
PEG 73 DP 152653	UNMK 373 DP 152653	ob67	202°25'30"	A	DP 152653	103.07	A	DP 152653
UNMK 373 DP 152653	PEG 74 DP 152653	ob365	202°25'30"	A	DP 152653	25.11	A	DP 152653
PEG 74 DP 152653	UNMK 374 DP 152653	ob69	202°25'30"	A	DP 152653	103.06	A	DP 152653
UNMK 374 DP 152653	PEG 75 DP 152653	ob367	202°25'30"	A	DP 152653	172.50	A	DP 152653
PEG 75 DP 152653	PEG 76 SO 45139	ob71	202°25'30"	A	DP 174870	121.92	A	DP 174870
PEG 76 SO 45139	PEG 77 SO 50214	ob72	202°25'30"	A	DP 106915	118.26	A	DP 106915
PEG 77 SO 50214	PEG 78 DP 106918	ob73	202°25'30"	A	DP 106921	324.58	A	DP 106921
PEG 78 DP 106918	RM V SO 45139	ob74	15°16'00"	A	DP 106918	12.22	A	DP 106918
RM V SO 45139	RM IV SO 45139	ob76	22°25'30"	A	SO 45139	113.05	A	SO 45139
RM IV SO 45139	RM III SO 45139	ob77	22°25'30"	A	SO 45139	117.12	A	SO 45139
RM III SO 45139	RM 11 SO 45139	ob78	22°25'30"	A	SO 45139	87.70	A	SO 45139

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RM 11 SO 45139	RM 30 SO 58728	ob79	14°57'30"	A	SO 58728	229.93	A	SO 58728
PEG 78 DP 106918	PEG 83 SO 52722	ob75	202°25'30"	A	SO 52722	169.10	C	
PEG 83 SO 52722	PEG 84 SO 52722	ob80	292°25'30"	A	SO 52722	481.26	A	SO 52722
PEG 84 SO 52722	PEG 341 SO 52996	ob81	199°16'00"	A	SO 17417	86.45	A	SO 52996
PEG 85 SO 52996	PEG 342 SO 52996	ob82	120°33'00"	A	SO 52996	505.07	A	SO 52996
PEG 86 SO 52996	PEG 87 SO 52996	ob83	192°31'00"	A	SO 52996	7.60	A	SO 52996
PEG 87 SO 52996	PEG 88 SO 52996	ob84	177°40'00"	A	SO 52996	116.05	A	SO 52996
PEG 88 SO 52996	PEG 89 SO 52996	ob85	196°46'00"	A	SO 52996	47.39	A	SO 52996
PEG 89 SO 52996	PEG 90 SO 52996	ob86	209°42'00"	A	SO 52996	89.12	A	SO 52996
PEG 90 SO 52996	PEG 91 SO 52996	ob87	189°54'30"	A	SO 52996	151.74	A	SO 52996
PEG 91 SO 52996	PEG 92 SO 52996	ob88	175°12'00"	A	SO 52996	36.13	A	SO 52996
PEG 92 SO 52996	PEG 93 SO 52996	ob89	197°36'00"	A	SO 52996	51.21	A	SO 52996
PEG 93 SO 52996	PEG 94 SO 52996	ob90	188°13'30"	A	SO 52996	311.15	A	SO 52996
PEG 94 SO 52996	POST 95 SO 52996	ob91	181°33'30"	A	SO 52996	200.59	A	SO 52996
POST 95 SO 52996	PEG 96 SO 52996	ob92	297°07'30"	A	SO 52996	359.04	A	SO 52996
PEG 96 SO 52996	PEG 97 SO 52996	ob93	303°31'00"	A	SO 52996	272.81	A	SO 52996
PEG 97 SO 52996	PEG XLIV DP 350126	ob94	193°40'00"	A	SO 17416	889.46	A	DP 350126
PEG XLIV DP 350126	IB 2 DP 350126	ob95	349°19'30"	A	DP 350126	188.68	A	DP 350126
PEG XLIV DP 350126	PEG XI SO 19095	ob96	100°56'00"	A	SO 19095	95.64	A	SO 19095
PEG XI SO 19095	PEG XIV SO 19095	ob98	32°06'00"	A	SO 19095	92.40	A	SO 19095
PEG XIV SO 19095	PEG XIII SO 19095	ob99	109°11'00"	A	SO 19095	112.33	A	SO 19095
PEG XIII SO 19095	PEG XII SO 19095	ob101	212°06'00"	A	SO 19095	92.40	A	SO 19095
PEG XII SO 19095	PEG XI SO 19095	ob102	289°11'00"	A	SO 19095	112.33	A	SO 19095
RUAKAKA BEACH ROAD	RM III SO 44598	ob2	247°19'00"	A	DP 334836	62.56	A	DP 334836
RM III SO 44598	RM IV SO 44598	ob107	164°52'20"	A	SO 64497	73.96	A	SO 64497
RM IV SO 44598	IT IV SO 64497	ob108	179°21'40"	A	SO 64497	298.67	A	SO 64497
IT IV SO 64497	IT VI SO 64497	ob110	259°30'20"	A	DP 202060	335.15	A	DP 202060
IT VI SO 64497	IT I SO 64497	ob111	279°39'40"	A	SO 64497	384.03	A	SO 64497
IT I SO 64497	RM 109 SO 56539	ob112	181°37'40"	A	SO 64497	66.26	A	SO 64497
RM IV SO 44598	PEG 117 SO 44598	ob109	106°32'00"	A	SO 64497	3.68	A	SO 64497
PEG 117 SO 44598	PEG 118 SO 64497	ob113	145°03'00"	A	SO 64497	24.73	A	SO 64497
PEG 118 SO 64497	PEG 119 SO 64497	ob115	178°00'00"	A	SO 64497	46.00	A	SO 64497
PEG 119 SO 64497	PEG 120 SO 64497	ob116	88°00'00"	A	SO 64497	37.00	A	SO 64497
PEG 120 SO 64497	PEG 121 SO 64497	ob117	189°10'00"	A	SO 64497	260.48	A	SO 64497
PEG 121 SO 64497	PEG 122 SO 64497	ob118	266°00'00"	A	SO 64497	341.82	A	SO 64497
PEG 122 SO 64497	IT VI SO 64497	ob119	180°00'00"	A	SO 64497	12.70	A	SO 64497
PEG 117 SO 44598	PEG 123 SO 44598	ob114	2°01'40"	A	SO 44598	3.34	A	SO 44598
PEG 123 SO 44598	PEG 124 SO 44598	ob121	56°17'00"	A	SO 44598	12.39	A	SO 44598
PEG 124 SO 44598	PEG 125 SO 44598	ob122	2°01'40"	A	SO 44598	1.21	A	SO 44598
PEG 125 SO 44598	PEG 126 SO 44598	ob123	92°02'00"	A	DP 163540	34.65	A	SO 44598
PEG 126 SO 44598	PEG 127 SO 44598	ob124	182°01'40"	A	SO 44598	1.73	A	SO 44598

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PEG 127 SO 44598	RM IV SO 44598	ob126	261°19'00"	A	SO 44598	49.13	A	SO 44598
PEG 126 SO 44598	PEG 128 SO 42471	ob125	89°23'50"	A	SO 55925	36.99	A	SO 55925
PEG 128 SO 42471	PEG 129 SO 42471	ob127	92°01'40"	A	SO 42471	21.08	A	SO 42471
PEG 129 SO 42471	IT III SO 42471	ob128	182°02'00"	A	SO 42471	1.23	A	SO 42471
IT III SO 42471	IT IV SO 42471	ob130	9°19'00"	A	SO 42471	55.20	A	SO 42471
IT IV SO 42471	IT II SO 41469	ob131	278°38'00"	A	SO 42471	18.41	A	SO 42471
IT II SO 41469	IT V SO 43263	ob132	267°46'00"	A	SO 43263	40.53	A	SO 43263
IT V SO 43263	IT III SO 43263	ob133	343°01'00"	A	SO 43263	34.46	A	SO 43263
IT III SO 43263	PEG V SO 44598	ob134	83°57'00"	A	SO 43263	4.94	C	
PEG V SO 44598	PEG 136 SO 44598	ob136	182°01'40"	A	SO 44598	22.35	A	SO 44598
PEG 136 SO 44598	PEG 137 SO 44598	ob137	263°57'00"	A	SO 44598	34.98	A	SO 44598
PEG 137 SO 44598	RM III SO 44598	ob138	271°08'00"	A	SO 44598	35.44	A	SO 44598
RM 109 SO 56539	IS 9A SO 57216	ob265	132°05'20"	A	DP 149809	113.79	A	DP 149809
IS 9A SO 57216	IS III DP 149809	ob140	160°59'30"	A	DP 149809	181.76	A	DP 149809
IS III DP 149809	IT 9BI SO 57216	ob142	160°59'30"	A	DP 149809	103.29	A	DP 149809
IT 9BI SO 57216	IS IV DP 149809	ob143	195°39'00"	A	DP 149809	183.52	A	DP 149809
IS IV DP 149809	IS 9L SO 57216	ob144	194°14'30"	A	DP 149809	140.84	A	DP 149809
IS 9L SO 57216	IS V DP 149809	ob145	263°15'00"	A	DP 149809	70.69	A	DP 149809
IS V DP 149809	L (Ruakaka SD)	ob147	291°00'00"	A	DP 149809	68.96	A	DP 149809
L (Ruakaka SD)	IB 9F SO 5721	ob267	103°18'20"	A	SO 57216	461.59	A	SO 57216
IB 9F SO 5721	IT 2 DP 403465	ob148	215°43'00"	A	DP 403465	195.88	A	DP 403465
IT 2 DP 403465	IT 2 SO 329551	ob150	197°44'20"	A	DP 403465	386.70	A	DP 403465
IT 2 SO 329551	IS XXI SO 46522	ob152	175°39'15"	A	DP 403465	439.75	A	DP 403465
IS XXI SO 46522	IT 3 SO 329551	ob153	167°44'40"	A	SO 329551	369.48	A	SO 329551
IT 3 SO 329551	L (Ruakaka SD)	ob154	347°04'35"	A	SO 329551	1,470.28	A	SO 329551
IT 2 DP 403465	IS 1 DP 403465	ob151	174°28'50"	A	DP 403465	943.74	A	DP 403465
IS 1 DP 403465	PEG 3 DP 403465	ob159	269°16'40"	A	DP 403465	79.19	A	DP 403465
PEG 3 DP 403465	PEG 1 DP 403465	ob160	258°57'00"	A	DP 403465	47.35	A	DP 403465
PEG 1 DP 403465	IS XXI SO 46522	ob161	340°49'40"	A	DP 403465	151.04	A	DP 403465
IB 9F SO 5721	PEG V DP 23269	ob149	84°31'30"	A	SO 57216	32.42	A	SO 57216
PEG V DP 23269	PEG 2 DP 403465	ob155	174°06'00"	A	SO 2096	439.09	A	DP 403465
PEG 2 DP 403465	UNMK (1) SO 46522	ob163	174°06'00"	A	SO 2096	669.33	A	DP 403465
UNMK (1) SO 46522	PEG (2) SO 46522	ob157	270°00'00"	A	DP 403465	228.85	A	DP 403465
PEG (2) SO 46522	PEG 3 DP 403465	ob162	270°00'00"	A	SO 46522	20.22	A	DP 403465
2491	IB 13C SO 57221	ob273	154°42'30"	A	DP 314899	347.97	A	DP 314899
IB 13C SO 57221	IB II DP 314899	ob165	7°48'10"	A	DP 314899	293.70	A	DP 314899
IB II DP 314899	2491	ob167	277°08'30"	A	DP 314899	190.02	A	DP 314899
IB 13C SO 57221	IB 13d SO 57222	ob166	171°01'20"	A	SO 57222	381.87	A	SO 57222
IB 13d SO 57222	IS 13e SO 57222	ob169	165°20'40"	A	SO 57222	183.87	A	SO 57222
IS 13e SO 57222	RM 114 SO 56539	ob170	183°34'10"	A	SO 57222	249.43	A	SO 57222
RM 114 SO 56539	2493 SO 54210	ob275	165°39'17"	A	SO 56539	1,075.45	A	SO 56539
IB II DP 314899	PEG 164 DP 314899	ob168	182°37'00"	A	DP 314899	67.69	A	DP 314899
PEG 164 DP 314899	PEG I SO 27601	ob171	189°44'00"	A	SO 27601	179.30	A	DP 314899

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PEG I SO 27601	POST DP 144388	ob173	176°50'00"	A	SO 27601	84.83	A	SO 27601
POST DP 144388	PEG 167 SO 57222	ob174	174°18'40"	A	DP 144388	269.06	A	DP 144388
PEG 167 SO 57222	PEG VII SO 27601	ob175	164°12'00"	A	SO 27601	469.12	A	SO 27601
PEG VII SO 27601	PEG VIA SO 27601	ob177	64°19'00"	A	SO 27601	136.45	A	SO 27601
PEG VIA SO 27601	PEG VI SO 27601	ob178	147°24'30"	A	SO 27601	20.26	A	SO 27601
PEG VI SO 27601	PEG V SO 27601	ob179	160°20'00"	A	SO 27601	254.98	A	SO 27601
PEG V SO 27601	PEG 172 DP 87224	ob180	173°11'00"	A	SO 27601	503.62	A	SO 27601
PEG 172 DP 87224	PEG 173 DP 87224	ob181	167°16'00"	A	SO 27601	275.78	A	SO 27601
PEG 173 DP 87224	IT V DP 87224	ob182	280°24'00"	A	DP 87224	2.57	A	DP 87224
IT V DP 87224	IS VII DP 87224	ob184	240°57'00"	A	DP 87224	107.52	A	DP 87224
IS VII DP 87224	2493 SO 54210	ob185	216°41'30"	A	DP 87224	87.12	A	DP 87224
PEG 164 DP 314899	PEG 176 SO 44172	ob172	9°44'00"	A	SO 27601	4.73	C	
PEG 176 SO 44172	UNMK 355 SO 57221	ob186	84°19'30"	A	SO 44172	12.45	A	SO 57221
UNMK 355 SO 57221	PEG 177 SO 44172	ob346	84°19'30"	A	SO 44172	595.94	A	SO 57221
PEG 177 SO 44172	UNMK 283 SO 461691	ob187	353°20'30"	A	SO 44172	529.09	C	
UNMK 283 SO 461691	PEG 186 SO 44172	ob241	353°20'30"	A	SO 44172	345.85	C	
PEG 186 SO 44172	IT III SO 44172	ob196	102°41'00"	A	SO 44172	51.58	A	SO 44172
IT III SO 44172	IT II SO 44172	ob197	273°33'30"	A	SO 44172	372.34	A	SO 44172
IT II SO 44172	IS 12c SO 57220	ob188	180°12'00"	A	SO 57220	43.78	A	SO 57220
IS 12c SO 57220	IT 12d SO 57221	ob189	189°36'10"	A	SO 57220	412.90	A	SO 57220
IT 12d SO 57221	IS 12e SO 57221	ob190	164°29'25"	A	SO 57221	386.07	A	SO 57221
IS 12e SO 57221	2491	ob191	265°32'00"	A	SO 57221	404.34	A	SO 57221
UNMK (1) SO 46522	UNMK 351 SO 461691	ob158	174°06'00"	A	SO 2096	70.78	C	
PEG VI DP 23269	PEG 517 SO 329511	ob254	270°01'00"	A	DP 23269	293.02	A	SO 46522
PEG 183 SO 21423	IB 184 SO 46522	ob192	90°42'30"	A	SO 46522	180.73	A	SO 46522
IB 184 SO 46522	IB XXII SO 46522	ob194	84°27'00"	A	SO 46522	83.65	A	SO 46522
IB XXII SO 46522	IB XXIII SO 46520	ob195	171°47'30"	A	SO 46522	522.98	A	SO 46522
IB XXIII SO 46520	IT 3 SO 329551	ob198	354°40'30"	A	SO 329551	366.24	A	SO 329551
PEG VI DP 23269	UNMK 356 SO 57218	ob255	90°01'00"	A	SO 2096	12.06	A	SO 57218
UNMK 356 SO 57218	UNMK 323 SO 461691	ob345	90°01'00"	A	SO 2096	278.83	C	
UNMK 323 SO 461691	UNMK 157 SO 461691	ob298	90°01'00"	A	SO 2096	20.20	C	
UNMK 157 SO 461691	RM 111 SO 56539	ob164	281°17'30"	C		211.84	C	
PEG 183 SO 21423	PEG 189 SO 21423	ob193	180°01'00"	A	SO 21423	1,368.83	A	SO 21423
PEG 189 SO 21423	UNMK 283 SO 461691	ob199	106°53'00"	A	SO 21423	1,081.27	C	
PEG 565 SO 26703	TREE 191 SO 26703	ob491	146°11'00"	A	SO 26703	1.95	A	SO 27601
TREE 191 SO 26703	PEG 192 DP 23142	ob200	183°47'00"	A	SO 26703	315.39	A	SO 26703
PEG 192 DP 23142	UNMK 357 SO 57224	ob202	146°46'30"	A	DP 23142	64.63	A	SO 57224

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UNMK 357 SO 57224	UNMK 358 SO 57224	ob348	146°46'30"	A	DP 23142	18.32	A	SO 57224
UNMK 358 SO 57224	PEG 193 DP 65010	ob349	146°46'30"	A	DP 23142	411.16	A	DP 99085
PEG 193 DP 65010	PEG 194 SO 51206	ob203	140°10'20"	A	DP 65010	205.12	A	SO 51206
PEG 194 SO 51206	PEG 195 SO 51206	ob204	64°42'20"	A	SO 51206	306.65	A	SO 51206
PEG 195 SO 51206	PEG 196 SO 51206	ob205	154°22'00"	A	SO 51206	86.20	A	SO 51206
PEG 196 SO 51206	PEG 197 SO 51206	ob206	154°24'30"	A	SO 51206	126.98	A	SO 51206
PEG 197 SO 51206	PEG 198 DP 65010	ob207	230°12'00"	A	SO 51206	244.57	A	SO 51206
PEG 198 DP 65010	IS XIII DP 65010	ob209	238°18'00"	A	SO 51206	61.90	A	SO 51206
IS XIII DP 65010	IT XII DP 65010	ob210	249°45'30"	A	DP 65010	329.21	A	DP 65010
IT XII DP 65010	IT XI DP 65010	ob211	345°32'00"	A	DP 65010	272.98	A	DP 65010
IT XI DP 65010	IS IX DP 65010	ob212	299°15'20"	A	DP 65010	185.38	A	DP 65010
IS IX DP 65010	IT VIII DP 65010	ob213	283°54'30"	A	DP 65010	217.72	A	DP 65010
IT VIII DP 65010	RM 116 SO 56539	ob214	241°53'30"	A	DP 99085	39.41	A	DP 99085
RM 116 SO 56539	2493 SO 54210	ob215	0°20'54"	A	DP 99085	920.18	A	SO 56539
IT II SO 57225	PEG 208 SO 57225	ob218	182°10'00"	A	SO 57225	2.85	A	SO 57225
PEG 208 SO 57225	UNMK 345 SO 461691	ob220	186°10'30"	A	SO 57225	91.92	C	
UNMK 345 SO 461691	UNMK 346 SO 461691	ob324	186°10'30"	A	SO 57225	18.49	C	
UNMK 346 SO 461691	PEG 209 SO 57225	ob326	186°10'30"	A	SO 57225	61.78	C	
PEG 209 SO 57225	IT I SO 57225	ob222	91°46'00"	A	SO 57225	4.97	A	SO 57225
PEG 209 SO 57225	PEG 404 SO 66773	ob223	112°25'30"	A	SO 57225	10.00	A	SO 66773
PEG 404 SO 66773	PEG 405 SO 57225	ob412	112°25'30"	A	SO 57225	383.82	A	SO 66773
PEG 405 SO 57225	IT VII SO 57225	ob413	263°03'00"	A	SO 57225	2.74	A	SO 57225
UNMK 515 SO 67191	PEG 213 SO 57225	ob458	36°24'30"	A	SO 57225	123.52	A	SO 67191
UNMK 424 SO 67191	UNMK 343 SO 67191	ob450	112°29'25"	A	SO 57225	13.15	A	SO 67191
UNMK 343 SO 67191	UNMK 344 SO 461691	ob322	112°29'25"	A	SO 57225	13.15	C	
UNMK 344 SO 461691	PEG 214 SO 57225	ob323	112°29'25"	A	SO 57225	309.65	C	
PEG 214 SO 57225	PEG 215 SO 57225	ob229	207°53'20"	A	SO 57225	198.45	A	SO 57225
PEG 215 SO 57225	UNMK 393 SO 461691	ob230	194°49'00"	A	SO 57225	7.59	C	
UNMK 393 SO 461691	UNMK 396 SO 461691	ob399	194°49'00"	A	SO 57225	90.81	C	
UNMK 396 SO 461691	PEG 405 SO 57225	ob403	194°49'00"	A	SO 57225	1.81	C	
IS 9A SO 57216	IS II DP 149809	ob141	322°33'30"	A	DP 149809	110.13	A	DP 149809
IS II DP 149809	IS I DP 149809	ob232	16°38'00"	A	DP 149809	76.08	A	DP 149809
IS I DP 149809	IT I DP 65444	ob233	247°12'00"	A	DP 149809	39.68	A	DP 149809
IT I DP 65444	RM 109 SO 56539	ob234	182°14'00"	A	DP 149809	68.74	A	DP 149809
PEG V DP 23269	PEG 4 DP 403465	ob156	306°20'00"	A	SO 2096	139.69	A	DP 403465
PEG 4 DP 403465	PEG 15 DP 403465	ob235	233°41'00"	A	DP 403465	38.63	A	DP 403465

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PEG 15 DP 403465	PEG 16 DP 403465	ob237	283°50'40"	A	DP 403465	94.26	A	DP 403465
PEG 16 DP 403465	PEG 17 DP 403465	ob238	207°58'20"	A	DP 403465	89.83	A	DP 403465
PEG 17 DP 403465	IT 5 DP 403465	ob239	106°37'00"	A	DP 403465	47.79	A	DP 403465
IT 5 DP 403465	IT 2 DP 403465	ob240	150°44'30"	A	DP 403465	173.71	A	DP 403465
PEG 26 SO 55699	UNMK 32 SO 57212	ob24	174°00'00"	A	SO 43861	87.33	C	
UNMK 32 SO 57212	UNMK 386 SO 45505	ob299	174°00'00"	A	SO 43861	5.31	C	
UNMK 386 SO 45505	PEG 284 SO 43861	ob389	174°00'00"	A	SO 43861	9.90	A	SO 45505
PEG 284 SO 43861	PEG 385 SO 45505	ob243	84°00'00"	A	SO 43861	4.79	A	SO 45505
PEG 385 SO 45505	PEG 285 SO 43861	ob387	84°00'00"	A	SO 43861	67.03	C	
UNMK 552 SO 461691	PEG 286 SO 43861	ob489	131°34'00"	A	SO 43861	6.04	C	
PEG 286 SO 43861	IT XIII SO 43861	ob246	88°46'00"	A	SO 43861	1.87	A	SO 43861
IT XIII SO 43861	IT XIV SO 43861	ob248	301°17'00"	A	SO 43861	26.55	A	SO 43861
IT XIV SO 43861	IT XV SO 43861	ob249	244°10'00"	A	SO 43861	70.13	A	SO 43861
IT XV SO 43861	IT V SO 43475	ob250	329°32'00"	A	SO 43861	106.08	A	SO 43861
IT V SO 43475	IT XVII SO 43861	ob251	49°24'00"	A	SO 43861	52.44	A	SO 43861
IT XVII SO 43861	IB VI SO 5569	ob252	307°15'00"	A	SO 55699	7.84	A	SO 55699
PEG 122 SO 64497	PEG 182 SO 64497	ob120	266°00'00"	A	SO 64497	339.29	A	SO 64497
PEG 182 SO 64497	IT II SO 64497	ob276	74°58'00"	A	SO 64497	44.41	A	SO 64497
IT II SO 64497	IT I SO 64497	ob278	307°35'20"	A	SO 64497	104.76	A	SO 64497
PEG 182 SO 64497	UNMK 312 SO 64497	ob277	266°00'00"	A	SO 64497	7.50	A	SO 64497
IT II SO 64497	UNMK 312 SO 64497	ob279	256°33'00"	C		51.79	C	
PEG 286 SO 43861	UNMK 314 SO 461691	ob247	131°34'00"	A	SO 43861	14.14	C	
UNMK 314 SO 461691	IT XIII SO 43861	ob280	317°15'00"	C		12.83	C	
PEG XII SO 19095	UNMK 103 SO 36149	ob103	212°06'00"	A	SO 36149	20.12	A	SO 36149
UNMK 103 SO 36149	PEG XI SO 19095	ob104	299°29'20"	C		109.60	C	
PEG XIV SO 19095	UNMK 104 SO 36149	ob100	289°11'00"	A	SO 36149	22.13	A	SO 36149
UNMK 104 SO 36149	PEG XI SO 19095	ob105	198°14'30"	C		90.07	C	
PEG XLIV DP 350126	UNMK 105 DP 350126	ob97	193°40'00"	A	SO 17416	22.30	A	DP 350126
UNMK 105 DP 350126	IB 2 DP 350126	ob106	351°50'30"	C		209.21	C	
PEG 129 SO 42471	UNMK 443 SO 42471	ob129	92°01'40"	A	SO 42471	13.48	A	SO 42471
UNMK 138 SO 461691	IT III SO 42471	ob139	270°06'00"	C		36.42	C	
UNMK 283 SO 461691	UNMK 322 SO 461691	ob242	106°53'00"	A	SO 21423	73.47	C	
UNMK 322 SO 461691	PEG 177 SO 44172	ob297	181°01'00"	C		504.28	C	
PEG 197 SO 51206	PEG 315 SO 13924	ob208	50°12'00"	A	SO 51206	363.94	C	
PEG 315 SO 13924	PEG 195 SO 51206	ob281	263°44'50"	C		374.01	C	

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UNMK 553 SO 461691	UNMK 38 SO 461691	ob490	158°05'00"	A	SO 45505	22.81	C	
UNMK 38 SO 461691	IS VII SO 45505	ob38	332°40'40"	C		153.45	C	
PEG 37 SO 45505	UNMK 39 SO 461691	ob36	158°05'00"	A	SO 45505	151.40	C	
UNMK 39 SO 461691	IS VII SO 45505	ob39	340°03'40"	C		163.60	C	
IT III SO 43263	PEG XXII SO 40901	ob135	343°01'00"	A	SO 43263	130.03	A	SO 43263
PEG XXII SO 40901	PEG XX SO 40901	ob282	317°27'20"	A	SO 40901	174.23	A	SO 40901
PEG XX SO 40901	PEG IV SO 41469	ob283	83°57'00"	A	SO 41469	76.04	A	SO 41469
PEG IV SO 41469	UNMK 321 SO 461691	ob284	83°57'00"	A	SO 41469	61.77	C	
IT V SO 41469	PEG VI SO 41469	ob285	83°57'00"	A	SO 41469	85.58	A	SO 41469
PEG VI SO 41469	IT VIII SO 41469	ob289	186°54'50"	A	SO 41469	320.28	A	SO 41469
IT VIII SO 41469	IT II SO 41469	ob291	281°54'00"	A	SO 41469	25.75	A	SO 41469
IT XII DP 152653	IS XIII DP 152653	ob337	96°10'00"	A	DP 152653	16.22	A	DP 152653
IS XIII DP 152653	IS XIV DP 152653	ob339	100°47'00"	A	DP 152653	19.11	A	DP 152653
IS XIV DP 152653	IT XV DP 152653	ob340	210°51'00"	A	DP 152653	73.70	A	DP 152653
IT XV DP 152653	IS 28 SO 58728	ob342	283°31'00"	A	DP 152653	23.79	A	DP 152653
PEG 73 DP 152653	PEG 106 DP 152653	ob68	98°24'00"	A	DP 152653	20.00	A	DP 152653
PEG 106 DP 152653	UNMK 107 SO 461691	ob292	98°24'00"	A	DP 152653	47.51	C	
UNMK 107 SO 461691	IS XIV DP 152653	ob293	250°49'00"	C		41.15	C	
IS XIV DP 152653	PEG 106 DP 152653	ob341	338°22'00"	A	DP 152653	22.05	A	DP 152653
PEG VI SO 41469	UNMK 442 SO 41469	ob290	83°57'00"	A	SO 41469	6.84	A	SO 41469
UNMK 320 SO 461691	IT VIII SO 41469	ob294	193°12'00"	C		330.63	C	
UNMK 32 SO 57212	UNMK 59 SO 57212	ob300	226°04'00"	A	SO 57212	49.75	A	SO 57212
UNMK 59 SO 57212	UNMK 33 SO 57212	ob303	223°40'30"	A	SO 57212	727.15	A	SO 57212
PEG 284 SO 43861	UNMK 313 SO 57212	ob244	226°04'00"	A	SO 57212	40.15	A	SO 57212
UNMK 313 SO 57212	UNMK 34 SO 57212	ob304	223°40'30"	A	SO 57212	732.33	A	SO 57212
UNMK 327 SO 57213	UNMK 330 SO 57213	ob307	223°40'30"	A	SO 57213	32.30	A	SO 57213
UNMK 330 SO 57213	UNMK 331 SO 57213	ob311	221°41'20"	A	SO 57213	696.47	A	SO 57213
UNMK 331 SO 57213	UNMK 332 SO 57213	ob312	216°46'30"	A	SO 57213	75.63	A	SO 57213
UNMK 332 SO 57213	UNMK 333 SO 57213	ob313	241°53'00"	A	SO 57213	150.00	A	SO 57213
UNMK 333 SO 57213	UNMK 334 SO 57214	ob314	241°53'00"	A	SO 57214	259.25	A	SO 57214
UNMK 334 SO 57214	UNMK 343 SO 67191	ob315	226°38'40"	A	SO 57214	343.49	A	SO 67191
UNMK 72 SO 57213	UNMK 336 SO 57213	ob306	223°40'30"	A	SO 57213	26.66	A	SO 57213
UNMK 336 SO 57213	UNMK 337 SO 57213	ob317	221°41'20"	A	SO 57213	695.75	A	SO 57213
UNMK 337 SO 57213	UNMK 338 SO 57213	ob318	216°46'30"	A	SO 57213	77.79	A	SO 57213
UNMK 338 SO 57213	UNMK 391 SO 461691	ob319	241°53'00"	A	SO 57213	8.92	A	SO 57213
UNMK 391 SO 461691	UNMK 339 SO 57213	ob396	241°53'00"	A	SO 57213	143.76	A	SO 57213
UNMK 339 SO 57213	UNMK 340 SO 57214	ob320	241°53'00"	A	SO 57214	257.65	A	SO 57214

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Survey Number SO 461691

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
UNMK 340 SO 57214	UNMK 344 SO 461691	ob321	226°38'40"	A	SO 57214	336.54	C	
UNMK 345 SO 461691	UNMK 347 SO 57214	ob325	226°38'40"	A	SO 57214	28.97	C	
UNMK 347 SO 57214	UNMK 328 SO 57214	ob328	252°30'30"	A	SO 57214	1.42	A	SO 57214
UNMK 346 SO 461691	UNMK 348 SO 57214	ob327	226°38'40"	A	SO 57214	17.66	C	
UNMK 348 SO 57214	UNMK 350 SO 57214	ob329	252°30'30"	A	SO 57214	9.10	A	SO 57214
UNMK 350 SO 57214	UNMK 329 SO 57214	ob330	278°22'20"	A	SO 57214	0.30	A	SO 57214
PEG 4 DP 403465	UNMK 428 SO 57216	ob236	306°19'00"	A	SO 57216	164.92	C	
UNMK 428 SO 57216	UNMK 429 SO 57216	ob422	326°50'00"	A	SO 57216	22.53	A	SO 57216
UNMK 429 SO 57216	UNMK 430 SO 461691	ob423	354°50'10"	A	SO 57216	151.82	C	
UNMK 430 SO 461691	UNMK 431 SO 57216	ob424	354°50'10"	A	SO 57216	16.49	C	
UNMK 431 SO 57216	UNMK 433 SO 57216	ob425	77°07'50"	C		6.05	C	
UNMK 433 SO 57216	IT 9BI SO 57216	ob426	7°40'00"	A	SO 57216	32.00	A	SO 57216
UNMK 433 SO 57216	UNMK 435 SO 57216	ob427	77°07'50"	C		6.05	C	
UNMK 435 SO 57216	UNMK 436 SO 461691	ob428	174°50'10"	A	SO 57216	6.94	C	
UNMK 436 SO 461691	UNMK 437 SO 57216	ob429	174°50'10"	A	SO 57216	160.00	C	
UNMK 437 SO 57216	UNMK 438 SO 57216	ob430	146°50'00"	A	SO 57216	17.36	A	SO 57216
UNMK 438 SO 57216	UNMK 439 SO 57216	ob431	126°19'00"	A	SO 57216	307.75	A	SO 57216
UNMK 439 SO 57216	PEG V DP 23269	ob432	240°12'20"	A	SO 57216	13.12	A	SO 57216
IT XII DP 152653	PEG 73 DP 152653	ob338	21°06'00"	A	DP 152653	19.40	A	DP 152653
UNMK 439 SO 57216	UNMK 354 SO 57217	ob433	174°05'40"	A	SO 57217	605.31	A	SO 57217
UNMK 354 SO 57217	UNMK 422 SO 461691	ob343	174°05'40"	A	SO 57218	580.45	C	
UNMK 355 SO 57221	UNMK 359 SO 57221	ob347	189°43'50"	A	SO 57221	185.98	A	SO 57221
UNMK 359 SO 57221	UNMK 360 SO 57222	ob350	176°49'50"	A	SO 57222	83.21	A	SO 57222
UNMK 360 SO 57222	UNMK 361 SO 57222	ob351	174°17'20"	A	SO 57222	267.35	A	SO 57222
UNMK 361 SO 57222	UNMK 362 SO 57222	ob352	163°01'30"	A	SO 57222	227.32	A	SO 57222
UNMK 362 SO 57222	UNMK 363 SO 57222	ob353	140°59'40"	A	SO 57222	15.46	A	SO 57222
UNMK 363 SO 57222	UNMK 364 SO 57222	ob354	132°28'00"	A	SO 57222	244.18	A	SO 57222
UNMK 364 SO 57222	PEG VIA SO 27601	ob355	269°02'40"	A	SO 57222	17.45	A	SO 57222
PEG 167 SO 57222	UNMK 365 SO 57222	ob176	163°01'30"	A	SO 57222	230.84	A	SO 57222
UNMK 365 SO 57222	UNMK 366 SO 57222	ob357	140°59'40"	A	SO 57222	18.69	A	SO 57222
UNMK 366 SO 57222	PEG VIA SO 27601	ob358	132°28'00"	A	SO 57222	232.43	A	SO 57222
UNMK 364 SO 57222	UNMK 367 SO 57223	ob356	160°19'50"	A	SO 57223	270.50	A	SO 57223
UNMK 367 SO 57223	UNMK 368 SO 57223	ob359	173°10'50"	A	SO 57223	504.35	A	SO 57223
UNMK 368 SO 57223	UNMK 369 SO 57224	ob360	167°15'50"	A	SO 57224	262.93	A	SO 57224
UNMK 369 SO 57224	UNMK 370 SO 57224	ob361	156°43'20"	A	SO 57224	19.66	A	SO 57224
UNMK 370 SO 57224	UNMK 371 SO 57224	ob362	146°10'50"	A	SO 57224	208.30	A	SO 57224

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
UNMK 371 SO 57224	UNMK 372 SO 57224	ob363	177°44'00"	A	SO 57224	383.43	A	SO 57224
UNMK 372 SO 57224	UNMK 358 SO 57224	ob364	206°08'40"	A	SO 57224	5.43	A	SO 57224
TREE 191 SO 26703	UNMK 357 SO 57224	ob201	177°44'00"	A	SO 57224	369.10	A	SO 57224
UNMK 373 DP 152653	UNMK 375 SO 461691	ob366	98°24'00"	A	DP 152653	69.61	C	
UNMK 375 SO 461691	IT XV DP 152653	ob369	295°30'00"	C		43.66	C	
PEG 74 DP 152653	PEG 376 DP 152653	ob70	126°25'30"	A	DP 152653	20.00	A	DP 152653
PEG 376 DP 152653	IT XV DP 152653	ob370	27°41'00"	A	DP 152653	49.34	A	DP 152653
PEG 376 DP 152653	UNMK 377 SO 461691	ob371	126°25'30"	A	DP 152653	48.41	C	
UNMK 377 SO 461691	IT XV DP 152653	ob372	347°32'00"	C		74.20	C	
UNMK 374 DP 152653	UNMK 378 SO 461691	ob368	126°25'30"	A	DP 152653	66.25	C	
UNMK 378 SO 461691	IT XV DP 152653	ob373	8°33'30"	C		168.31	C	
PEG 69 DP 152653	PEG 71 SO 66014	ob375	114°40'00"	A	DP 152653	39.82	A	DP 152653
PEG 71 SO 66014	PEG 379 SO 66014	ob378	114°41'00"	A	SO 66014	8.71	A	SO 66014
PEG 379 SO 66014	IS VI SO 66014	ob379	234°36'00"	A	SO 66014	62.80	A	SO 66014
IS VI SO 66014	RM 26 SO 58728	ob381	218°04'00"	A	SO 66014	13.75	A	SO 66014
UNMK 70 DP 152653	UNMK 381 SO 66014	ob377	114°40'00"	A	DP 152653	38.27	A	DP 152653
UNMK 381 SO 66014	PEG 71 SO 66014	ob382	22°25'30"	A	SO 52722	10.01	A	SO 66014
PEG 379 SO 66014	UNMK 382 SO 461691	ob380	114°41'00"	A	SO 66014	27.43	C	
UNMK 382 SO 461691	RM 26 SO 58728	ob384	247°05'30"	C		91.84	C	
UNMK 381 SO 66014	UNMK 383 SO 461691	ob383	114°41'00"	A	SO 66014	37.02	C	
UNMK 383 SO 461691	RM 26 SO 58728	ob385	252°14'30"	C		85.66	C	
PEG 208 SO 57225	PEG (50) DP 55607	ob221	290°28'00"	A	SO 66773	20.77	A	SO 66773
UNMK 386 SO 45505	UNMK 388 SO 45505	ob390	223°48'20"	A	SO 45505	775.36	A	SO 45505
PEG 385 SO 45505	PEG 35 SO 45505	ob388	223°48'20"	A	SO 45505	777.43	A	SO 45505
PEG 37 SO 45505	PEG 387 SO 45505	ob37	221°37'30"	A	SO 45505	761.26	A	SO 45505
PEG 387 SO 45505	PEG 389 SO 45505	ob391	209°27'00"	A	SO 45505	873.35	A	SO 45505
PEG 389 SO 45505	PEG 409 SO 52722	ob393	194°28'40"	A	SO 45505	161.41	C	
UNMK 393 SO 461691	UNMK 394 SO 45505	ob400	209°27'00"	A	SO 45505	2.05	C	
UNMK 394 SO 45505	UNMK 396 SO 461691	ob401	194°28'40"	A	SO 45505	88.83	C	
PEG 407 SO 52722	PEG 404 SO 66773	ob416	13°54'20"	A	SO 66773	70.73	A	SO 66773
UNMK 390 SO 45505	UNMK 392 SO 45505	ob395	221°37'30"	A	SO 45505	767.72	A	SO 45505
UNMK 392 SO 45505	UNMK 391 SO 461691	ob398	209°27'00"	A	SO 45505	45.41	C	

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
UNMK 391 SO 461691	UNMK 393 SO 461691	ob397	209°27'00"	A	SO 45505	828.45	C	
UNMK 396 SO 461691	UNMK 408 SO 52722	ob404	194°28'40"	A	SO 45505	72.49	C	
IT V SO 41469	UNMK 397 SO 461691	ob286	359°15'00"	C		281.80	C	
UNMK 397 SO 461691	PEG IV SO 41469	ob405	199°49'00"	C		311.84	C	
UNMK 321 SO 461691	UNMK 410 SO 461691	ob296	14°58'00"	C		116.50	C	
UNMK 410 SO 461691	UNMK 411 SO 461691	ob420	6°29'00"	C		104.70	C	
UNMK 411 SO 461691	UNMK 397 SO 461691	ob421	1°58'00"	C		70.33	C	
IT V SO 41469	UNMK 410 SO 461691	ob287	350°31'30"	C		108.95	C	
IT V SO 41469	UNMK 411 SO 461691	ob288	358°20'40"	C		211.58	C	
IS 9L SO 57216	UNMK 335 DP 149809	ob146	82°05'00"	C		53.59	C	
UNMK 335 DP 149809	PEG 17 DP 403465	ob316	169°43'30"	C		92.50	C	
PEG 342 SO 52996	PEG 86 SO 52996	ob436	120°33'00"	A	SO 52996	37.18	A	SO 52996
PEG 341 SO 52996	PEG 85 SO 52996	ob437	199°16'00"	A	SO 17417	20.39	A	SO 52996
PEG 341 SO 52996	PEG 349 SO 52996	ob438	120°33'00"	A	SO 52996	509.06	A	SO 52996
PEG 349 SO 52996	PEG 342 SO 52996	ob439	210°33'00"	A	SO 52996	20.00	A	SO 52996
UNMK 351 SO 461691	PEG VI DP 23269	ob440	174°06'00"	A	SO 2096	10.11	C	
UNMK 422 SO 461691	UNMK 356 SO 57218	ob442	174°05'40"	A	SO 57218	10.11	C	
UNMK 351 SO 461691	UNMK 422 SO 461691	ob441	90°01'00"	C		12.06	C	
UNMK 422 SO 461691	UNMK 423 SO 461691	ob443	90°01'00"	C		279.08	C	
UNMK 423 SO 461691	RM 111 SO 56539	ob444	279°33'00"	C		189.38	C	
PEG 26 SO 55699	UNMK 61 SO 67191	ob25	241°48'00"	A	DP 199563	12.96	A	SO 67191
PEG (1) SO 55699	UNMK 60 SO 67191	ob30	158°05'00"	A	SO 45505	137.32	A	SO 67191
UNMK 61 SO 67191	UNMK 62 SO 67191	ob446	174°00'00"	A	SO 67191	76.54	A	SO 67191
UNMK 62 SO 67191	UNMK 63 SO 67191	ob448	226°04'00"	A	SO 67191	44.14	A	SO 67191
UNMK 63 SO 67191	UNMK 60 SO 67191	ob449	223°40'30"	A	SO 67191	721.97	A	SO 67191
PEG 213 SO 57225	UNMK 424 SO 67191	ob228	112°29'50"	A	SO 57225	78.73	A	SO 67191
UNMK 327 SO 57213	UNMK 425 SO 67191	ob308	338°05'00"	A	SO 45505	13.18	A	SO 67191
UNMK 425 SO 67191	UNMK 427 SO 67191	ob452	223°40'30"	A	SO 67191	37.94	A	SO 67191
UNMK 427 SO 67191	UNMK 432 SO 67191	ob453	221°41'20"	A	SO 67191	697.19	A	SO 67191
UNMK 432 SO 67191	UNMK 434 SO 67191	ob454	216°46'30"	A	SO 67191	73.47	A	SO 67191

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
UNMK 434 SO 67191	UNMK 510 SO 67191	ob455	241°53'00"	A	SO 67191	408.17	A	SO 67191
UNMK 510 SO 67191	UNMK 424 SO 67191	ob456	226°38'40"	A	SO 67191	350.48	A	SO 67191
PEG 208 SO 57225	UNMK 515 SO 67191	ob219	36°24'30"	A	SO 57225	12.48	A	SO 67191
PEG 51 DP 55607	UNMK 516 SO 67191	ob51	216°24'30"	A	DP 55607	98.79	C	
UNMK 515 SO 67191	UNMK 516 SO 67191	ob457	290°28'00"	A	SO 67191	20.77	A	SO 67191
PEG 517 SO 329511	PEG 183 SO 21423	ob460	270°01'00"	A	DP 23269	286.64	A	SO 46522
PEG 517 SO 329511	PEG 518 SO 329551	ob461	167°05'00"	A	SO 329551	28.59	A	SO 329551
PEG 518 SO 329551	PEG 519 SO 329551	ob462	162°40'00"	A	SO 329551	32.65	A	SO 329551
PEG 519 SO 329551	PEG 520 SO 329551	ob463	175°23'00"	A	SO 329551	78.26	A	SO 329551
PEG 520 SO 329551	PEG 521 SO 329551	ob464	168°00'30"	A	SO 329551	80.67	A	SO 329551
PEG 521 SO 329551	PEG 522 SO 329551	ob465	198°40'00"	A	SO 329551	15.19	A	SO 329551
PEG 522 SO 329551	PEG 523 SO 329551	ob466	171°31'30"	A	SO 46520	260.66	A	SO 329551
PEG 523 SO 329551	PEG 524 SO 329551	ob467	121°33'00"	A	SO 329551	11.47	A	SO 329551
PEG 524 SO 329551	PEG 525 SO 329551	ob468	169°35'00"	A	SO 329551	22.80	A	SO 329551
PEG 525 SO 329551	PEG 526 SO 329551	ob469	189°03'00"	A	SO 329551	33.40	A	SO 329551
PEG 526 SO 329551	PEG 527 SO 46520	ob470	172°12'30"	A	SO 46520	216.44	A	SO 329551
PEG 527 SO 46520	IP IV SO 27601	ob471	155°28'00"	A	SO 27601	89.52	A	SO 46520
IP IV SO 27601	IP II SO 27601	ob472	163°04'00"	A	SO 27601	170.19	A	SO 27601
IP II SO 27601	PEG 530 SO 44172	ob473	180°38'00"	A	SO 44172	310.32	A	SO 44172
PEG 530 SO 44172	UNMK 531 SO 57220	ob474	85°33'20"	A	SO 51536	133.22	A	SO 57220
UNMK 531 SO 57220	UNMK 532 SO 57220	ob475	85°33'20"	A	SO 51536	12.00	A	SO 57220
UNMK 532 SO 57220	PEG 533 SO 51536	ob476	85°33'20"	A	SO 51536	362.96	C	
PEG 533 SO 51536	PEG 186 SO 44172	ob477	173°20'30"	A	SO 51536	60.50	A	SO 51536
PEG VI DP 23269	UNMK 534 SO 57218	ob253	201°25'30"	A	SO 57218	134.39	A	SO 57218
UNMK 534 SO 57218	UNMK 535 SO 57219	ob478	194°56'00"	A	SO 57219	383.14	A	SO 57219
UNMK 535 SO 57219	UNMK 536 SO 57219	ob479	172°12'00"	A	SO 57219	120.77	A	SO 57219
UNMK 536 SO 57219	UNMK 537 SO 57219	ob480	152°52'00"	A	SO 57219	290.22	A	SO 57219
UNMK 537 SO 57219	UNMK 538 SO 57220	ob481	169°39'00"	A	SO 57220	13.09	A	SO 57220
UNMK 538 SO 57220	UNMK 531 SO 57220	ob482	175°52'00"	A	SO 57220	423.17	A	SO 57220
UNMK 356 SO 57218	UNMK 539 SO 57218	ob344	174°05'40"	A	SO 57218	1.67	A	SO 57218
UNMK 539 SO 57218	UNMK 540 SO 57218	ob483	201°25'30"	A	SO 57218	136.63	A	SO 57218
UNMK 540 SO 57218	UNMK 541 SO 57219	ob484	194°56'00"	A	SO 57219	380.04	A	SO 57219
UNMK 541 SO 57219	UNMK 542 SO 57219	ob485	172°12'00"	A	SO 57219	116.31	A	SO 57219
UNMK 542 SO 57219	UNMK 543 SO 57219	ob486	152°52'00"	A	SO 57219	289.94	A	SO 57219
UNMK 543 SO 57219	UNMK 544 SO 57220	ob487	169°39'00"	A	SO 57220	15.51	A	SO 57220
UNMK 544 SO 57220	UNMK 532 SO 57220	ob488	175°52'00"	A	SO 57220	423.75	A	SO 57220
PEG 285 SO 43861	UNMK 552 SO 461691	ob245	131°34'00"	A	SO 43861	24.82	C	
PEG 35 SO 45505	UNMK 553 SO 461691	ob31	158°05'00"	A	SO 45505	126.94	C	
UNMK 321 SO 461691	IT V SO 41469	ob295	83°57'00"	A	SO 41469	48.29	C	
UNMK 442 SO 41469	UNMK 320 SO 461691	ob434	83°57'00"	A	SO 41469	30.29	C	

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From	To	Code	Bearing		Adpt Surv	Distance		Adpt Surv
UNMK 443 SO 42471	UNMK 138 SO 461691	ob435	92°01'40"	A	SO 42471	22.92	C	
PEG 173 DP 87224	PEG 565 SO 26703	ob183	146°11'00"	A	SO 26703	215.19	A	SO 26703

***** End of Report *****

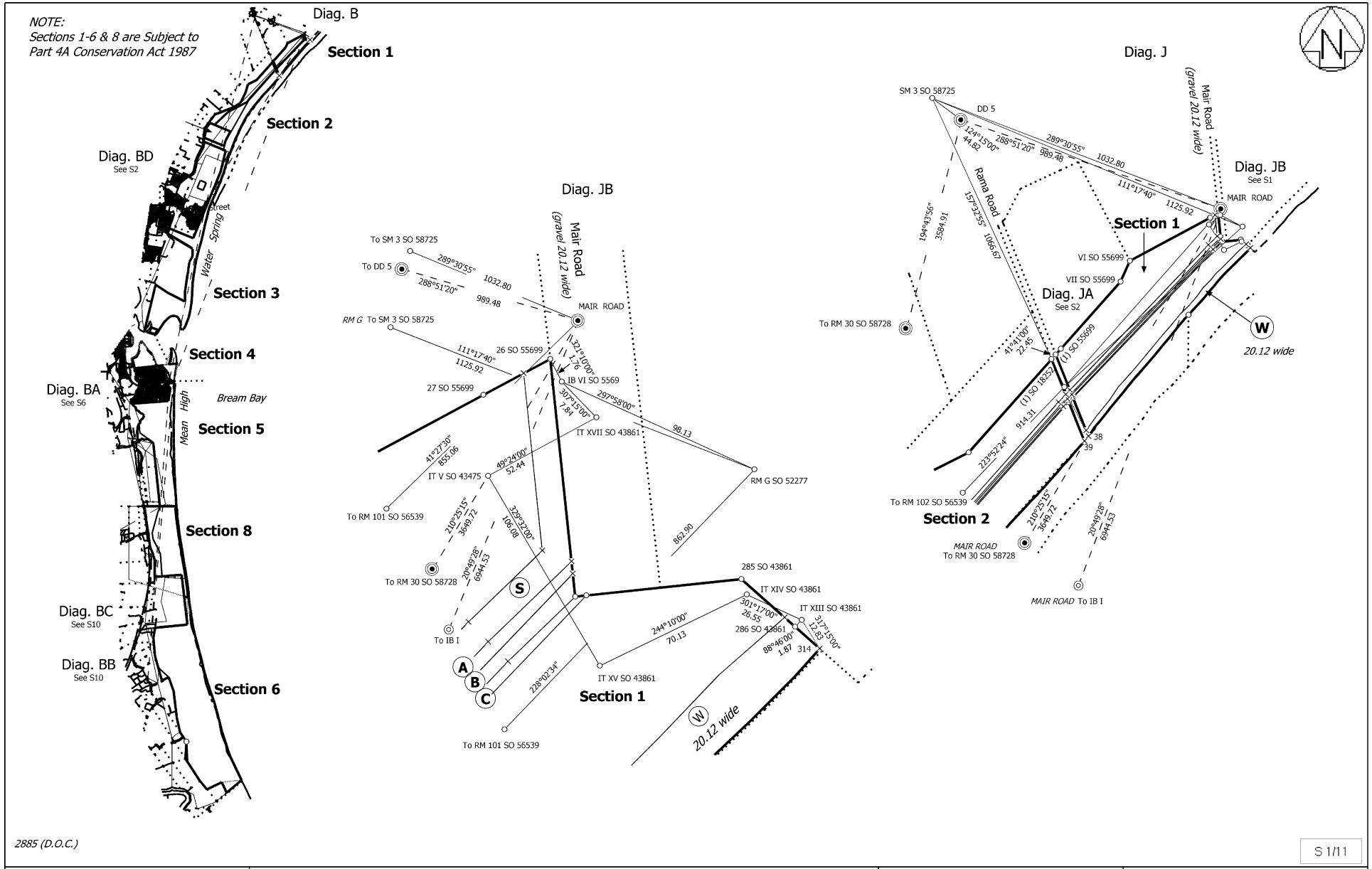
Land Registration District	Plan Number
North Auckland	**SO 461691**

Territorial Authority (the Council) **2885 DOC**

Whangarei District Council

Schedule of Existing Easements

Purpose	Shown	Servient Tenement	Created by
Oil Supply Gas Pipeline Oil Pipeline	A,B,S & C	Section 1 Hereon	Deed of Grant 100C/225
Oil Supply Right of Way Cathodic Protection Cable Cathodic Protection Cable Gas Pipeline Oil Pipeline	D,E,F,G,H,I, J,M,T & U	Section 2 Hereon	Deed of Grant 100C/225
Sea Water Easement Right of Way	K,L & R	Section 3 Hereon	C253081.1
Oil Supply Right of Way	N & P P & Q	Section 5 Hereon	B899370.3 Deed of Grant 1633/76
Oil Supply	O	Section 6 Hereon	B899370.2
Oil Supply	V	Section 8 Hereon	B899370.3



2885 (D.O.C.)

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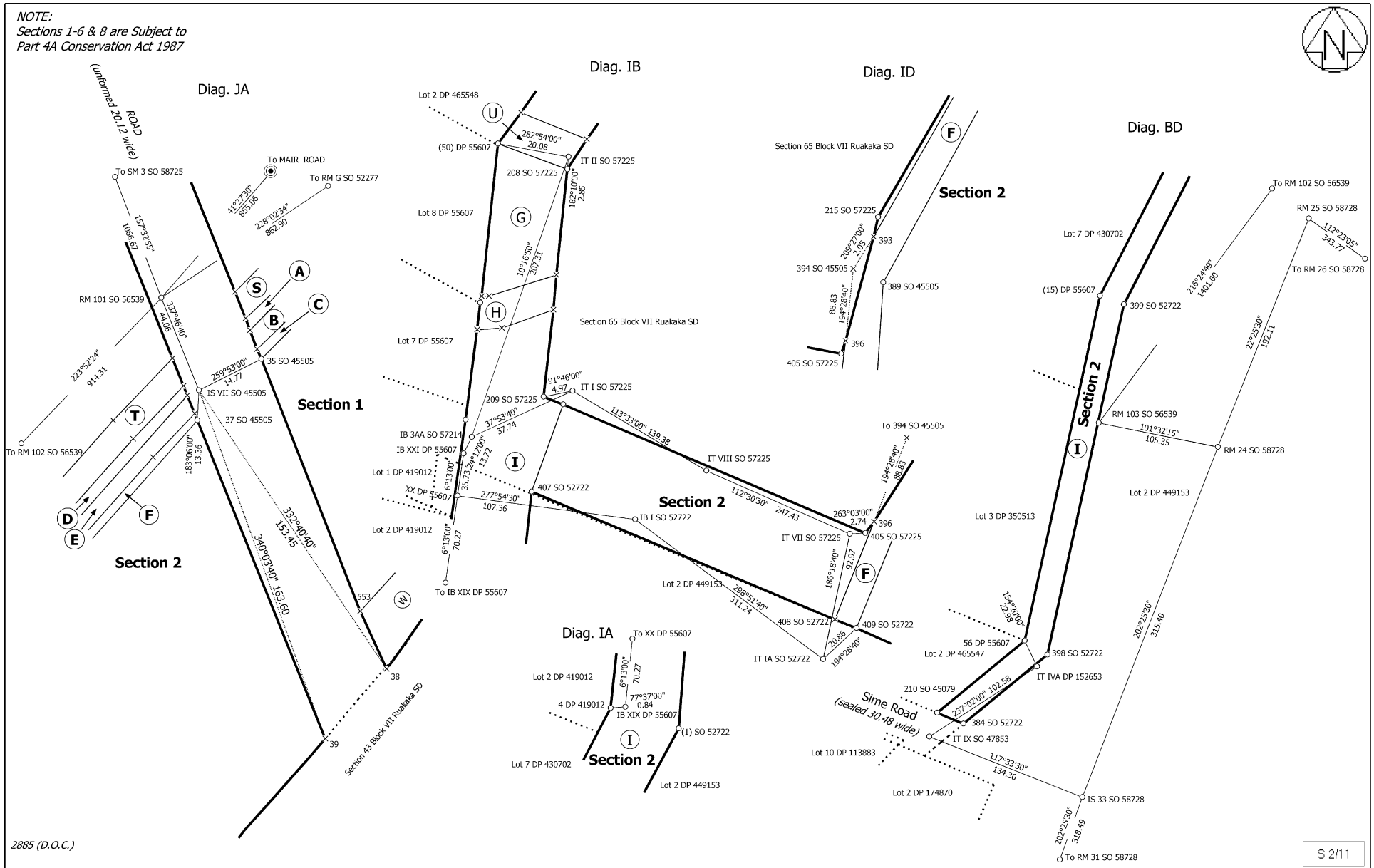
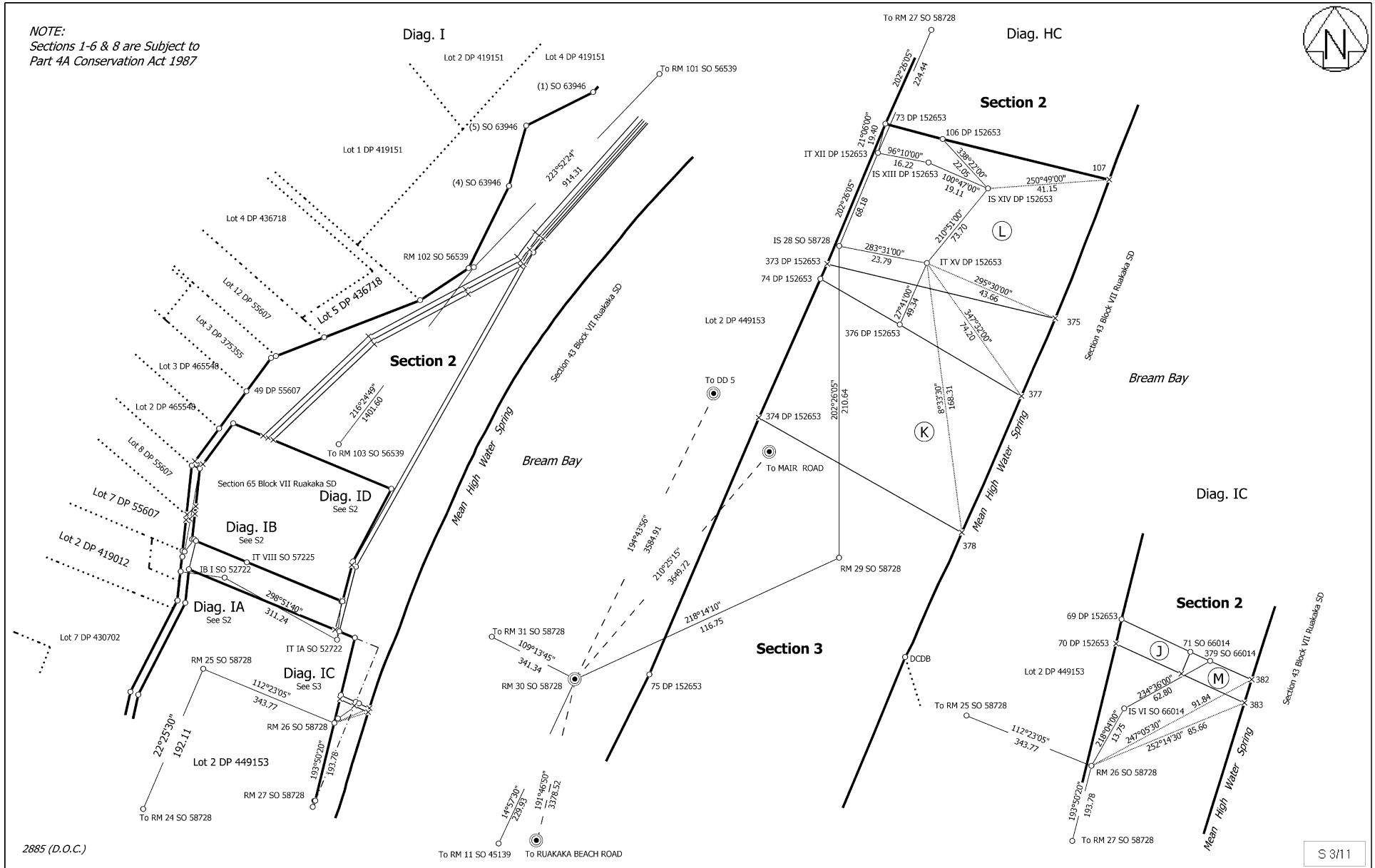
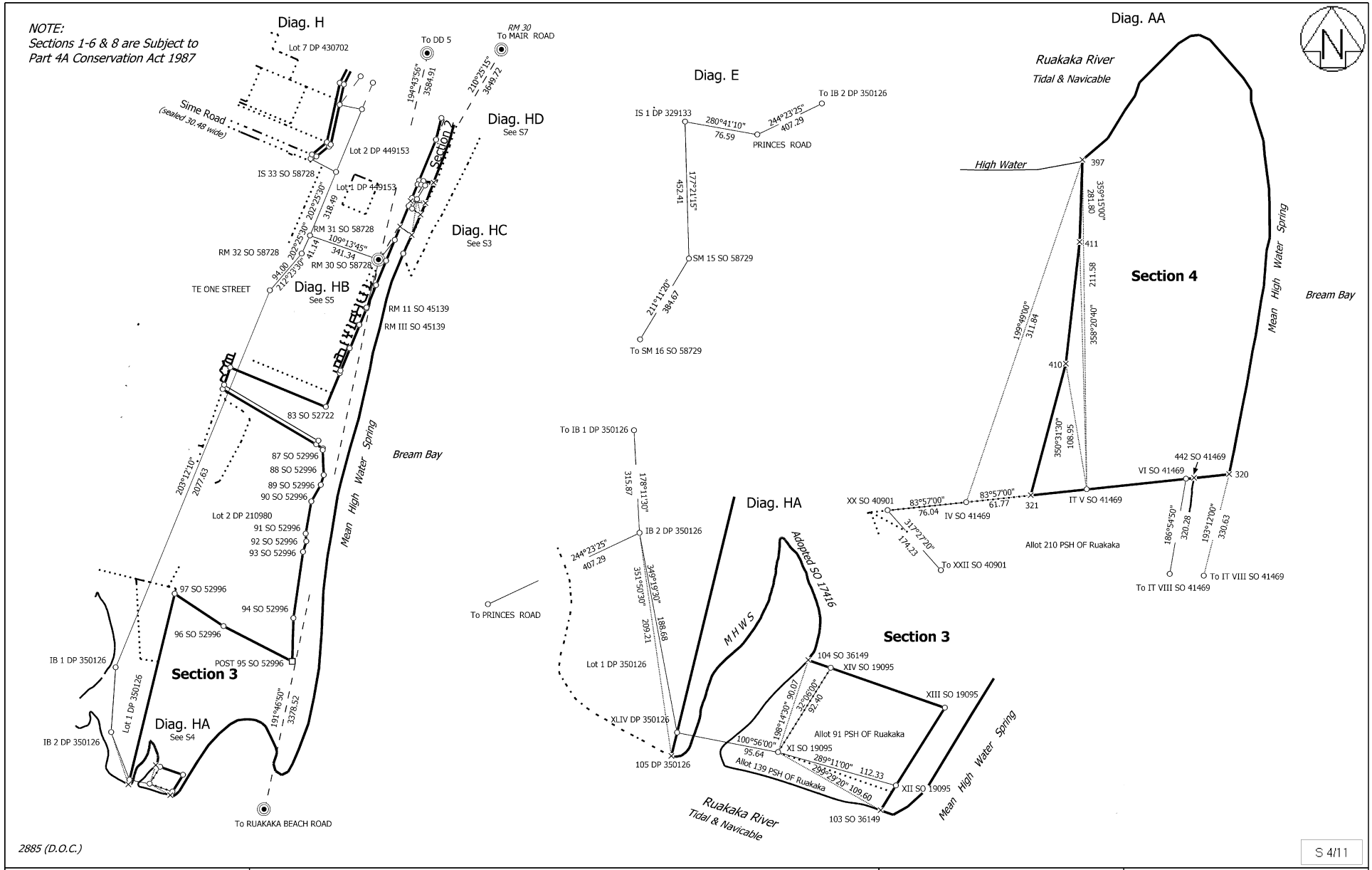
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 20 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



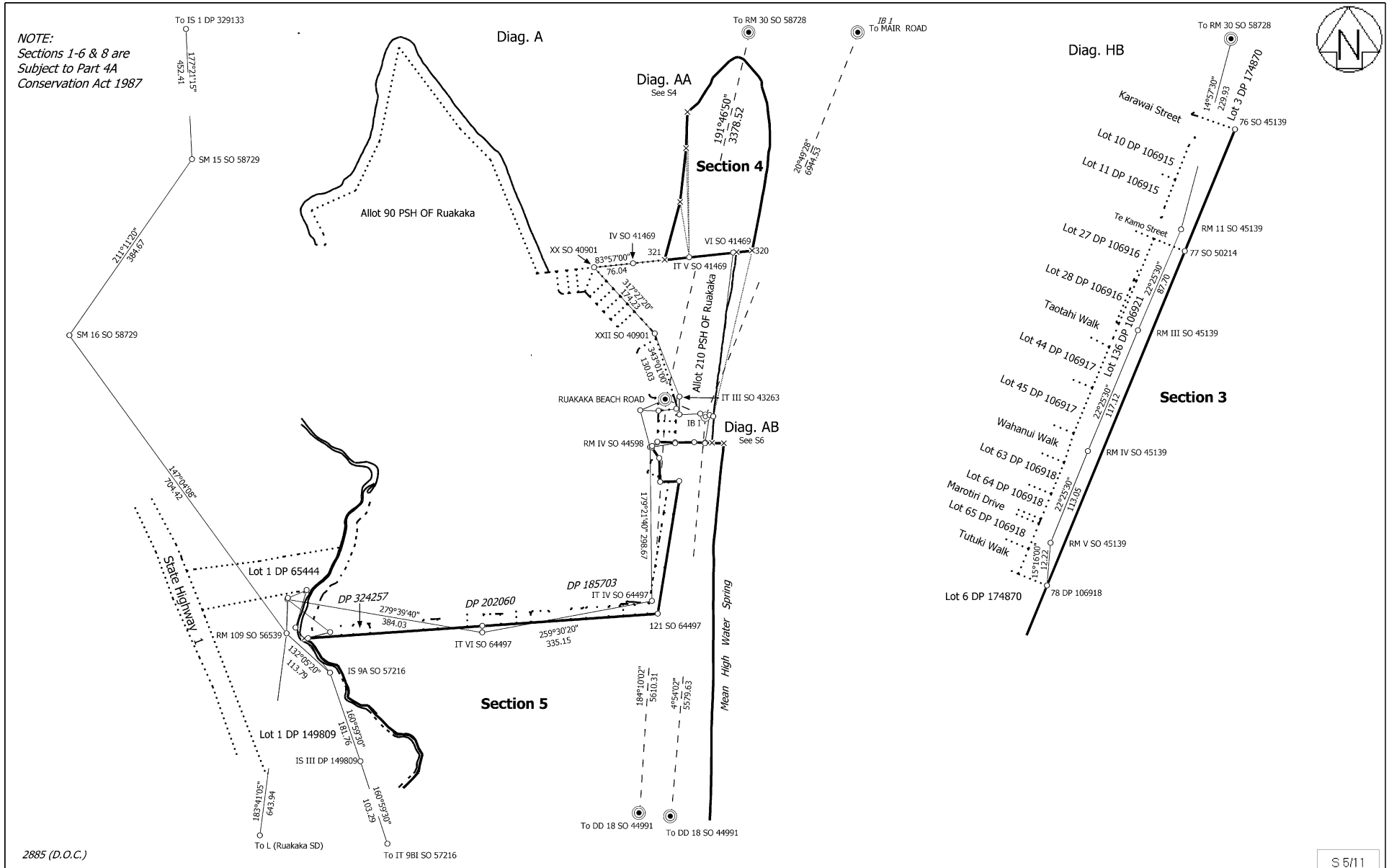
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 21 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



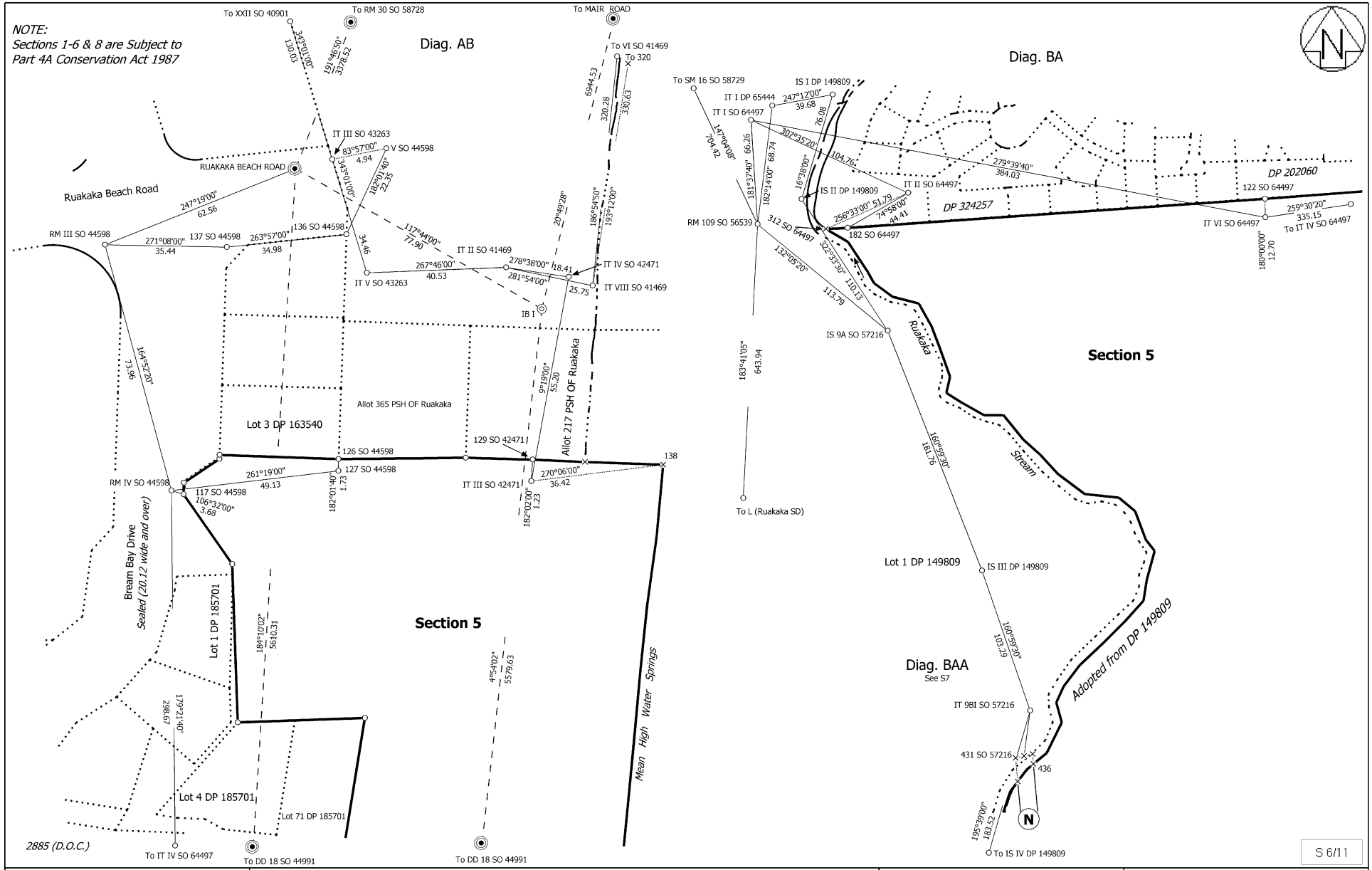
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 22 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



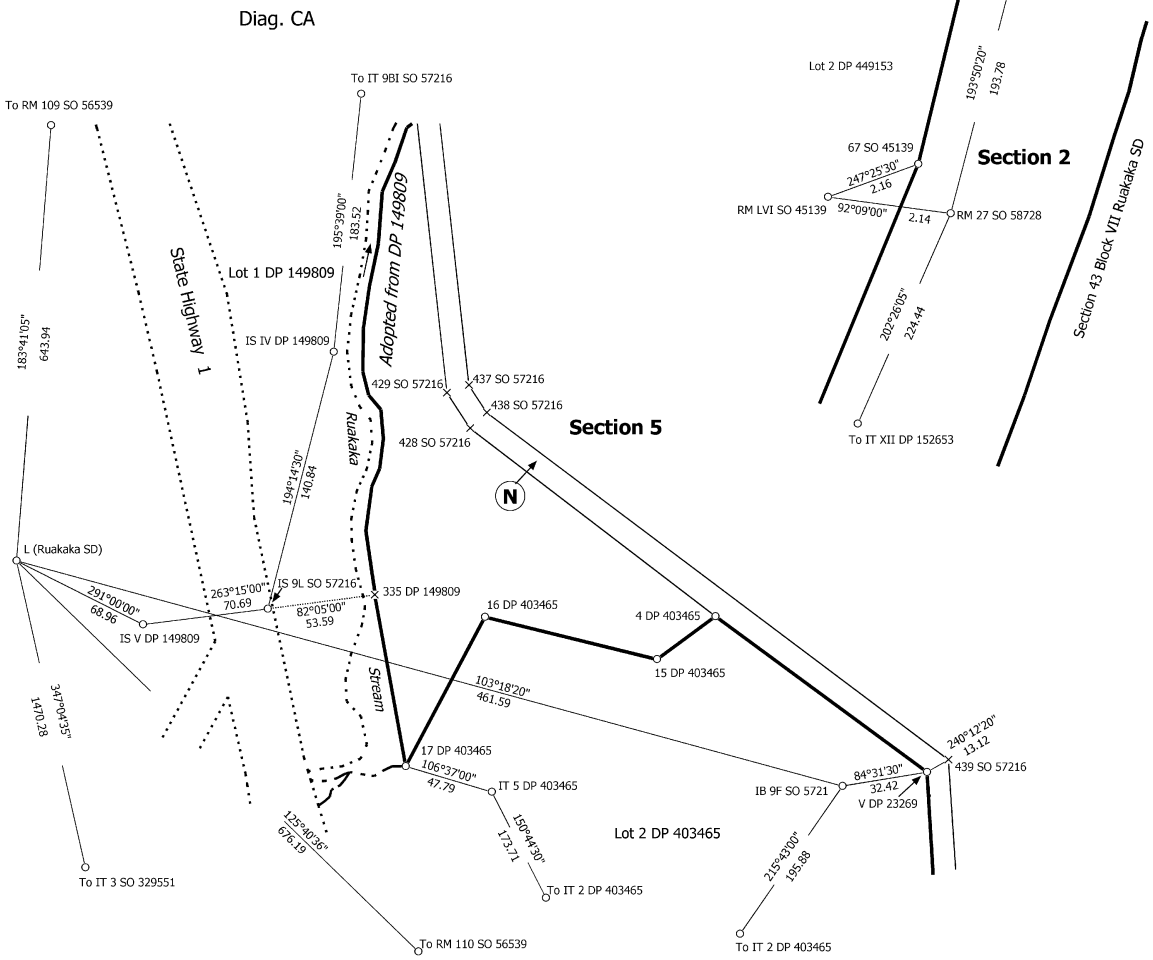
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 23 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 24 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015


NOTE:
Sections 1-6 & 8 are Subject to
Part 4A Conservation Act 1987
Diag. AB
Diag. BA
Diag. BAA
See S7
To XXII SO 40901
To RM 30 SO 58728
To MAIR ROAD
To VI SO 41469
To 320
IT III SO 43263
V SO 44598
RUAKAKA BEACH ROAD
Ruakaka Beach Road
RM III SO 44598
136 SO 44598
137 SO 44598
IT II SO 41469
IT V SO 43263
IT IV SO 42471
IT VIII SO 41469
IB I
Allot 365 PSH OF Ruakaka
Lot 3 DP 163540
Allot 217 PSH OF Ruakaka
126 SO 44598
127 SO 44598
129 SO 42471
138
RM IV SO 44598
117 SO 44598
IT III SO 42471
Bream Bay Drive
Sealed (20.12 wide and over)
Lot 1 DP 185701
Lot 4 DP 185701
Lot 71 DP 185701
Section 5
Mean High Water Springs
2885 (D.O.C.)
To IT IV SO 64497
To DD 18 SO 44991
To DD 18 SO 44991
To SM 16 SO 58729
IS I DP 149809
IT I DP 65444
IT I SO 64497
IT II SO 64497
IS II DP 149809
DP 324257
DP 202060
122 SO 64497
IT VI SO 64497
To IT IV SO 64497
RM 109 SO 56539
312 SO 64497
182 SO 64497
To L (Ruakaka SD)
IS 9A SO 57216
Ruakaka
Stream
Section 5
Lot 1 DP 149809
IS III DP 149809
IT 9BI SO 57216
431 SO 57216
436
Adopted from DP 149809
To IS IV DP 149809
S 6/11
Land District: North Auckland
Digitally Generated Plan
Generated on: 02/04/2015 08:23am Page 25 of 39
SECTIONS 1 - 6 and 8
Surveyor: Samuel Donald Beasley
Firm: Terrain Surveying Ltd
Survey Date: 25/03/2013
CSD Plan
SO 461691
Approved on: 2/04/2015

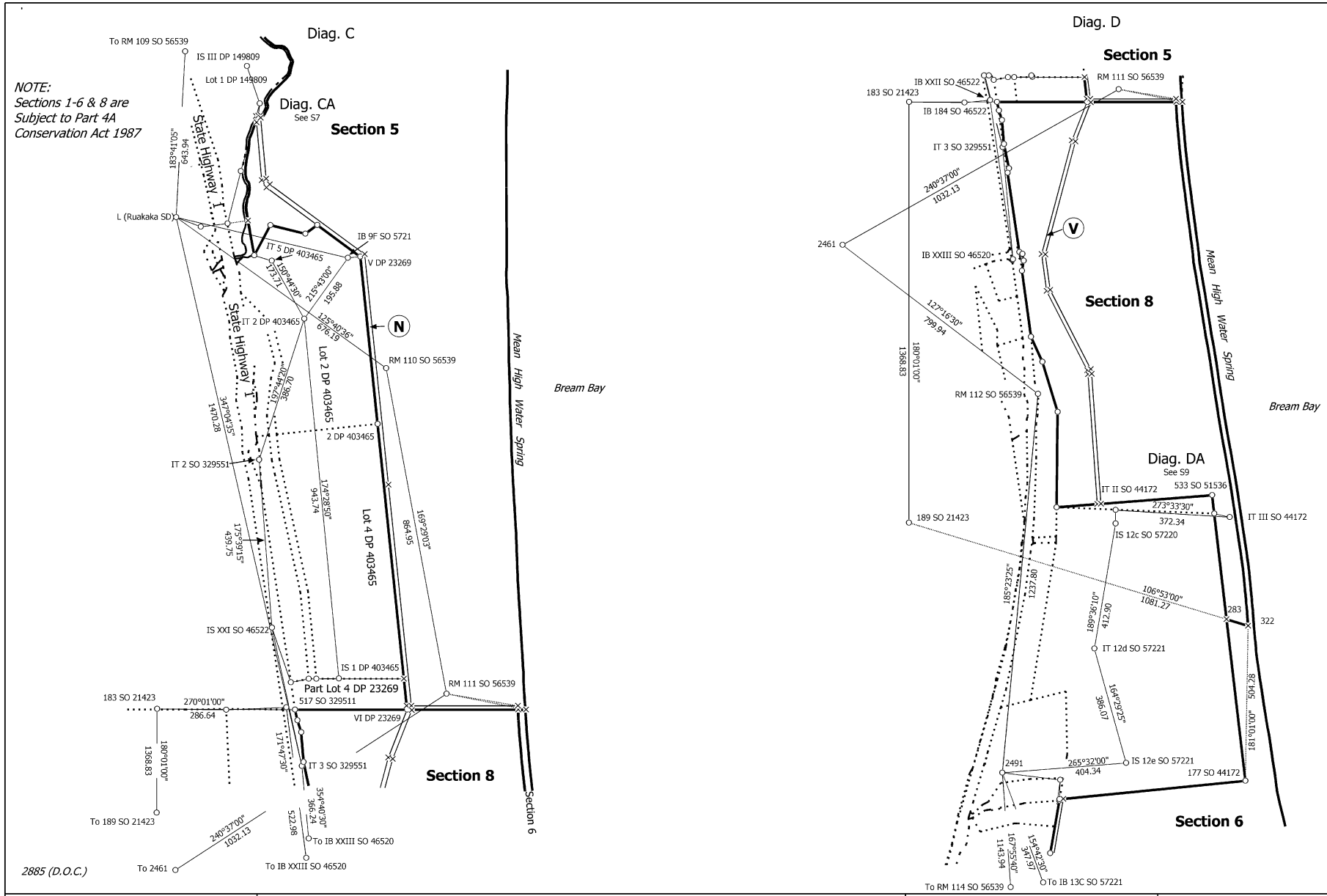
NOTE:
Sections 1-6 & 8 are Subject to
Part 4A Conservation Act 1987



2885 (D.O.C.)

S 7/11

Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 26 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 27 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015

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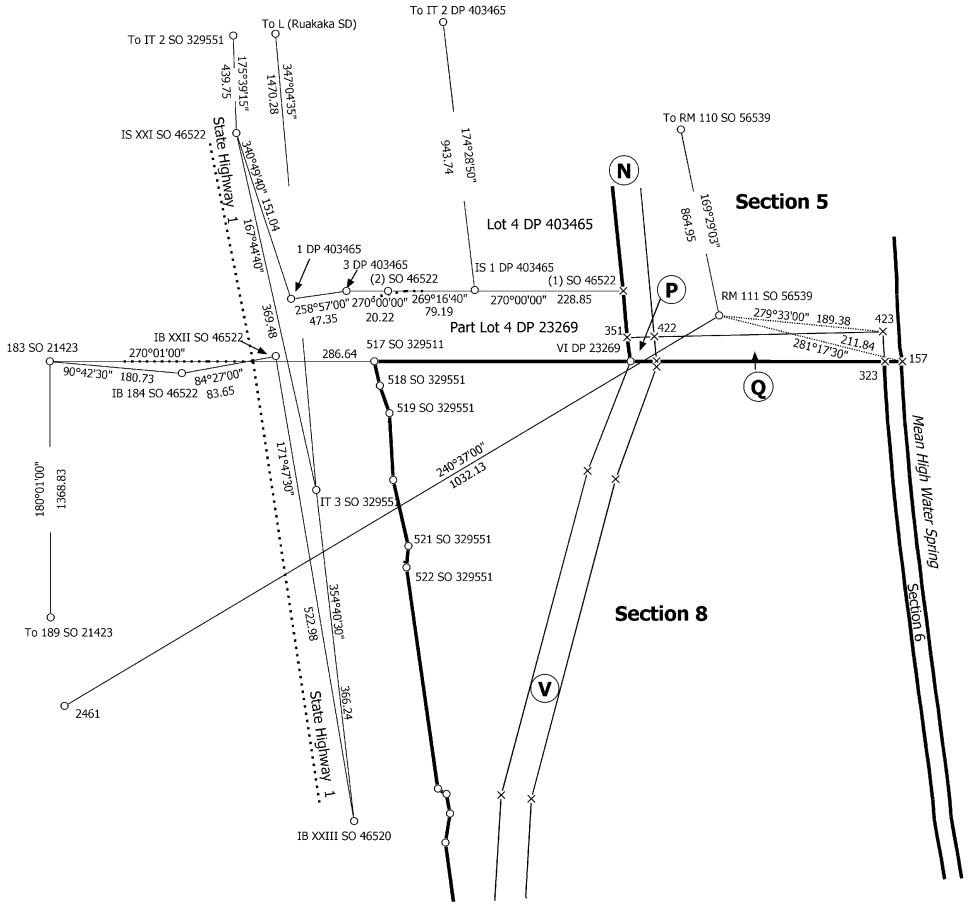
Diag. F



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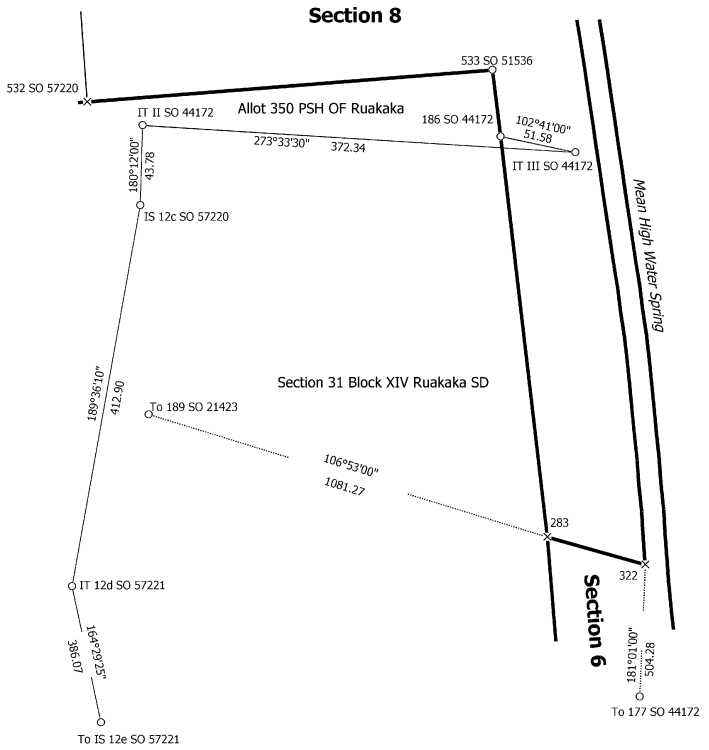
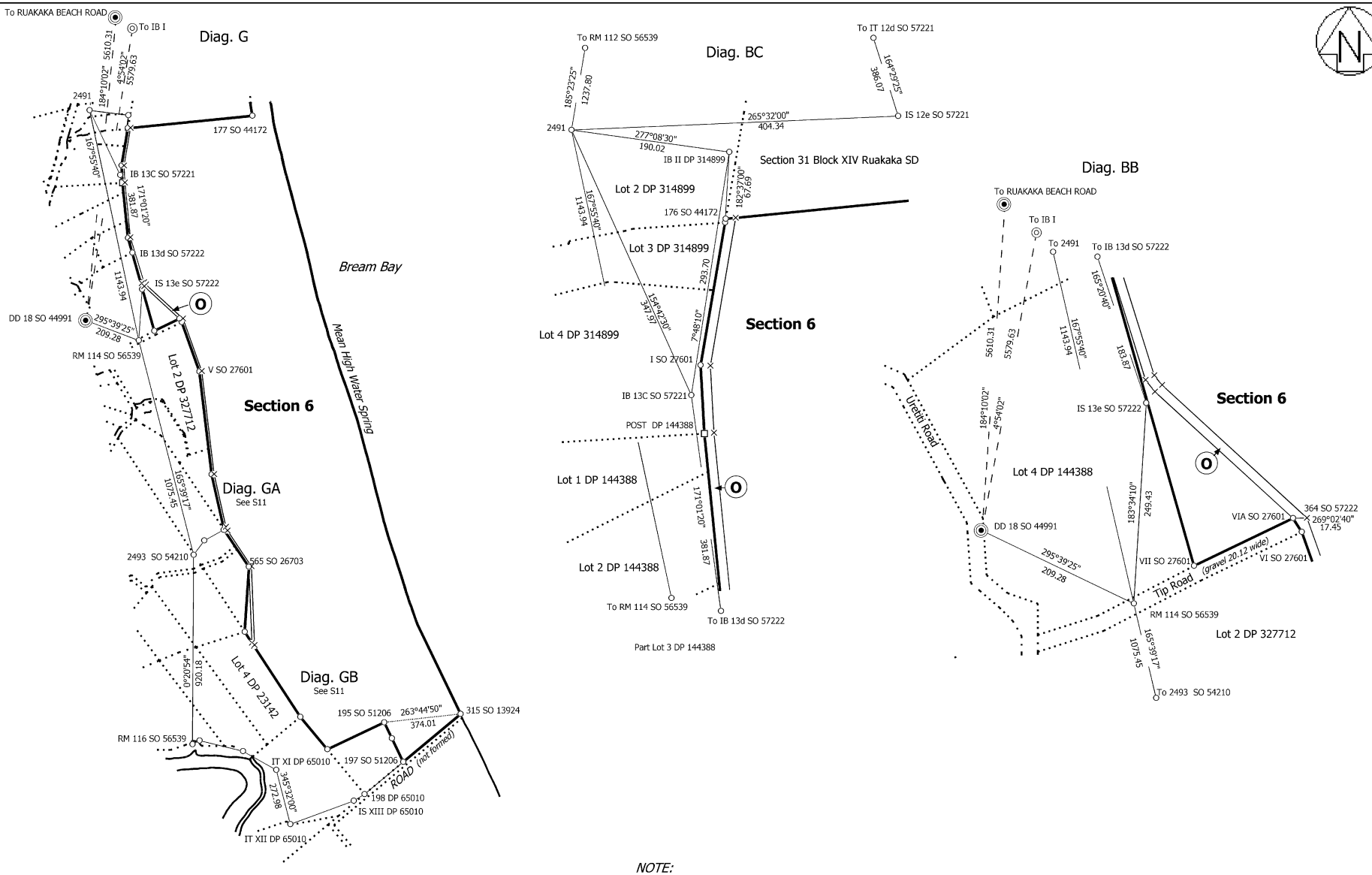


2885 (D.O.C.)

S 9/11

Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 28 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



2885 (D.O.C.)

NOTE:
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S 10/11

Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 29 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015

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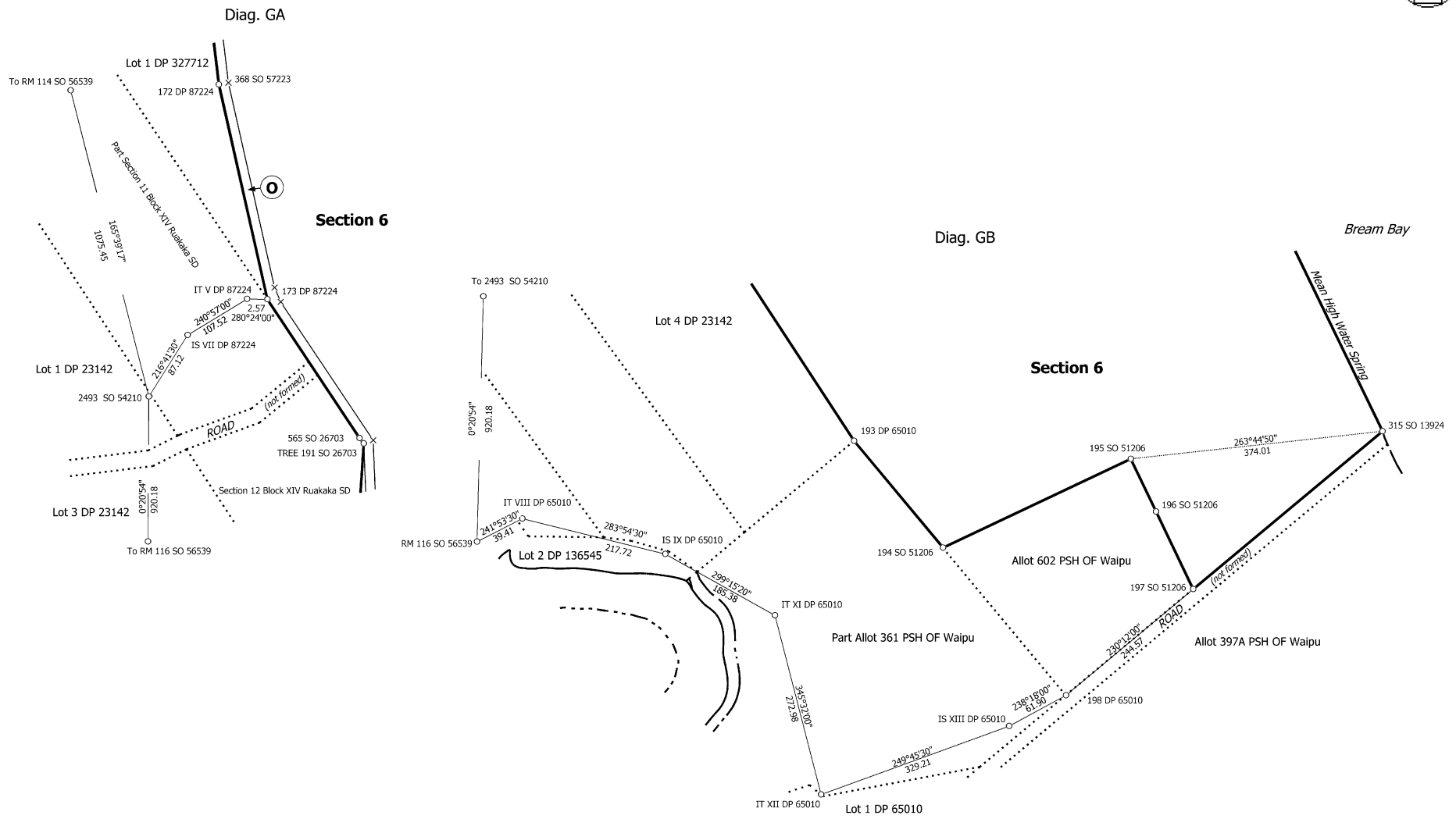

2885 (D.O.C.)

S 11/11

Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 30 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015

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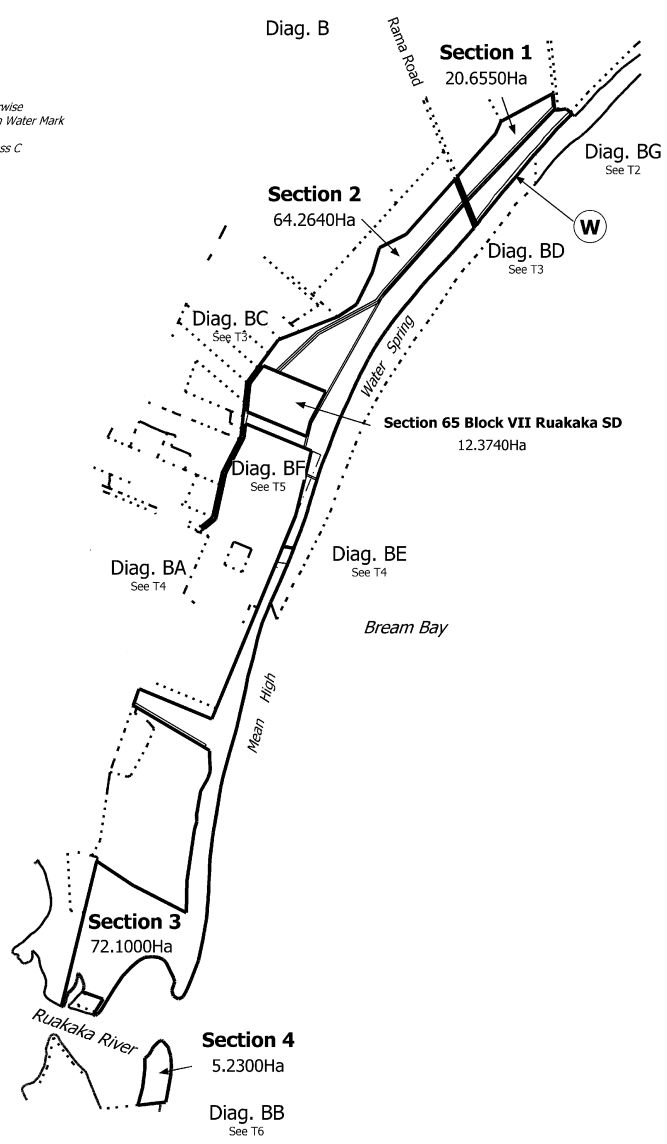
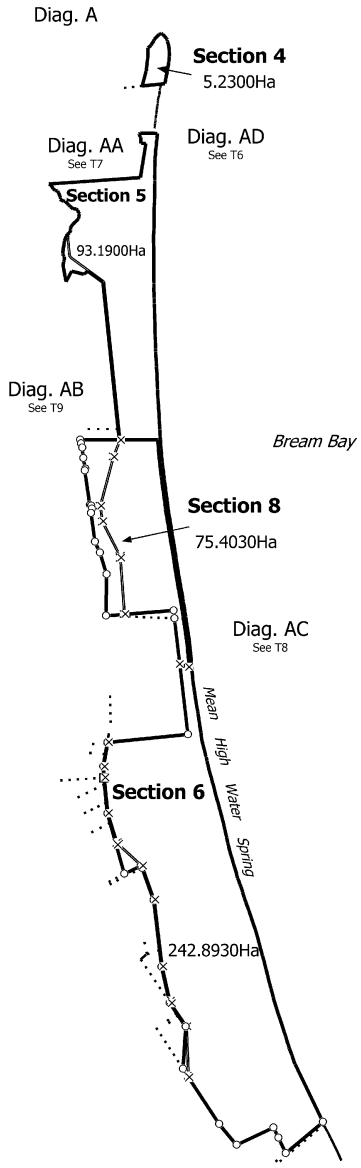
Water boundary of Section 4 is Class B
Irregular Boundaries of Sections 6 & 8 are Class C

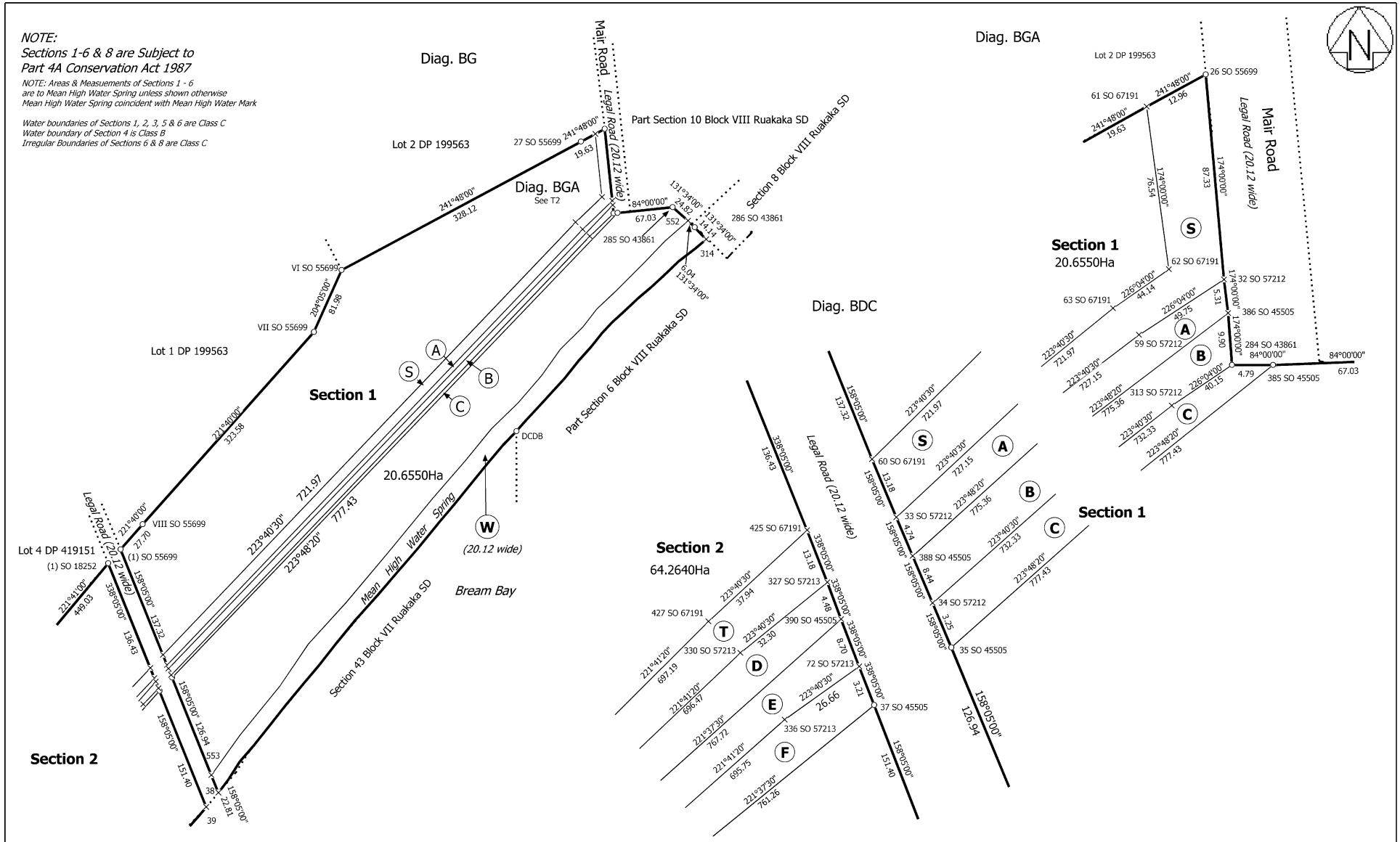




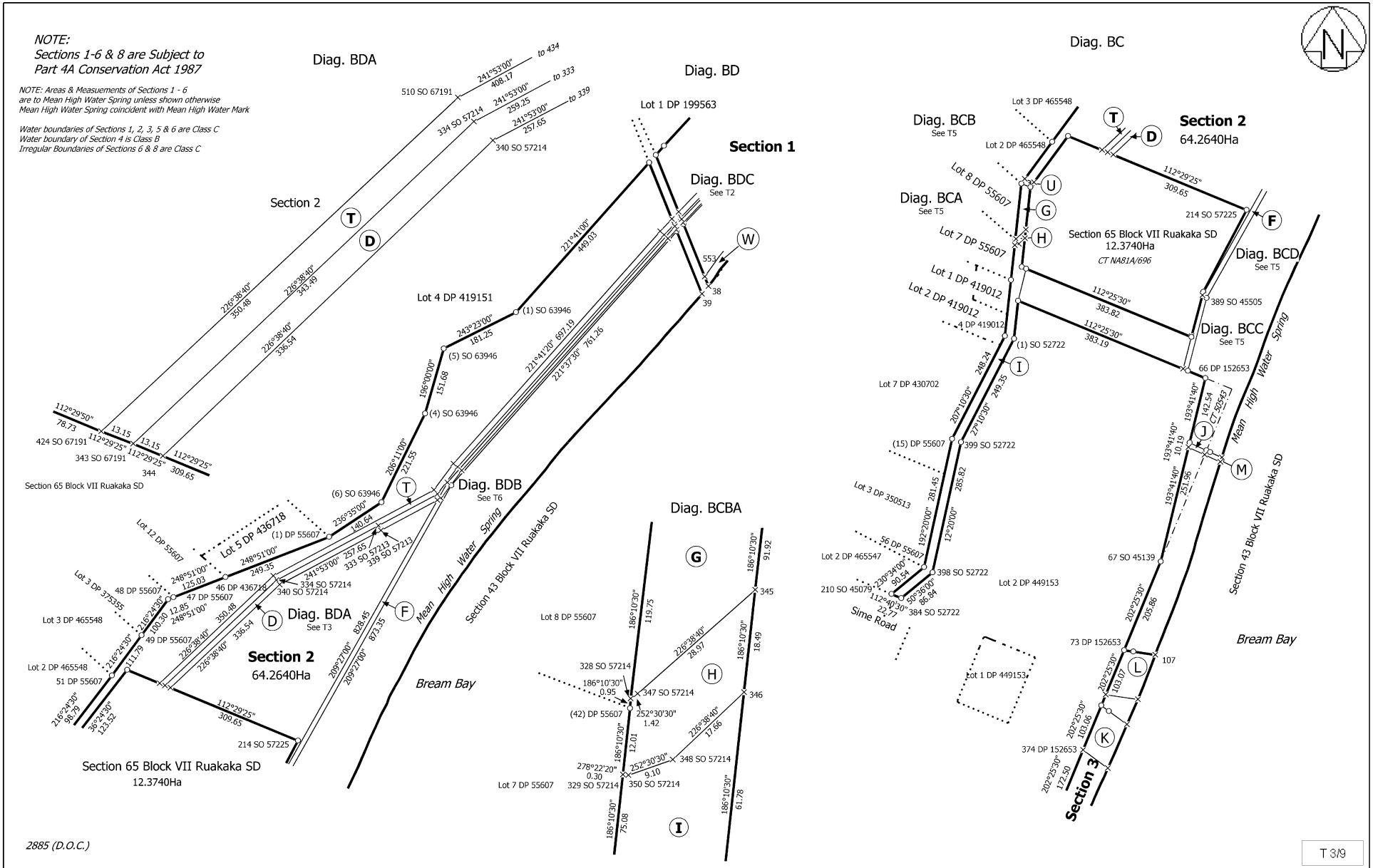
2885 (D.O.C.)

T 1/9

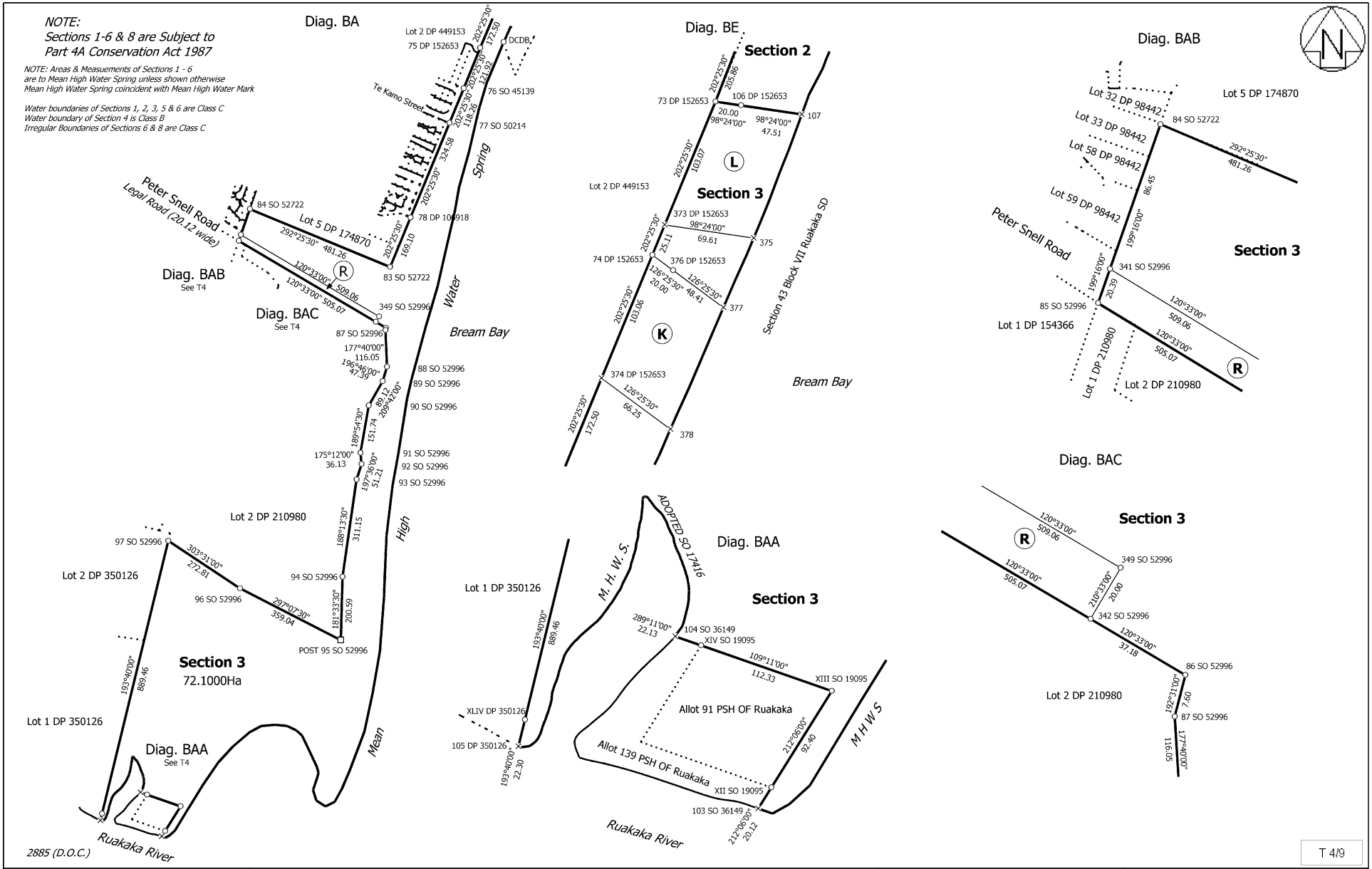
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 31 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



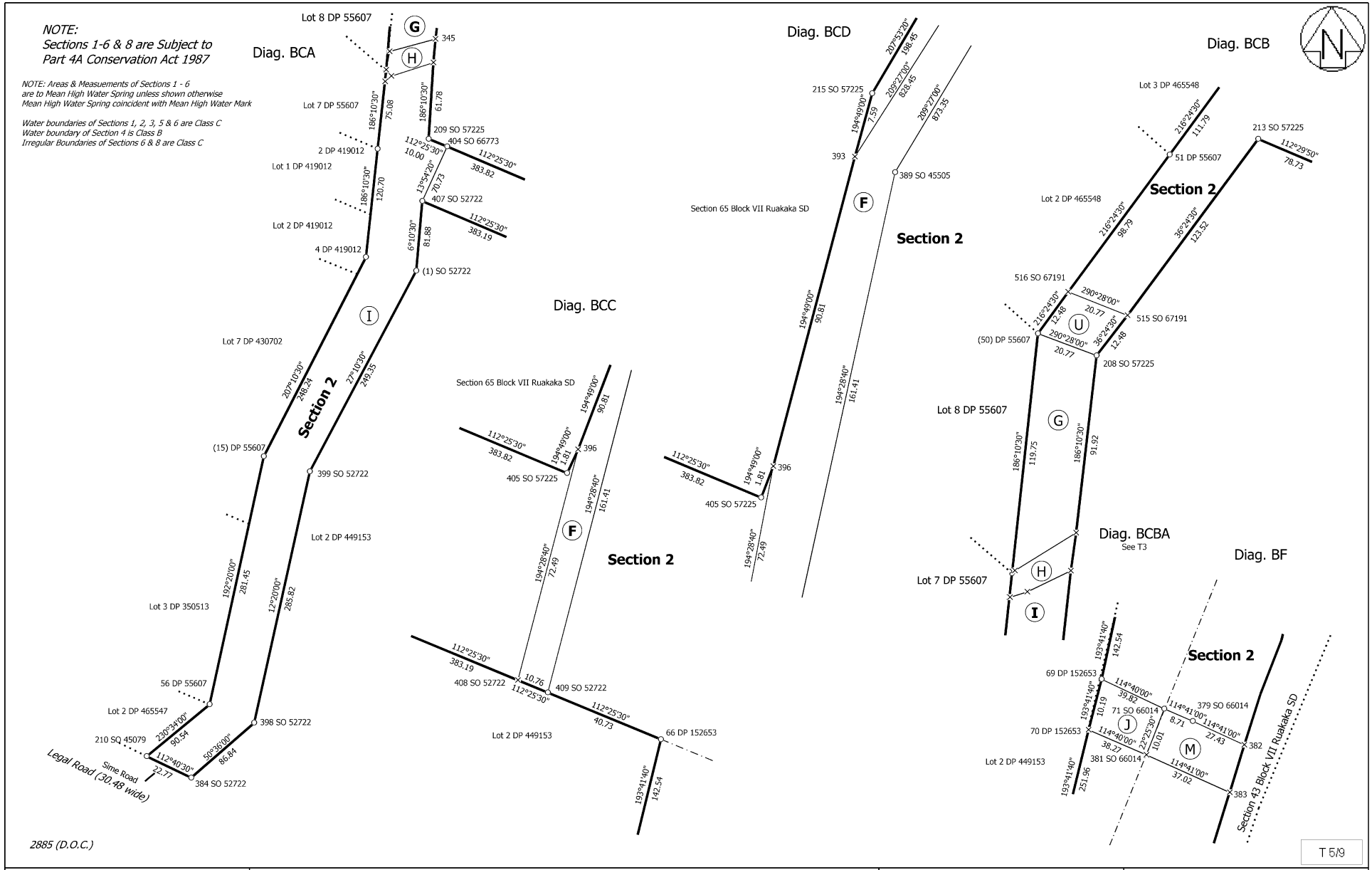
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 32 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



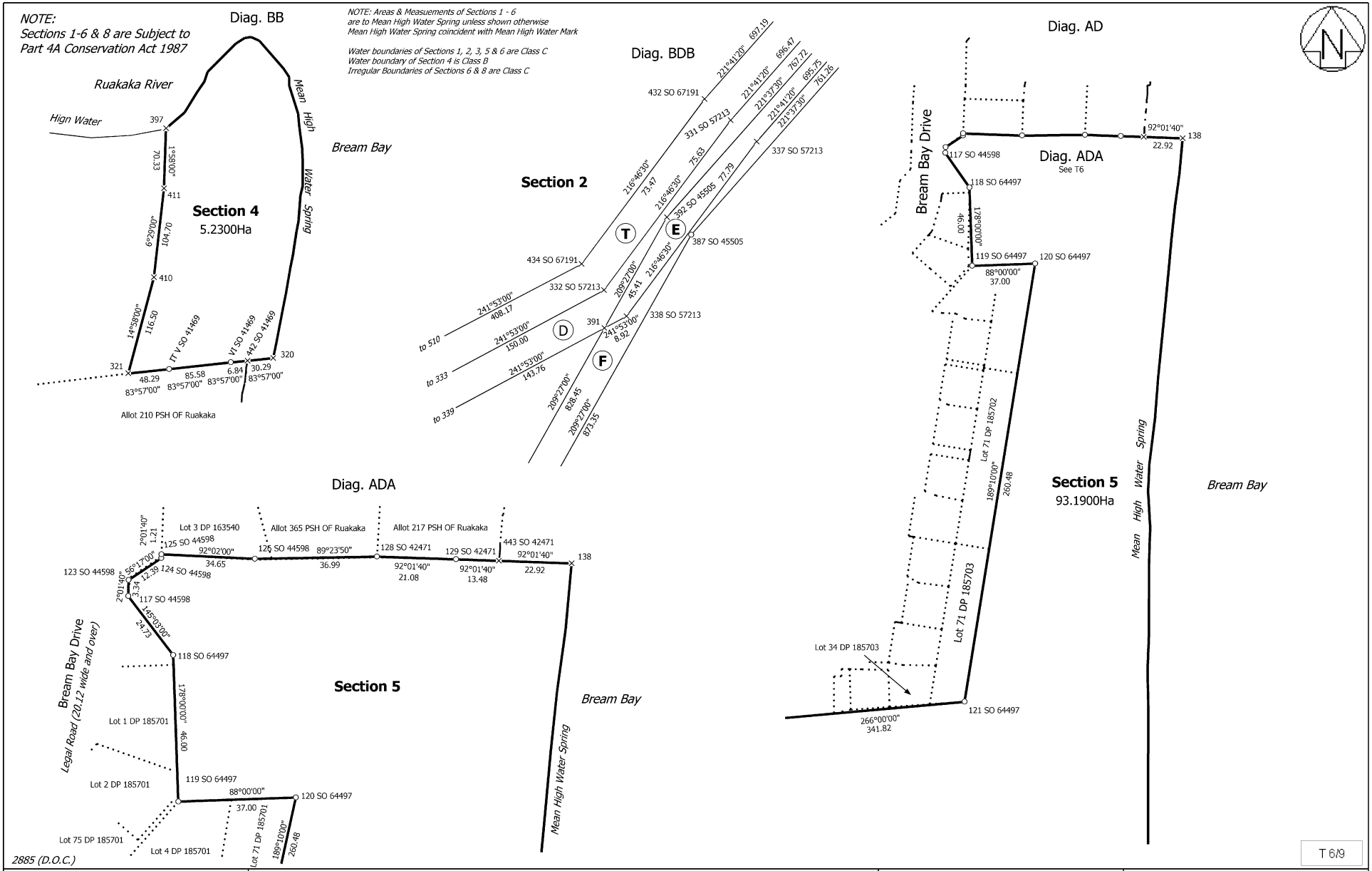
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 33 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 34 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015

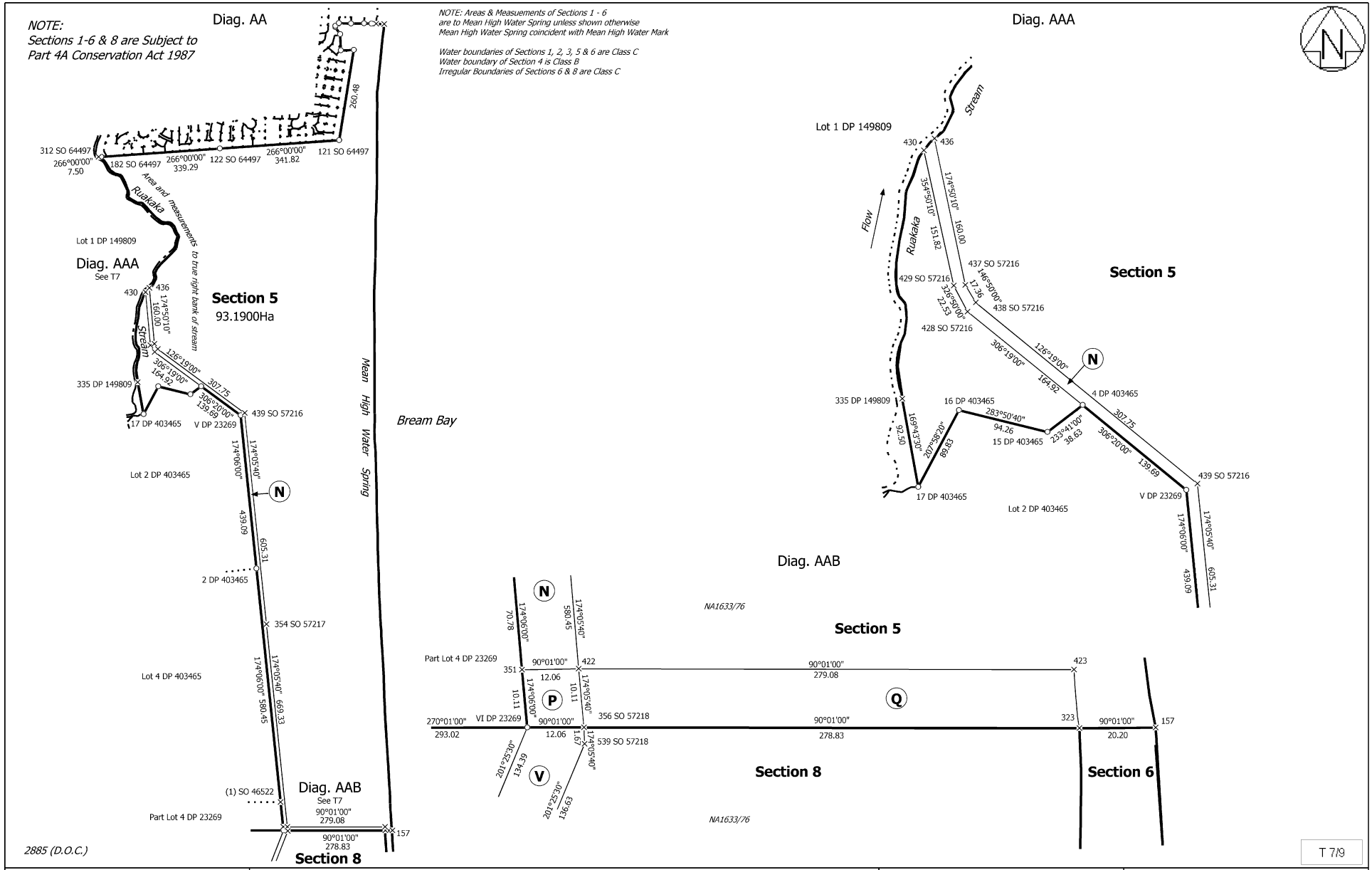


Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 35 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015

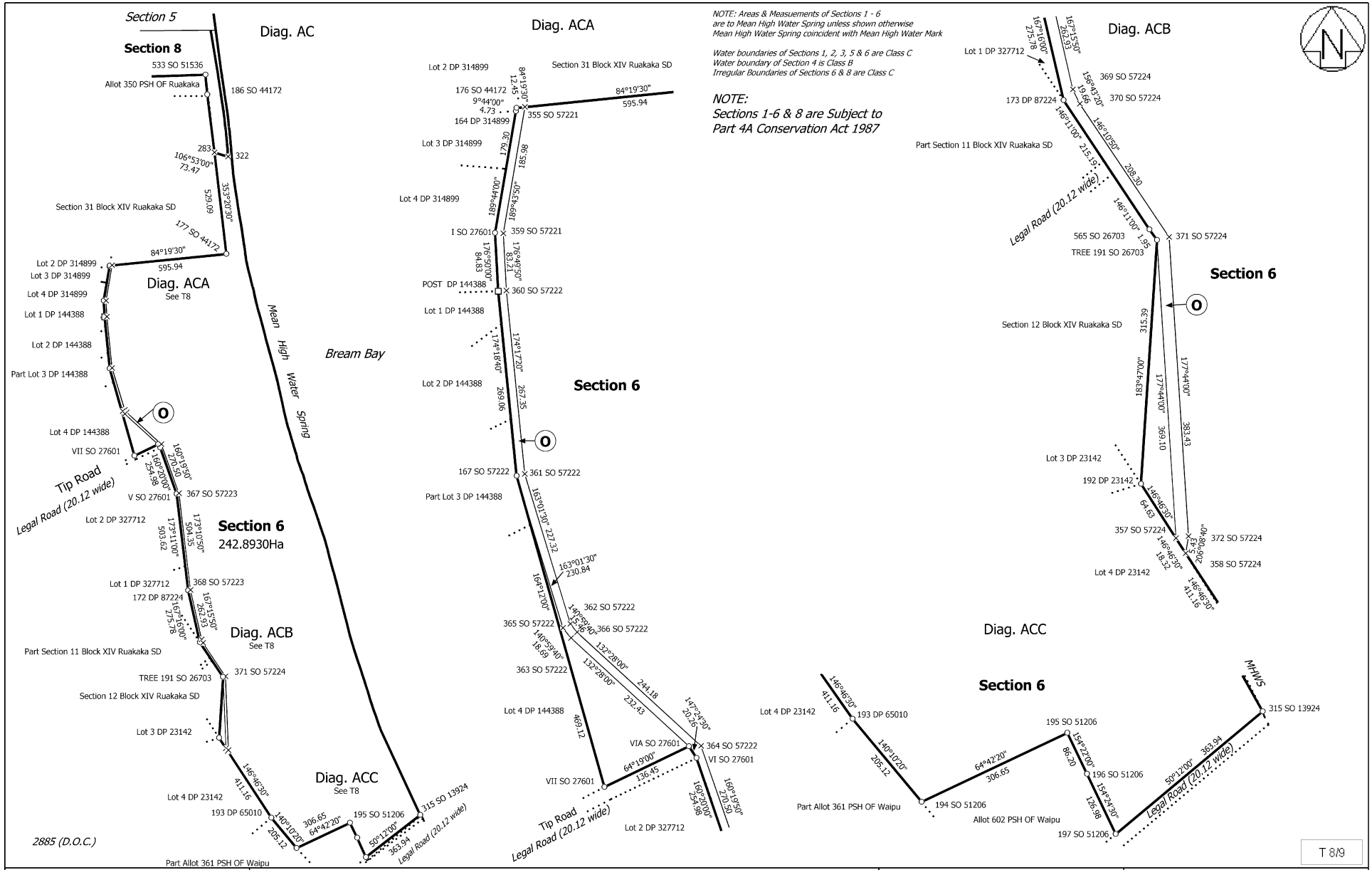


T 6/9

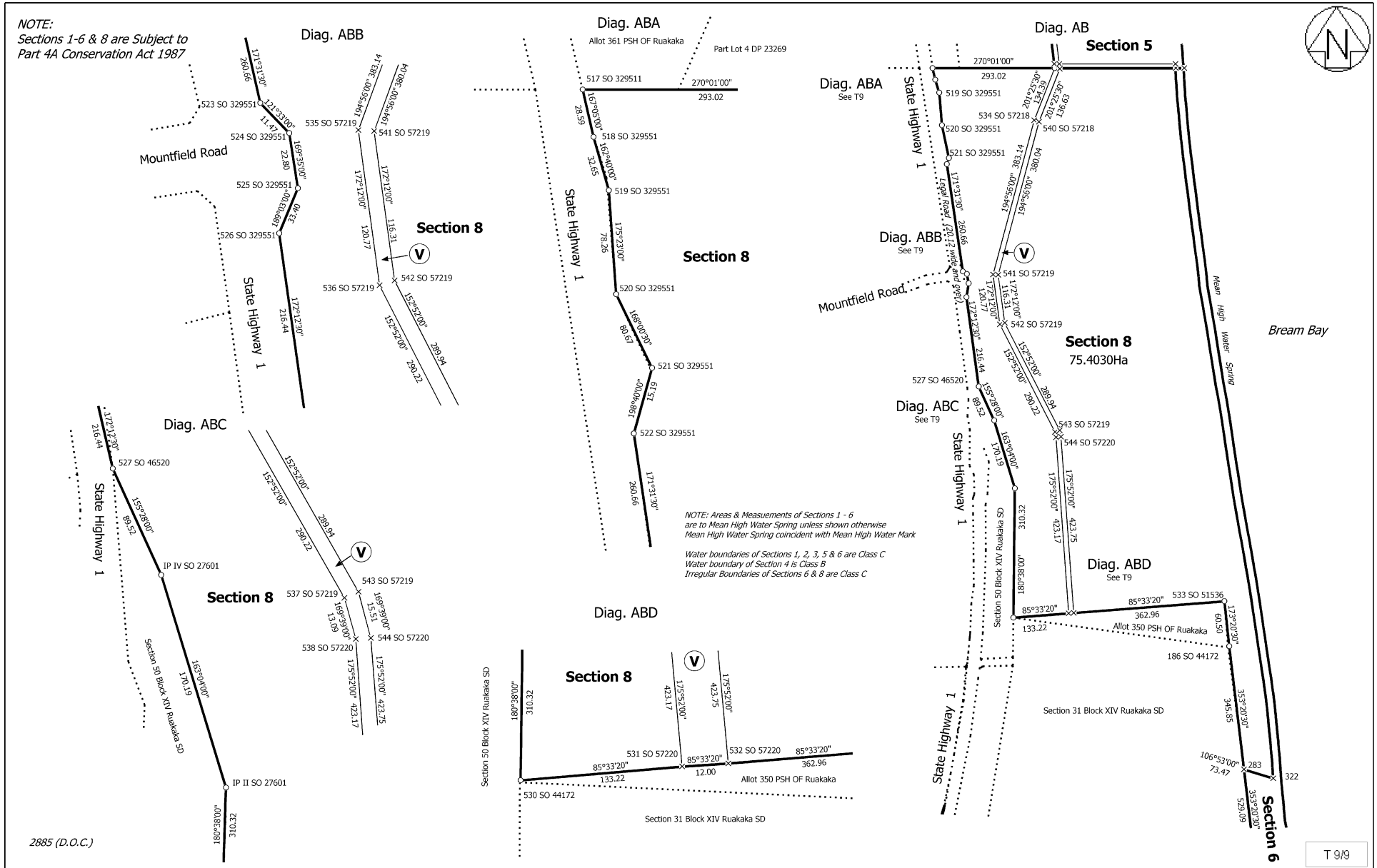
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 36 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 37 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 38 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 39 of 39	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd Survey Date: 25/03/2013	CSD Plan SO 461691 Approved on: 2/04/2015

Title Plan - SO 461691

Survey Number	SO 461691
Surveyor Reference	DOC 2885
Surveyor	Samuel Donald Beasley
Survey Firm	Terrain Surveying Ltd
Surveyor Declaration	I Samuel Donald Beasley, being a licensed cadastral surveyor, certify that: (a) this dataset provided by me and its related survey are accurate, correct and in accordance with the Cadastral Survey Act 2002 and the Rules for Cadastral Survey 2010, and (b)the survey was undertaken by me or under my personal direction. Declared on 27 Mar 2015 05:32 PM

Survey Details

Dataset Description	SECTIONS 1 - 6 and 8		
Status	Approved as to Survey		
Land District	North Auckland	**Survey Class**	Class B
Submitted Date	27/03/2015	**Survey Approval Date**	02/04/2015
		Deposit Date	

Territorial Authorities

Whangarei District

Comprised In

CT 50543
CT NA81A/696
GN NZGZ 2009 p2123
GN NZGZ 2001 p3228

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area T Survey Office Plan 461691	Easement		
Area U Survey Office Plan 461691	Easement		
Area W Survey Office Plan 461691	Land Covenant		
Section 8 Survey Office Plan 461691	Legalisation	75.4030 Ha	
Area V Survey Office Plan 461691	Easement		
Section 1 Survey Office Plan 461691	Legalisation	20.6550 Ha	
Section 2 Survey Office Plan 461691	Legalisation	64.2640 Ha	
Section 3 Survey Office Plan 461691	Legalisation	72.1000 Ha	
Section 4 Survey Office Plan 461691	Legalisation	5.2300 Ha	
Section 5 Survey Office Plan 461691	Legalisation	93.1900 Ha	
Section 6 Survey Office Plan 461691	Legalisation	242.8930 Ha	
Area A Survey Office Plan 461691	Easement		
Area B Survey Office Plan 461691	Easement		
Area C Survey Office Plan 461691	Easement		
Area D Survey Office Plan 461691	Easement		
Area E Survey Office Plan 461691	Easement		
Area F Survey Office Plan 461691	Easement		

Title Plan - SO 461691

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area G Survey Office Plan 461691	Easement		
Area H Survey Office Plan 461691	Easement		
Area I Survey Office Plan 461691	Easement		
Area J Survey Office Plan 461691	Easement		
Area K Survey Office Plan 461691	Easement		
Area L Survey Office Plan 461691	Easement		
Area M Survey Office Plan 461691	Easement		
Area O Survey Office Plan 461691	Easement		
Section 65 Block VII Ruakaka Survey District	Fee Simple Title	12.3740 Ha	
Area N Survey Office Plan 461691	Easement		
Area P Survey Office Plan 461691	Easement		
Area Q Survey Office Plan 461691	Easement		
Area R Survey Office Plan 461691	Easement		
Area S Survey Office Plan 461691	Easement		
Total Area		586.1090 Ha	

Land Registration District	Plan Number
North Auckland	**SO 461691**

Territorial Authority (the Council) **2885 DOC**

Whangarei District Council

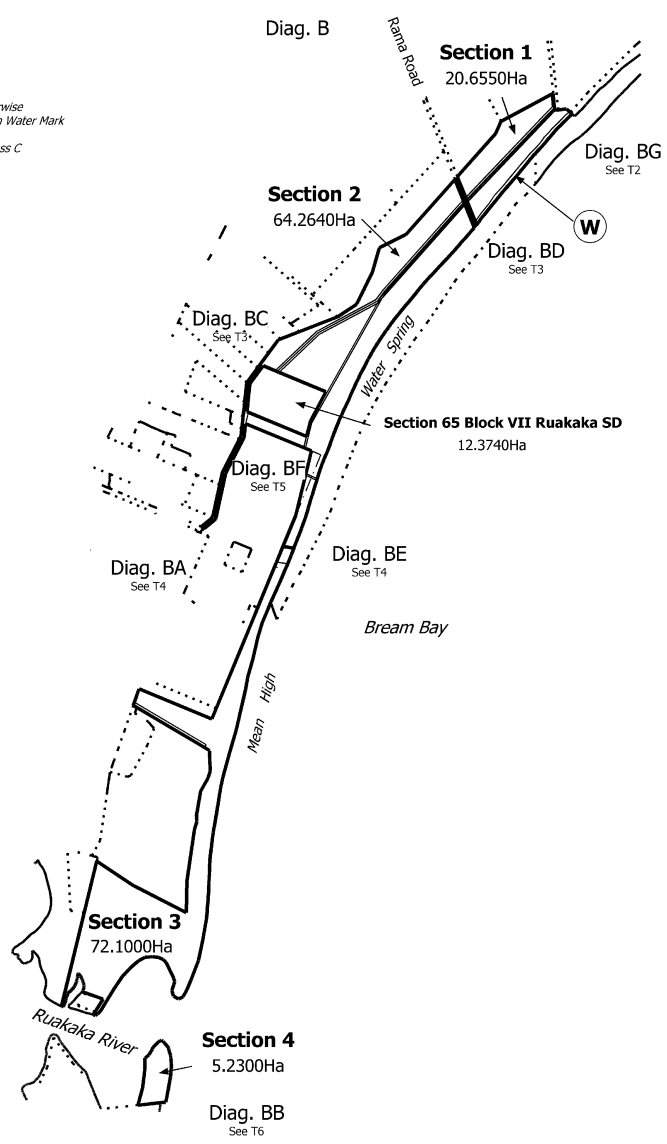
Schedule of Existing Easements

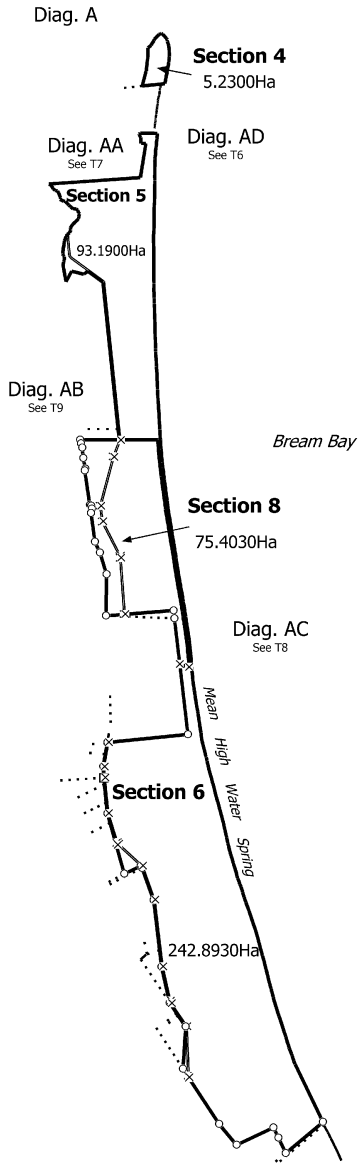
Purpose	Shown	Servient Tenement	Created by
Oil Supply Gas Pipeline Oil Pipeline	A,B,S & C	Section 1 Hereon	Deed of Grant 100C/225
Oil Supply Right of Way Cathodic Protection Cable Cathodic Protection Cable Gas Pipeline Oil Pipeline	D,E,F,G,H,I, J,M,T & U	Section 2 Hereon	Deed of Grant 100C/225
Sea Water Easement Right of Way	K,L & R	Section 3 Hereon	C253081.1
Oil Supply Right of Way	N & P P & Q	Section 5 Hereon	B899370.3 Deed of Grant 1633/76
Oil Supply	O	Section 6 Hereon	B899370.2
Oil Supply	V	Section 8 Hereon	B899370.3

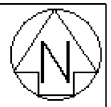
NOTE:
Sections 1-6 & 8 are Subject to Part 4A Conservation Act 1987

NOTE: Areas & Measuements of Sections 1 - 6 are to Mean High Water Spring unless shown otherwise
Mean High Water Spring coincident with Mean High Water Mark

Water boundaries of Sections 1, 2, 3, 5 & 6 are Class C
Water boundary of Section 4 is Class B
Irregular Boundaries of Sections 6 & 8 are Class C



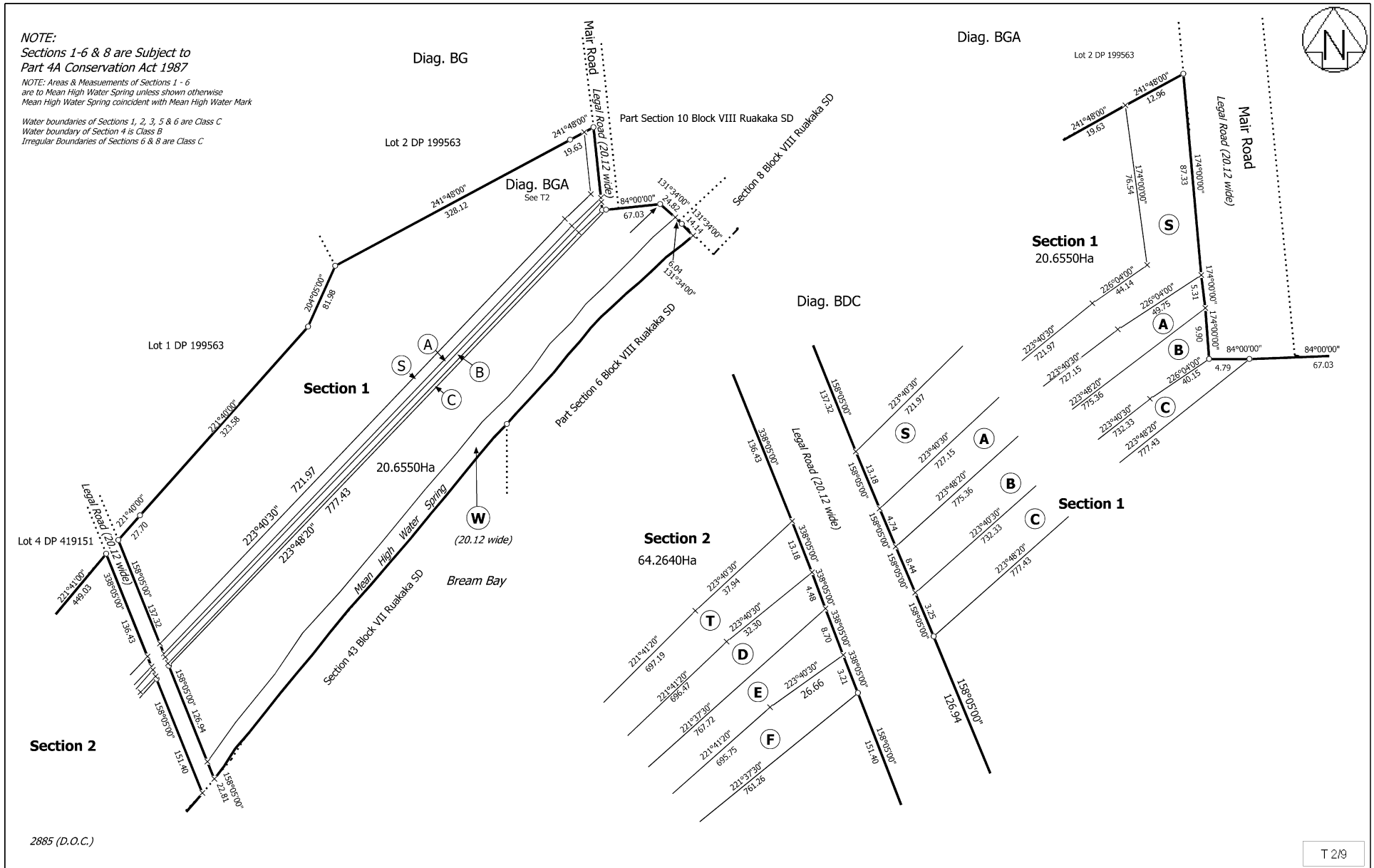




2885 (D.O.C.)

T 1/9

Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 4 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015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Diag. BG
Mair Road
Legal Road (20.12 wide)
Part Section 10 Block VIII Ruakaka SD
Lot 2 DP 199563
Diag. BGA
See T2
Section 8 Block VIII Ruakaka SD
Lot 1 DP 199563
Section 1
20.6550Ha
Part Section 6 Block VIII Ruakaka SD
Mean High Water Spring
Bream Bay
(20.12 wide)
Section 43 Block VII Ruakaka SD
Lot 4 DP 419151
Section 2
Diag. BGA
Diag. BDC
Section 2
64.2640Ha
Section 1
2885 (D.O.C.)
T 2/9
Land District: North Auckland
Digitally Generated Plan
Generated on: 02/04/2015 08:23am Page 5 of 12
SECTIONS 1 - 6 and 8
Surveyor: Samuel Donald Beasley
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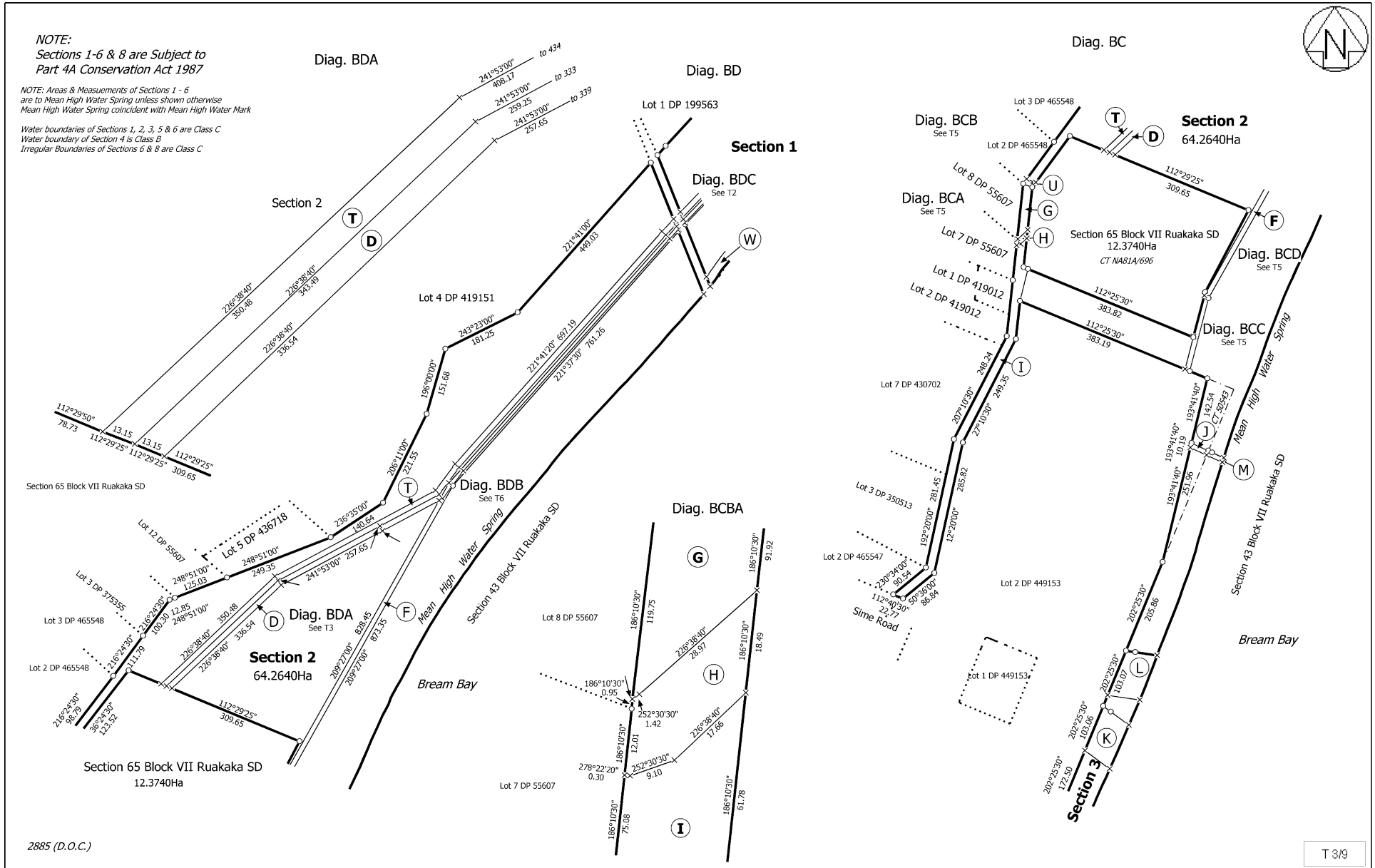
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Diag. BDA
Diag. BD
Diag. BC
Section 1
Section 2
64.2640Ha
Diag. BDC
See T2
Diag. BCB
See T5
Diag. BCA
See T5
Diag. BCD
See T5
Diag. BCC
See T5
Diag. BDB
See T6
Diag. BDA
See T3
Diag. BCBA
Lot 1 DP 199563
Lot 4 DP 419151
Lot 5 DP 436718
Lot 12 DP 55607
Lot 3 DP 375355
Lot 3 DP 465548
Lot 2 DP 465548
Lot 3 DP 465548
Lot 2 DP 465548
Lot 8 DP 55607
Lot 7 DP 55607
Lot 8 DP 55607
Lot 7 DP 55607
Lot 1 DP 419012
Lot 2 DP 419012
Lot 7 DP 430702
Lot 3 DP 350513
Lot 2 DP 465547
Lot 2 DP 449153
Lot 1 DP 449153
Section 65 Block VII Ruakaka SD
12.3740Ha
CT NA81A/696
Section 65 Block VII Ruakaka SD
Section 43 Block VII Ruakaka SD
Section 3
Mean High Water Spring
Bream Bay
Sime Road
T
D
U
G
H
F
W
I
J
K
L
M
2885 (D.O.C.)
T 3/9
Land District: North Auckland
Digitally Generated Plan
Generated on: 02/04/2015 08:23am Page 6 of 12
SECTIONS 1 - 6 and 8
Surveyor: Samuel Donald Beasley
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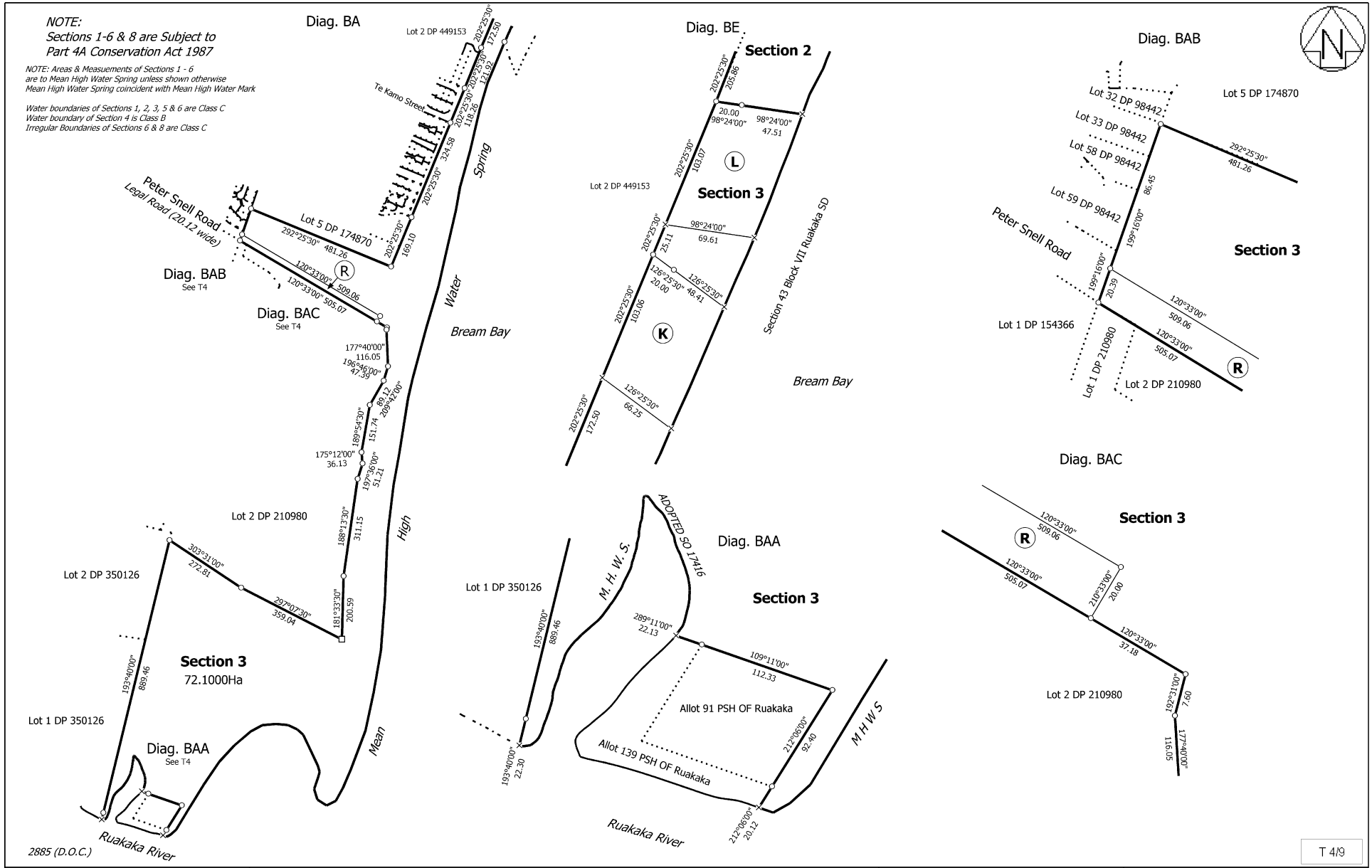
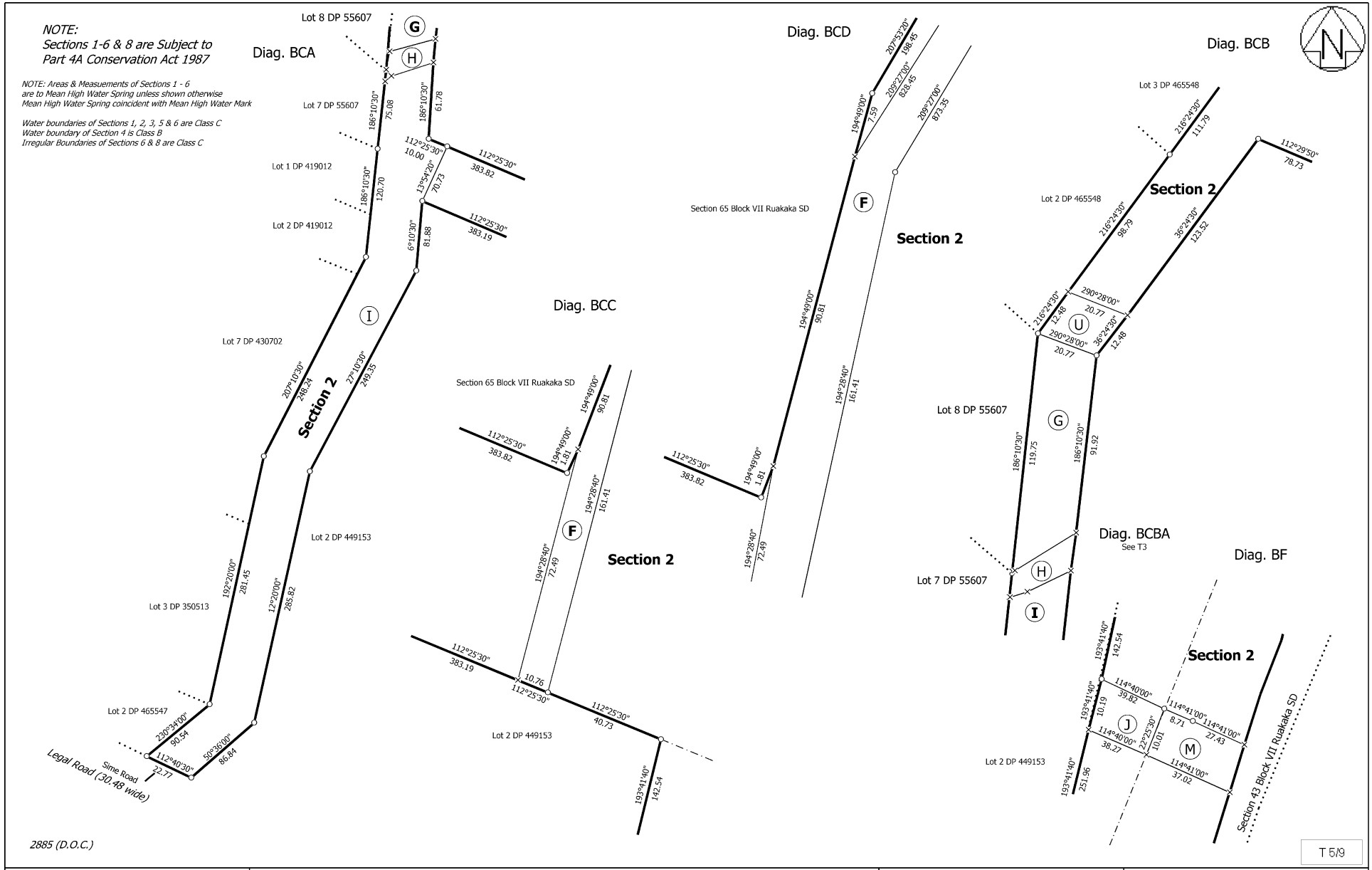
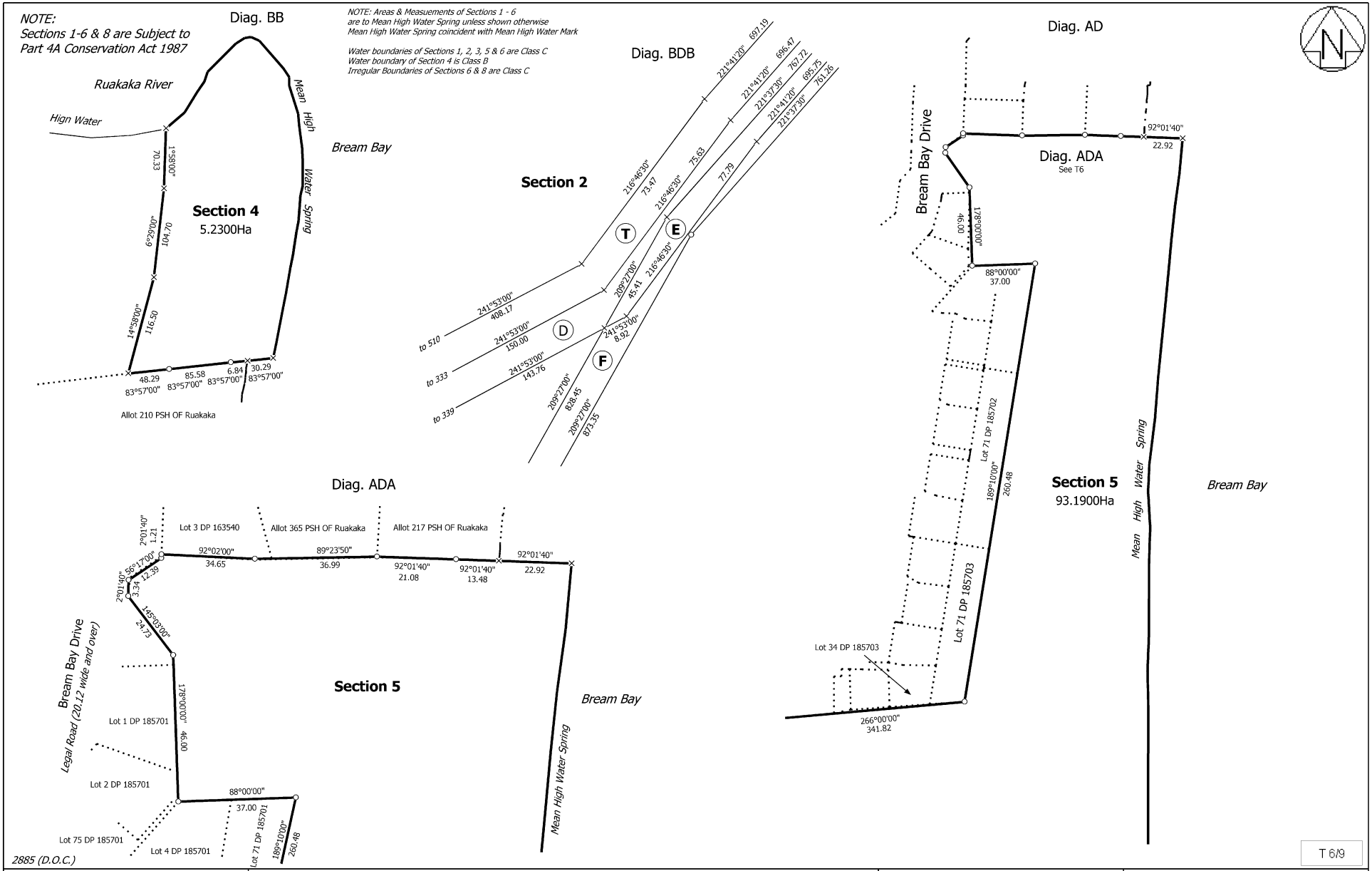
Approved on: 2/04/2015



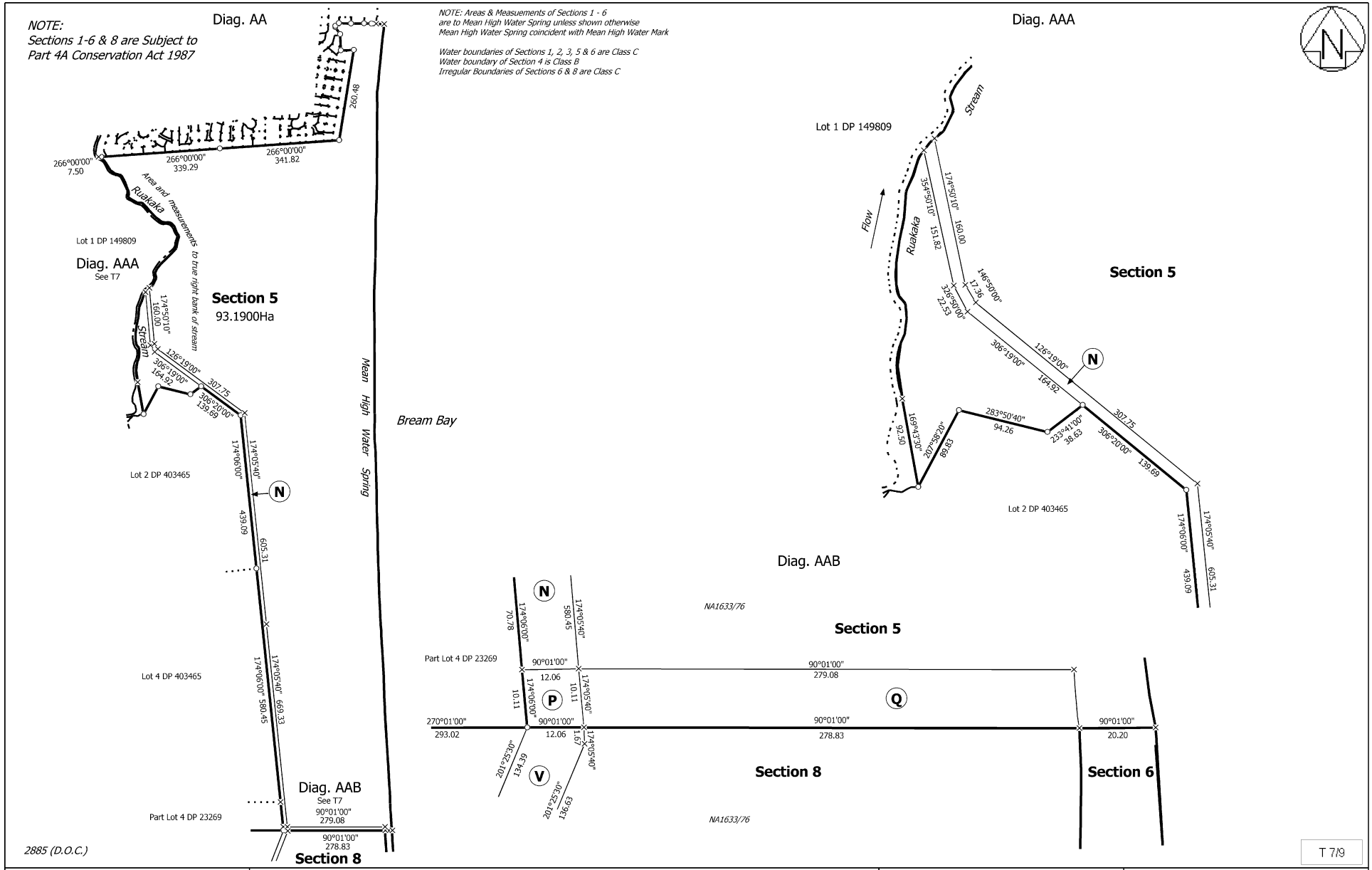
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 7 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015



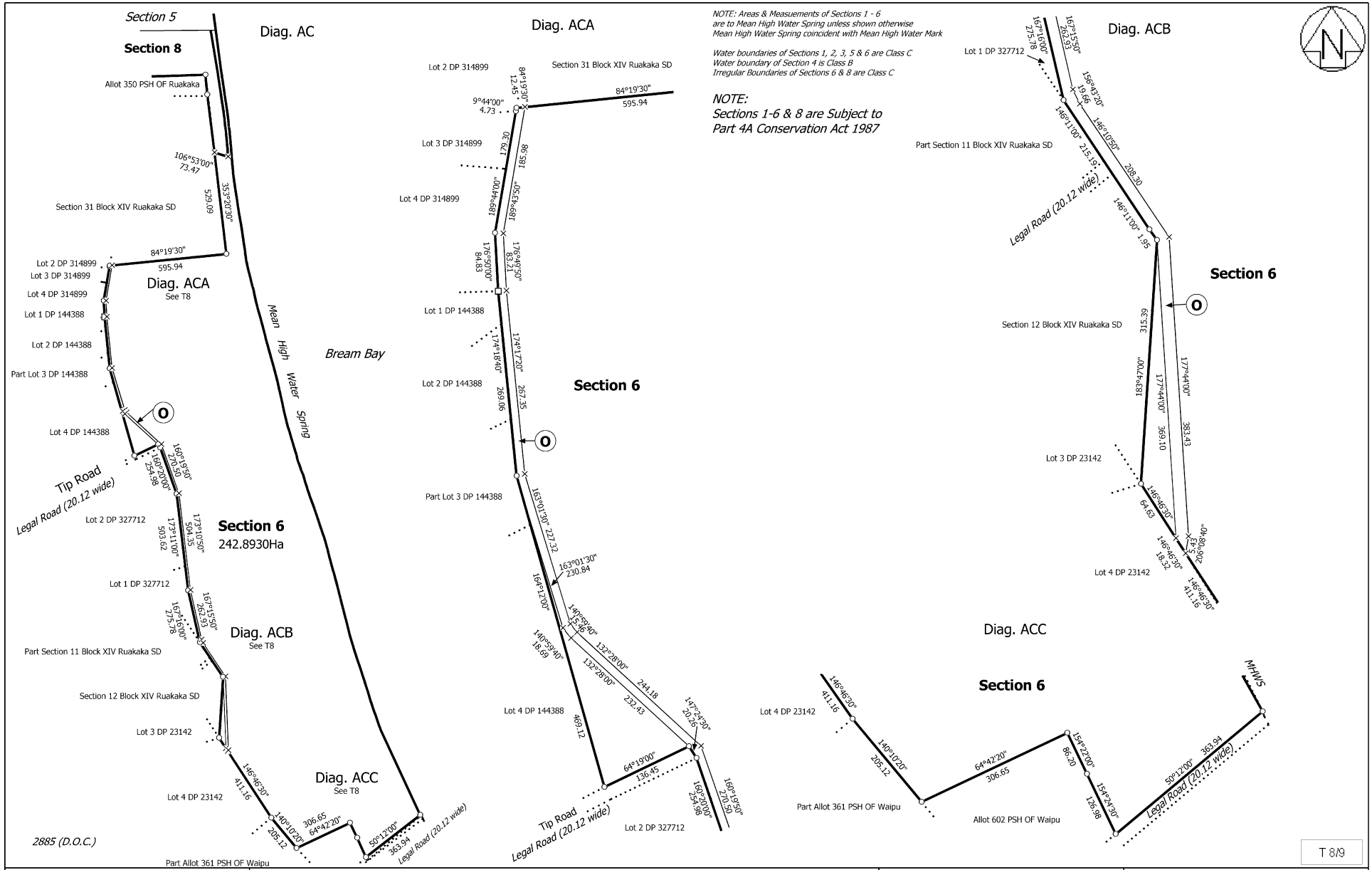
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 8 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015



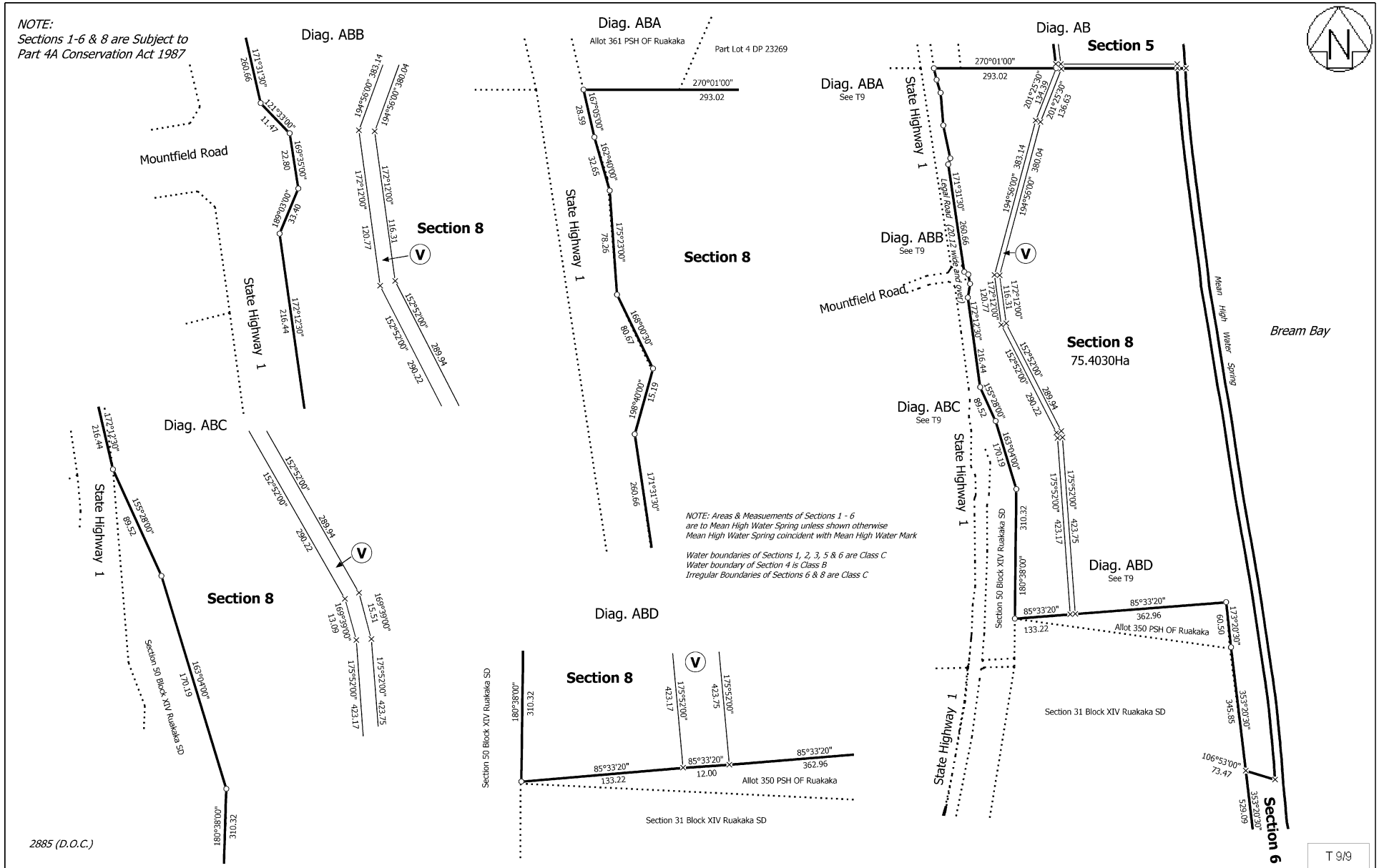
Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 9 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 10 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 11 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015



Land District: North Auckland Digitally Generated Plan Generated on: 02/04/2015 08:23am Page 12 of 12	SECTIONS 1 - 6 and 8	Surveyor: Samuel Donald Beasley Firm: Terrain Surveying Ltd	Title Plan SO 461691 Approved on: 2/04/2015

0.1012	More or less, being part Lot 2, D.P. 967, Wellington Land Registration District. *New Zealand Gazette,* 12 March 1959, No. 15, page 309.
0.1012	More or less, being Allotment 3, Block XIII, Deposited Plan 109, all certificate of title SL86/45, Southland Land Registration District.
0.0692	More or less, being Lot 7, D.P. 43680, Wellington Land Registration District. *New Zealand Gazette,* 12 November 1981, No. 134, page 3117.
2.2610	More or less, being part Lot 2, D.P. 28767, Wellington Land Registration District. Part *New Zealand Gazette,* 20 May 1976, No. 58, page 1125.

Dated at Wellington this 6th day of August 2002.

B. J. MITCHELL, Acting Group Manager Property, Ministry of Education.

ln5371

Māori Affairs Restructuring Act 1989

Māori Land Development Notice

Pursuant to section 21 of the Māori Affairs Restructuring Act 1989, the Chief Executive of the Ministry of Māori Development hereby gives notice as follows.

N o t i c e

1. This notice may be cited as Māori Land Development Notice, Wanganui 2002, No. 2.

2. The notice referred to in the First Schedule hereto is hereby revoked.

3. The land described in the Second Schedule hereto is hereby released from Part II of the Māori Affairs Restructuring Act 1989.

First Schedule

Date of Notice	Reference	Registration No.
22 October 1975	*New Zealand Gazette*, 6 November 1975, No. 98, page 2453	–

Second Schedule

South Auckland Land District

All that piece of land described as follows:

Area ha	Being
33.6015	Te Tarake A4, situated in Blocks VIII and IX, Ongarue Survey District. Consolidation Order 28 October 1941.

Dated at Wellington this 6th day of August 2002.

For and on behalf of the Chief Executive, Ministry of Māori Development:

P. S. LITTLE, Manager, L.M.U.

(MMD H.O. 7/244)

ln5362

Public Works Act 1981

Land Set Apart for Conservation Purposes—Marsden Power Station, Whangarei District

Pursuant to section 52 (1) of the Public Works Act 1981, and to a delegation from the Minister for Land Information, Ronald Alistair Jolly, Land Information New Zealand, declares the land described in the Schedule to this notice to be set apart for conservation purposes and shall remain vested in the Crown.

Schedule

North Auckland Land District—Whangarei District

Area ha	Being
1.2287	Lot 1, D.P. 174870, part C.T. 107C/635.

Dated at Wellington this 30th day of July 2002.

R. A. JOLLY, for the Minister for Land Information.

(LINZ CPC/02/8279)

ln5204

Land Acquired for Road—431 Puhinui Road, Papatoetoe, Manukau City

Pursuant to section 20 (1) of the Public Works Act 1981, and to a delegation from the Minister for Land Information, Ronald Alistair Jolly, Land Information New Zealand, declares that, pursuant to an agreement to that effect having been entered into, the land described in the Schedule to this notice is hereby acquired for road and is vested in the Manukau City Council on the date of publication of this notice in the *New Zealand Gazette*.

Schedule

North Auckland Land District—Manukau City

Area m^2	Being
294	Part Allotment 192, Parish of Manurewa; shown as "B" on S.O. Plan 69557 (part certificate of title 1043/280).

Dated at Wellington this 29th day of July 2002.

R. A. JOLLY, for the Minister for Land Information.

(LINZ CPC/1998/1027/C)

ln5189

Declared Land to be Road—Snell Road, Opotiki District

Pursuant to section 114 (1) of the Public Works Act 1981, and to a delegation from the Minister for Land Information, Ronald Alistair Jolly, Land Information New Zealand, declares the land described in the Schedule to this notice to be road and vested in the Opotiki District Council on the date of publication of this notice in the *New Zealand Gazette.*

Schedule

Gisborne Land District—Opotiki District

Area m^2	Being
1031	Lot 1, D.P. 5183AK; shown as "Section 1" on S.O. Plan 309498, all certificate of title 2D/551.

Dated at Wellington this 2nd day of August 2002.

R. A. JOLLY, for the Minister for Land Information.

(LINZ CPC/1998/1557/A)

ln5356

Land Acquired for Road—Brook Street, Nelson City

Pursuant to section 20 (1) of the Public Works Act 1981, and to a delegation from the Minister for Land Information, Ronald Alistair Jolly, Land Information New Zealand, declares that, pursuant to an agreement to that effect having been entered into, the land described in the Schedule to this notice is acquired for road and vested in Nelson City

Naming of Reserves

Under the Reserves Act 1977, the Conservation Partnerships Manager for the Northland District of the Department of Conservation hereby declares that the scenic reserves described in the First Schedule hereto are to be known as the Poupouwhenua Scenic Reserve, and that the scenic reserves described in the Second Schedule hereto are to be known as the Ruakākā Scenic Reserve, and that the scenic reserves described in the Third Schedule hereto are to be known as the Uretiti Scenic Reserve.

North Auckland Land District—Whangarei District

First Schedule

Area ha	Description
20.6550	Section 1 SO 461691; subject to oil supply, gas and oil pipeline easement marked "A", "B", "S" and "C" on SO 461691, created by Deed of Grant 100C/225 (Part *New Zealand Gazette*, 25 June 2009, No. 94, page 2122, and all *New Zealand Gazette*, 21 May 2015, Issue No. 55, Notice No. 2015-ln2859).
64.2640	Section 2 SO 461691; subject to oil supply, right of way, cathodic protection cable, gas and oil pipeline easements marked "D", "E", "F", "G", "H", "I", "J", "M", "T" and "U" on SO 461691, created by Deed of Grant 100C/225 (Part *New Zealand Gazette*, 25 June 2009, No. 94, page 2122).

Second Schedule

Area ha	Description
72.1000	Section 3 SO 461691; subject to sea water and right of way easements marked "K", "L" and "R" on SO 461691, created by C253081.1.
5.2300	Section 4 SO 461691.
93.1900	Section 5 SO 461691; subject to oil supply easement marked "N" and "P" on SO 461691, created by B899370.3, and right of way easement marked "P" and "Q" on SO 461691, created by Deed of Grant 1633/76.
4.8000	Part Allotment 87 Parish of Ruakaka; shown as Area 3 on SO 61584.
	All parts *New Zealand Gazette*, 25 June 2009, No. 94, page 2122.

Third Schedule

Area ha	Description
242.8930	Section 6 SO 461691; subject to oil supply easement marked "O" on SO 461691, created by B899370.2 (Part *New Zealand Gazette*, 25 June 2009, No. 94, page 2122).

Dated at Whangarei this 16th day of June 2015.

SUE REED-THOMAS.

(File: LCV-06-14-01-01)

2015-ln3675

National Environmental Standards		
Regulation	**Comments**	**Classification**
Resource Management (National Environmental Standards for Air Quality) Regulations 2004	Not relevant - no discharges to air from the construction or operation are prohibited or regulated. Dust discharges during construction unlikely to contain PM_{10}.	Not Regulated
Resource Management ((National Environmental Standards for Sources of Human Drinking Water) Regulations 2007	Not relevant - no registered drinking-water supply located downstream of discharges.	Not Regulated
Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011	The sites are zoned Natural Open Space and are not considered production land therefore soil disturbance must be considered under this NES. Although contaminants in soil are not likely to be encountered, a Preliminary Site Investigation by a suitably qualified and experienced person (SQEP) has been prepared. The PSI concludes that soi disturbance will not be undertaken on land which is regulated under this NES. It is noted that disposal of waste to land is identified on the Hazardous Activities and Industries List (HAIL) however this is contingent on the nature of the waste and whether contamination of the soil has occurred as a result of its disposal.	Not Regulated
Resource Management (National Environmental Standards for Freshwater) Regulations 2020	A *Machaerina juncea* sedgeland wetland identified within Zone 7 is a significant ecological feature and occupies approximately 200m² within the project. The overall analysis (in the AEE) is that the activity does not contravene a regulation in this NES.	Not Regulated
Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009	Although there are Electricity Transmission assets within the vicinity of the Project, the standards in this NES only apply if existing transmission lines need to be relocated or removed.	Not Regulated

Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2016	Standards apply to the deployment of new or amended telecommunications facilities by facility operators including relocating telecommunication lines and cabinets.	Not Regulated
REGIONAL PLAN(S)		
Rule/Standard	**Comments**	
C.2.2 Activities affecting wetlands; • In a Natural Wetland (Discretionary) • In a Significant Wetland (Non-complying)	Although there are no mapped wetlands present, A *Machaerina juncea* sedgeland wetland has been identified within Zone 7 and is a significant ecological feature occupying approximately 200m². No rules in Section C.2.2 of the PRPN are activated by the Project as; • no damage, destruction, disturbance, removal or introduction of plants are proposed; and • no use, erection, reconstruction, placement, alteration, extension, removal, or demolition of any structure is proposed.	Not Regulated
C.6.2.2 Wastewater treatment plant discharge	Discharges of treated wastewater to land or water not currently provided for by the R-WWTP resource consent will require new resource consent irrespective of site or volume of discharge.	Discretionary
C.8.3 Earthworks	1) Earthworks for the Project can be managed to comply with the thresholds set out in Table 15 of PRPN as follows:	Permitted

Location	Earthworks thresholds
Within 10m of a natural wetland, the bed of a continually or intermittently flowing river or lake	200m² of exposed earth at any time, and 50m³ of moved or placed earth in any 12-month period.
Within 10m of an īnanga spawning site	200 m² of exposed earth at any time, and 50m³ of moved or placed earth in any 12-month period.
Catchment of an Outstanding Lake	2,500m² of exposed earth at any time.
Erosion-prone Land	2,500m² of exposed earth at any time.
High-risk flood hazard area	50m³ of moved or placed earth in any 12-month period.
Coastal riparian and foredune management area	Excluding for coastal dune restoration, 200m² of exposed earth at any time.
Flood hazard area	100 m³ of moved or placed earth in any 12-month period.
Other areas	5,000m² of exposed earth at any time.

2) the discharge is not within 20 metres of a geothermal surface feature, and
3) except for coastal dune restoration activities, good management practice erosion and sediment control measures equivalent to those set out in the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016 (Auckland Council Guideline Document GD2016/005), are implemented for the duration of the activity, and
4) batters and side castings are stabilised to prevent slumping, and
5) exposed earth is stabilised upon completion of the earthworks to minimise erosion and avoid slope failure, and
6) earth and debris are not deposited into, or in a position where they can enter, a natural wetland, a continually or intermittently flowing river, a lake, an artificial watercourse, or the coastal marine area, and
7) the earthworks activity does not:
    a) reduce the height of a dune crest in a coastal riparian and foredune management area, except where dunes are recontoured to remove introduced materials or to remediate dune blow-outs as part of coastal dune restoration work, or

	b) exacerbate flood or coastal hazard risk on any other property, or c) create or contribute to the instability or subsidence of land on other property, or d) divert flood flow onto other property, and 8) any associated damming, diversion and discharge of stormwater does not give rise to any of the following effects in the receiving waters beyond the zone of reasonable mixing: a) any conspicuous change in colour or visual clarity, or b) the rendering of freshwater unsuitable for consumption by farm animals, or c) contamination which may render freshwater taken from a mapped priority drinking water abstraction point (refer I Maps | Ngā mahere matawhenua) unsuitable for human consumption after existing treatment, and 9) information on the source and composition of any clean fill material and its location within the disposal site are recorded and provided to the Regional Council on request, and 10) the Regional Council's Compliance Manager is given at least five working days' notice (in writing or by email) of any earthworks activity being undertaken within a high-risk flood hazard area, flood hazard area, where contaminated land will be exposed, or in sand dunes within a coastal riparian and foredune management area.	
C.8.4 Vegetation clearance.	This rule regulates vegetation clearance within the foredune management area or within 10 metres of a waterbody.	Not Regulated

DISTRICT PLAN(S)

HPW-R7 Application of Activity Definitions applies and states –

Where an activity could be captured by more than one definition grouping classification, the most specifically defined activity and most specific rule shall over-ride the more general definition and rule.

District Planner, Robert Burgoyne, has confirmed that the use and development of land to reticulate and dispose of wastewater in this instance is Infrastructure (see Abbreviations, Terms, and Definitions). As such, the assessment which follows is only for Infrastructure activities and excludes consideration of activity-specific rules regulating;

- Building;

- Industrial Activity;
- Major Building;
- Minor Building; and
- Network System.

By definition **Infrastructure** includes (at (i)), *anything described as a network utility operation in regulations made for the purposes of the definition of network utility operator in section 166.*

Rule/Standard	Comments	Classification
HIZ-R1 Any Activity Not Otherwise Listed in This Chapter	Permitted Where: 1. Resource consent is not required under any rule of the District Plan. 2. The activity is not prohibited under any rule of the District Plan.	Permitted
NOSZ-R1 Any Activity Not Otherwise Listed in This Chapter	Permitted where: 1. Resource consent is not required under any rule of the District Plan. 2. The activity is not prohibited under any rule of the District Plan. NOTE: NOSZ-R23 Industrial Activities does not apply as the definition Infrastructure overrides the potential applicability of the definition Industrial Activities as per HPW-R7.	Permitted
NOSZ-R9 Indigenous vegetation clearance	Given the vegetation present and the EcIA recommendations, clearance of indigenous vegetation will be less than 250m^2 and will not take place within 20 m of a water body.	Permitted
CEL-R1 Critical electricity lines	1. Within 10m of a CEL or the designation boundary of a substation: … c. Earthworks, gardening or cultivation that: i. Are not directly above an underground cable(s); and ii. Do not result in a reduction of existing ground clearance distances from overhead lines below the minimums prescribed in	Permitted

	the New Zealand Code of Practice 34:2001 (NZECP 34:2001); and iii. Are in accordance with NZECP 34:2001. 2. Within 20m of a CEL or the designated boundary of a substation: … b. Planting of trees other than shelterbelts, plantation forestry or commercial horticultural operations. 3. Activities described in CEL-R1.1 and CEL-R1.2 that do not meet the requirements for permitted activities under CEL-R1.1 and CEL-R1.2 provided that; EITHER: a. Prior to the commencement of any works: i. Written notification has been provided to the Council; and ii. The proposed activity is being carried out in accordance with the Electricity Act 1992 and associated regulations (NZECP 34:2001, the Electricity (Hazards from Trees) Regulations 2003 (SR 2003/375), and the Electricity (Safety) Regulations 2010); OR: b. The proposed activity is being carried out by a network utility operator or territorial authority in accordance with NZECP 34:2001. The activity is being carried out by a territorial authority and will abide by the safe electrical clearance criteria found in NZECP 34: 2001.	
NTW-R3 Any Activity Not Otherwise Listed in This Chapter	Permitted where: 1. Resource consent is not required under any rule of the District Plan. 2. The activity is not prohibited under any rule of the District Plan.	Permitted
NTW-R7 Activities within the National Grid Corridor	Network utilities are unconditionally permitted; however, despite the definitions not being applicable, Transpower NZ Ltd has specified that any building or structure no	

	closer than 10m in a vertical direction from any conductor (wire) must comply with the conductor clearance distances required by NZECP34:2001.	
TRA-R1 Any Activity Not Otherwise Listed in This Chapter	Permitted where: 1. Resource consent is not required under any rule of the District Plan. 2. The activity is not prohibited under any rule of the District Plan.	Permitted
TRA-R2 Required Parking Spaces and Dimensions	There are Nil bicycle parking spaces required for Network Utilities.	
TRA-R3 Parking Location and Identification	These rules are silent on the activity(ies) they apply to or do not apply to, as such assessment of performance standards has been made against both construction and operation activities. No new or formal parking or loading spaces are proposed as part of the development. Instead, vehicles will park either within the existing RWwTP site or on the verge of the Pipeline Track during construction and operation of the infrastructure. No new vehicle crossings or accessways are proposed as part of the development. Instead, Z6B and Z7 will be accessed off of Innovate Road using the existing accessway to the R-WWTP and the Pipeline Track which is used and maintained by utility service providers such as First Gas and Transpower. These proposed activities do not seem to contravene any of the relevant performance standards and therefore are assessed as being permitted	
TRA-R4 Parking Gradient		
TRA-R5 Vehicle Crossings and Access Design and Location		
TRA-R6 Vehicle Crossings and Access Setbacks		
TRA-R7 Requirements for On-Site Manoeuvring Space		
TRA-R8 Crossings, Access and Parking Areas (Sealing and Formation Standards)		
TRA-R11 Landscaping Within Parking Areas		
TRA-R12 Tree Planting Within Parking Areas		

TRA-R13 Electric Vehicle Charging Station Parking Spaces Number Requirements		
TRA-R15 Any Activity (Integrated Transport Assessments)	The construction and operation of wastewater discharge facilities are “Network Utilities” and therefore exempt.	
TRA-R16 Any Activity (Integrated Transport Assessments)		
TRA-R17 Construction of Any New Public Road or Service Lane	NOT APPLICABLE - No new public road or service lane has been proposed.	
NH-R3 Earthworks Upon Sand Dune Complexes	Intermediate District Planner, Eden Wynne, has advised that the term “Sand Dune” takes on the general meaning from the Oxford Dictionary (9th Ed.) which is: *n. a mound or ridge of sand formed by the wind.* Any earthworks required are permitted provided the site of the earthworks which will not be covered by structures (pipes) is immediately stabilised by appropriate dune binding vegetation within 10 working days of such earthworks being completed.	Permitted
NH-R4 Flooding	Earthworks in a Flood Susceptible Area is permitted provided a report or report or certificate from a suitable qualified and experienced professional is provided to the Whangarei District Council which indicates that the activity is designed to accommodate the flood hazard and will not create any adverse effects upstream or downstream nor endanger human life. Note: 1. Reference may be made to previous reports relating to the flood susceptibility of the area. See Beca Natural Hazards report.	Permitted
PC1 NH-R7 New and More Than Minor Upgrading of Infrastructure	Wastewater reticulation and disposal Infrastructure may need to be constructed in areas mapped as a 10 and/or 100-year Flood Hazard Area (see pp1-2 PC1) but is not specifically provided for as a permitted activity under this rule. District Planner,	Restricted Discretionary

	Robert Burgoyne, has advised that the development and operation of wastewater discharge Infrastructure isn't provided for as a permitted activity under this rule however two options to consider include; • provide a report under NH-REQ4 that demonstrates the land is not flood susceptible (i.e. the mapping is wrong). It may be that the hazard mapping is accurate so it could be difficult to get an engineer to sign off on that report; or • Apply for a designation and do the works through the designation process rather than resource consent. Otherwise, it is a restricted discretionary activity requiring resource consent. Matters of discretion include; 1. Whether there is a functional need and/or operational need to be in this location. 2. Other practicable alternative locations, including financial considerations. 3. Any exacerbation of the hazard or creation of a new land instability hazard as a result of the infrastructure. 4. The degree to which the infrastructure can maintain its integrity and function during a natural hazard event. 5. Evacuation routes and the ability to maintain emergency access. 6. The extent to which hazardous substances will be exposed to risk from natural hazards and any measures proposed to manage that risk. 7. The public benefits associated with the infrastructure, particularly in the case of regionally significant infrastructure and critical infrastructure. 8. The extent to which hazard remediation or mitigation measures would adversely impact the safety of the ongoing operation and maintenance of existing infrastructure and electricity infrastructure. 9. Impacts on cultural values. 10. The level of detail required to assess natural hazard risk. 11. Recommendations of any site suitability report, engineer's assessment, or information provided through the consent process. Note: This rule covers all activities relating to Infrastructure so there is no requirement to turn to any other rules under PC1 except for earthworks (N. Dey, personal communications, 13 January 2025).	

Historical and Cultural Values Chapter	Not relevant as; • Historical Heritage has no specific rules but guidance through policies will be relevant. • No Notable Trees or Public Trees in Project area • Not in an area mapped as Sites of Significance to Māori (although a separate assessment will be sought from PTB which may result in the need for HNZPT authorisation).	Not Relevant
Ecosystems and Indigenous Biodiversity	This chapter contains non-regulatory methods of protecting areas identified as Significant Ecological Areas.	No Regulation
CE-R7 Earthworks within Sand Dunes	Intermediate District Planner, Eden Wynne, has advised that the term "Sand Dune" takes on the general meaning from the Oxford Dictionary (9th Ed.) which is: *n. a mound or ridge of sand formed by the wind.* Both the Landscape (Beca) and Ecology (NZEM) assessments describe the Project area as a dunescape environment therefore it is assumed that this rule applies. Earthworks associated with weed management and maintenance will be permitted under this rule (see (b) and (f) of this rule) noting that this should extend to both construction and restoration/site pest plant management activities. However, other earthworks associated with recontouring are not a permitted activity.	Discretionary
CE-R8 Earthworks in the Coastal Environment	Any earthworks that are not in Sand Dunes, but are in Coastal Environment, are permitted subject to the following performance standards; a. They do not exceed maximum volume of **500 m^3** material disturbed or removed within each 10-year period from 21 February 2019; and b. Do not exceed the maximum face height of any cut and/or batter faces of **2 m**. It is anticipated that the scale of earthworks will be minor and not exceed these thresholds.	Permitted
CE-R9 Indigenous Vegetation Clearance	If clearance of indigenous vegetation is required, it is Permitted if:	Permitted

	1. The clearance of indigenous vegetation does not exceed 500 m^2 per site within each 10-year period from 21 January 2019 unless the clearance is associated with: a. Routine maintenance within 3 m of the eaves of existing buildings: i. Including the removal of any tree where any part of the trunk is within the 3 m distance. ii. Excluding damage to the roots or removal of any tree where the trunk is outside the 3 m distance. b. Maintenance and repair of existing tracks, lawns, gardens, fences, or drains. c. Pest plant removal and biosecurity works. d. Vegetation removal for customary rights. e. Conservation planting, including planting for ecological restoration purposes. f. Routine maintenance for the safe operation of the transport network. g. Understorey clearance permitted in accordance with REG93(1) and (2)(a) of the National Environmental Standard for Plantation Forestry 2017. Given the vegetation present and the EcIA recommendations, clearance of indigenous vegetation will not exceed 500 m^2.	
NAV-R2 Noise Arising from Activities within Zones	Noise emitted from the NOSZ and measured at the applicable boundary of the Heavy Industrial Zone will not exceed 75dB L_{Aeq} at all times as per the Acoustic Assessment by Marshall Day.	Permitted
NAV-R3 Construction Noise	Noise from construction is likely to comply with performance standard given geology involved, type of machinery to be used, hours of operation of machinery, and the separation distance to sensitive receptor as assessed in the Acoustic Assessment by Marshall Day.	Permitted
NAV-R18 Vibration	Vibration from construction is likely to comply with performance standards given the geology involved, depth of excavations required, and extent of excavations as assessed in the Vibration Assessment by Marshall Day.	Permitted

SIGN-R8 Any Sign within Natural Open Space Zone	Official signs, such as health and safety warnings and temporary construction management signage, are exempt from this rule and only need to comply with SIGN-R2-R5 which is achieved.	Permitted

Preliminary Site Investigation (Contamination)

Ruakākā Wastewater Treatment Plant Interim Discharge Options

Prepared for Whangarei District Council
Prepared by Beca Limited

3 September 2025

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Revision History

Revision N°	Prepared By	Description	Date
0	[redacted]	Draft for client review	12/08/25
1		Final	3/09/25

Document Acceptance

Action	Name	Signed	Date
Prepared by	[redacted]		3/09/25
Reviewed by			3/09/25
Approved by			3/09/25
on behalf of	Beca Limited		

Executive Summary

Beca Limited (Beca) has been commissioned by Whangārei District Council (WDC) to undertake a Preliminary Site Investigation (PSI) of interim discharge option areas for the Ruakākā Wastewater Treatment Plant (WWTP).

The preferred option selected was a new discharge to Zones 6B and 7 that will run in conjunction with the existing consented discharges at Rama Road and Zone 3, with a total annual average discharge of 2,500 m^3/day across all four zones.

This PSI relates to the potential new discharge areas Zone 6B and Zone 7.

The purpose of this PSI is to identify potential sources of soil contamination that may have impacted the potential discharge zones, and to advise on contaminated land consent requirements for the proposed works under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) and the Northland Regional Council (NRC) Proposed Regional Plan for Northland (PRPN). This PSI included review of WDC property files, historical aerial photographs, and a site walkover.

The PSI identified the following:

- The Ruakākā WWTP currently discharges treated effluent to Zone 3 and to a portion of land at Rama Road.
- Zone 6B and Zone 7 are part of the Poupouwhenua Scenic Reserve.
- All zones generally appear to have been undeveloped and moderately vegetated.
- Industrial and commercial development in the area surrounding the zones began in the 1980s, with the most intensive development occurring between 2000 and 2010.
- Zones 6B and 7 were not listed on the NRC Selected Land Use (SLU) register.
- A former solvent refinery facility was located immediately north of Zones 6B and 7.
  - Validation sampling and reporting by GHD Limited of the former solvent refinery did not detect volatile organic compounds (VOCs) above human health or environmental criteria in soil in 2022.
  - However, VOC concentrations were detected above Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 (ANZG) and Drinking-water Standards for New Zealand 2018 (DWSNZ) criteria in groundwater.

Based on the reviewed information, activities on the Ministry for Environment (MfE) Hazardous Activities and Industries List (HAIL) have not been identified on a ‘more likely than not’ basis for Zones 7 and 6B.

Recommendations

- Based on the desktop review, HAIL activities were not considered to apply to Zone 6B and 7, therefore, the NESCS is not considered to apply. Similarly, rules relating to contaminated land in the PRPN are unlikely to apply to the proposed works.
- While a CSMP is not strictly required for consenting purposes, WDC may elect for a draft to be prepared to outline best practice management procedures so that, if required, this could be amended to suit any final design detail.

1 Introduction

1.1 Purpose and Scope

Whangārei District Council (WDC) has commissioned Beca Limited (Beca) to undertake a Preliminary Site Investigation (PSI) of interim discharge option areas for the Ruakākā Wastewater Treatment Plant (WWTP) (the site).

WDC is evaluating the viability of increasing the discharge capacity of the Ruakākā WWTP. The Ruakākā WWTP is approaching the volumetric consent conditions of the resource consent for discharge of treated effluent to land, resulting in a limitation on development in the Bream Bay area.

WDC has commissioned Beca to provide a range of technical and planning assessments to assess the feasibility of interim discharge options and Zone 6B, Zone 7, Zone 3 and Rama Road as outlined in **Figure 1.** The preferred option selected was a new discharge to Zones 6B and 7 that will run in conjunction with the existing consented discharges at Rama Road and Zone 3, with a total annual average discharge of 2,500 m^3/day across all four zones.

Earthworks associated with the final option and development requirements are yet to be confirmed.

This PSI relates to the potential new discharge areas Zone 6B and Zone 7.

Figure 1. Potential and existing discharge areas for the Ruakākā WWTP (Source: Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications Proposal).

1.2 Objectives

The purpose of this PSI is to:

- Summarise information about the current and historical use of the site to:
  - Inform the potential for soil contamination.

  - Identify Ministry for Environment (MfE) Hazardous Activities and Industries List (HAIL) activities undertaken at the site.
  - Develop a Conceptual Site Model (CSM).
- Identify potential areas within the site that may require soil sampling and associated potential contaminants of concern.
- Inform contaminated land consent requirements for the proposed development under the:
  - National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS)
  - Contaminated land rules of the Northland Regional Council (NRC) Proposed Regional Plan for Northland (PRPN)

1.3 Scope

The scope of this investigation involved a desk-based study, which comprised the review of historical information relating to the potential for contamination. The following was completed:

- Information sources were reviewed for the site, including:
  - Historical aerial photographs sourced from Retrolens and Google Earth
  - WDC property files for the site
  - NRC Contaminated Land information for the site and immediately surrounding properties
  - Discharge consent information within 100 m of the site
  - Site setting information including geological and hydrogeological (if available) for the site and immediate surrounding area
  - Any existing environmental information held by the client for the site
- A site walkover of the potential discharge areas
- The reporting of the above in a PSI.

It is understood the proposed works will not involve interception of the groundwater table and groundwater will not require management/dewatering during construction works. Therefore, assessment of potential groundwater contamination has been excluded from this PSI.

This PSI was undertaken and reported in general accordance with:

- Ministry for the Environment Contaminated Land Management Guidelines (CLMG) No. 1 – Reporting on Contaminated Sites in New Zealand (2021).

2 Site Description

2.1 Site Identification

Table 1 presents a summary of the site location and legal description, with the indicative site boundary shown on **Figure 2.**

Table 1. Site identification

Parameter	Zone 6B	Zone 7
Approximate Address	Ruakākā Pipeline Road Track	Ruakākā Pipeline Road Track
Legal description	Section 2 SO 461691	Section 2 SO 461691
Approximate coordinates (NZGD 2000, centre of site)	-35.864176, 174.470263	-35.864594, 174.472084
Approximate area (m^2)	36,279	70,826

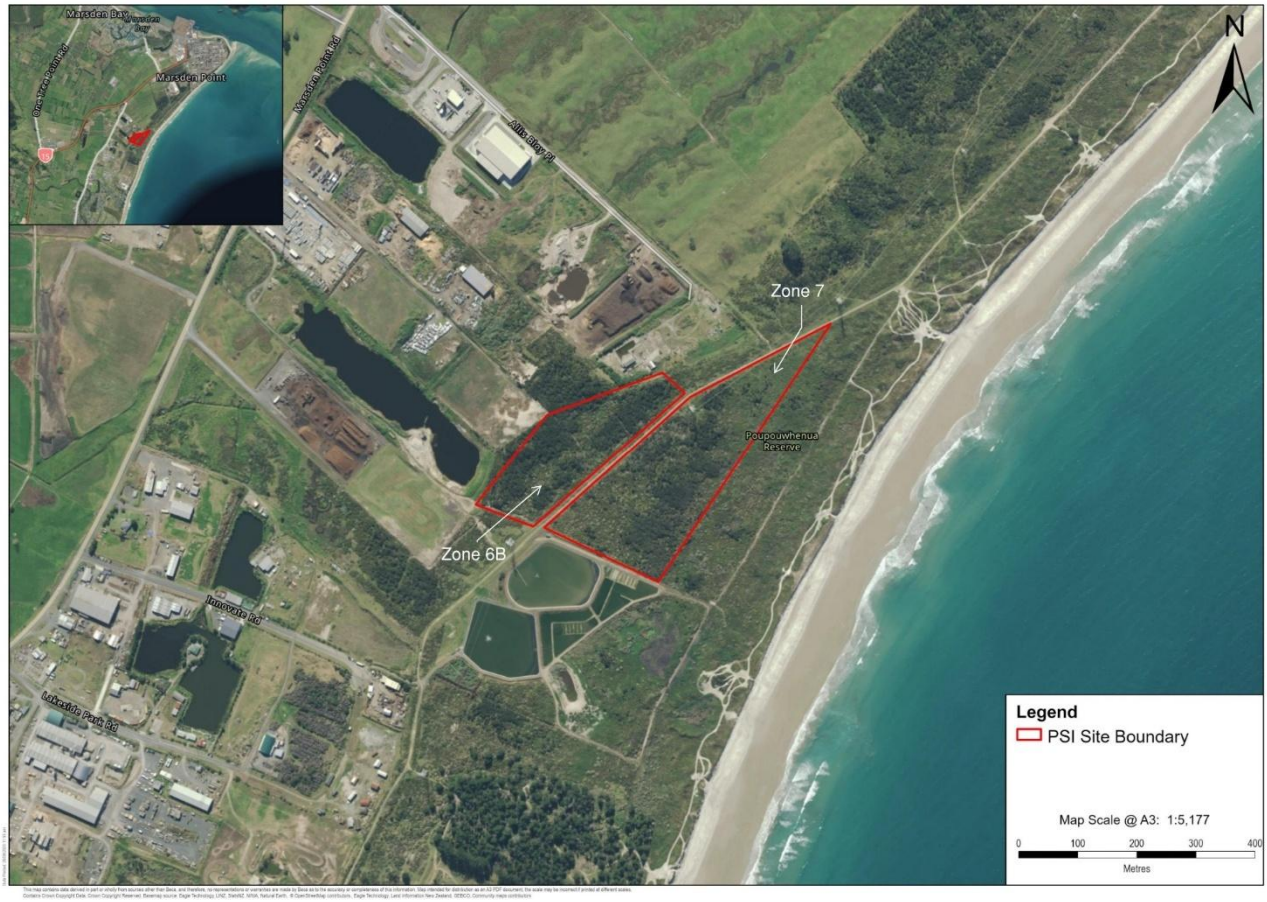


Figure 2. Site boundary for this PSI (Source: ArcGIS)

2.2 Proposed Works

The Ruakākā WWTP is located on Marsden Point Rd with the current treated wastewater discharge being directed to Z3 and Rama Rd. A future plant upgrade and outfall construction is scheduled for completion around 2030.

The resource consent allows discharge of up to 1,030 m^3/day to Rama Rd between April to September and 1,700 m^3/day between October to March as annual (6 monthly) averages, not allowing for peak limits. For Zone 3 an annual average discharge of 660 m^3/day is permitted.

WDC is planning an interim expansion of the plant discharge capacity into adjoining land areas to allow for discharge requirements until the future upgrade. The interim expansion will remove the current limitation on commercial/domestic development in the area, imposed by WDC as a result of the WWTP approaching the volumetric resource consent conditions for land discharge. The expansion will require minor earthworks within zones 6B and 7. Detailed design is yet to be completed and there is a low potential that minor disturbance may occur on the corner of the WWTP site for installation of pipework. Given this is unconfirmed and may not be required, assessment of this specific portion of the works is outside the scope of this PSI and may require further consideration once detailed design is complete.

3 Environmental Setting

3.1 Current Land Use

Zone 6B and Zone 7 is part of Poupouwhenua Reserve and is densely vegetated and undeveloped.

3.2 Surrounding Land Use

The surrounding land use comprises of open areas of pasture and commercial/industrial developments. Several artificial ponds are also present

According to Google Maps, business and industries located within the surrounding area include:

- Ruakākā WWTP immediately south of Zone 7
- Caltex Marsden Point Diesel Stop and Altas Concrete (concrete supplier) are both approximately 600 m north of Zone 6B
- Marsden Metals Group Ltd (scrap metal dealer) approximately 400 m south-west of both Zones 6B and 7.
- Laminated Veneer Lumber (LVL) manufacturing (wood supplier) is approximately 1 km north-east of Zone 7.

3.3 Geology and Hydrogeology

Published geological mapping[1] indicates the site is underlain with Holocene windblown deposits described as *'Loose to poorly consolidated sand in fixed parabolic and local transverse dunes; minor sand, mud and peat in interdune deposits.'*

Based on publicly available information, static groundwater levels were recorded between 1.8 – 6.4 m bgl in the vicinity of the site and is likely tidally influenced due to the proximity to the ocean.

3.4 Hydrology and Sensitive Receptors

The Bream Bay Coastline and Pacific Ocean is approximately 200 m east of Zone 7.

A review of the NRC webmap viewer 'Bore Log Locations' layer identified six bores on site which appear to all be used for monitoring (non-potable) purposes as part of the Ruakākā WWTP.

3.5 Topography

Zone 6B sits slightly higher than the R-STP and Zone 7 nearby and is a minor high point/slightly higher duneland form within the broader area. The rolling landform is consistent with/reflective of the broader low dunefield backdrop to the Bream Bay beach and coastline. Zone 7 is characterised by gently undulating terrain that is an extension of the duneland form and includes localised high points with corresponding depressions.

[1] https://data.gns.cri.nz/geology/

4 Information Search

4.1 Historical Aerial Photography

Historical aerial photography for the site has been sourced from Google Earth Pro and Retrolens. The aerial photographs have been reviewed to identify any changes in land use activities on the site and surrounding properties. A summary of observations is provided in **Table 2** and the historical aerial images are provided in **Appendix A**.

Table 2. Historical aerial photography.

Year	On Site	Surrounding Area
1966	• Zones 6B and 7 appear to be unoccupied, grassed and sparsely vegetated.	• The immediate surroundings of the site appear grassed/vegetated and unoccupied. • A grid of rectangular objects and potentially industrial buildings is visible approximately 800 m south of the site. •
1985	• No significant changes observed.	• Four large silos are visible approximately 600 m south of the site. • An artificial pond is visible approximately 100 m south of the site and is consistent with the present day Ruakākā WWTP.
2003	• No significant changes observed.	• An additional artificial pond is visible immediately south of the site, consistent with the present day Ruakākā WWTP. •
2012	• No significant changes observed.	• The area immediately north of Zone 6B has been developed for industrial purposes. • Two additional artificial ponds are visible approximately 450 m south-west of Zone 6B.
2016	• No significant changes observed.	• Two additional artificial ponds are visible 300 m north and 550 m north of Zone 6B. • The area immediately north-west of Zone 6B has been further developed for industrial purposes.
2024	• No significant changes observed.	• No significant changes observed.

4.2 Information from Northland Regional Council

4.2.1 Bore Information

Information on bores within 100 m of the site was retrieved from NRC GIS Webmap Viewer on 30 June 2025. **Table 3** summarises the borehole information provided by NRC. The placement of bore markers on the Webmap Viewer may not be representative of the actual location of a bore.

Table 3. Summary of NRC bore information within 100 m of the site

NRC Bore ID	Approximate Location* (m)	Bore Depth (m)	Date drilled	Static Water Level (m)
LOC.309301 (Object ID 4842)	30 m west of Zone 6B	9.1	28/02/2007	6.0
LOC.209325 (Object ID 1250)	30 m south of both zones	4.8		
LOC.209325 (Object ID 1243)	90 m south-east of Zone 7	4.8		
LOC.209967 (Object ID 3995)	90 m east of Zone 7	8		
LOC.209967 (Object ID 3994)	90 m east of Zone 7	8		
LOC.209967 (Object ID 3993)	90 m east of Zone 7	8		
LOC.312670 (Object ID 4954)	65 m north-west of Zone 7	4.9	29/04/2016	3.5
LOC.312670 (Object ID 4955)	10 m north-west of Zone 6B	4.9	29/04/2016	3.5

* Distance and direction from closest boundary of the site. Greyed out squares = information not available.

4.2.2 Consent Information

Information on consents within 100 m of the site was retrieved from the NRC GIS Webmap on 27 June 2025. **Table 4** summarises a list of pertinent consents within 100 m of the site. The placement of resource consent markers on the Webmap Viewer may not be representative of the exact location of the consented activity.

Table 4. Consent information within 100 m of the site

Status	Consent No.	Consent Type	Approximate Location* (m)
Current	AUT.043120.01.01	Land Discharge - Sewage	Adjacent to site (within Zone Z3)
Current	AUT.043120.02.01	Land Use Consent - Earthworks	Adjacent to site (within Zone Z3)
Current	AUT.043120.03.01	Water Permit - Diversion	Adjacent to site (within Zone Z3)
Current	AUT.043120.04.01	Land Discharge - Stormwater	Adjacent to site (within Zone Z3)
Current	AUT.046610.01.01	Land Discharge - Sewage	Adjacent to site (within Zone Z3)
Current	AUT.046610.02.01	Land Discharge - Sewage	Adjacent to site (within Zone Z3)
Current	AUT.021532.02.02	Land Discharge - Sewage	Adjacent to site (within Zone Z3 and Rama Road)

Status	Consent No.	Consent Type	Approximate Location* (m)
Surrendered	AUT.013440.01.01	Bore Consent - Bore Construction	Onsite – Zone 6B
Current	AUT.038383.01.01	Bore Consent - Bore Construction	20 m north of Zone 6B
Expired	AUT.018861.01.01	Water Take – Surface Water Take	60 m north of Zone 6B
Expired	AUT.021780.01.01	Bore Consent - Bore Construction	Adjacent to site (within Rama Road)

* Distance and direction from closest boundary of the site

4.2.3 NRC SLU Information

NRC Selected Land-use Register (SLU) statements were obtained for the site and properties within the general vicinity of the site from NRC on 28 May 2025. Statements indicate whether land uses that appear on the HAIL are known to currently or historically have taken place on a property. **Figure 3** depicts the locations of the site of this PSI in relation to sites included on the SLU. A summary of the SLU information provided by NRC is provided in **Table 5** and the SLU reports are available in **Appendix B**.

Figure 3. Location of NRC SLU HAIL sites in relation to the site (Source: NRC GIS Webmap)

Table 5. Summary of NRC SLU HAIL site statements

File No.	Location*	HAIL classification	Site Classification by NRC	Site Name and Address	Legal Description	Comments from NRC
SLU.042613	Immediately east and west of Zones 6B and 7	G6. Waste recycling or waste or wastewater treatment	Verified HAIL: Risk not quantified	Wastewater treatment plant - Innovate Road, Ruakākā	Sec 65 Blk VII Ruakākā SD	The site is the location of WDC's Ruakākā wastewater treatment plant. Wastewater is irrigated to land in the vicinity of the treatment plant. The site is consented and monitored by NRC under REG.021532.01. Previously this WWTP was also monitored under REG.004155.01. The site has been classified as Verified HAIL: Risk not quantified. This is defined as "Insufficient information to quantify adverse effects or risks to people or the environment from known HAIL activity. The site may not have been investigated, or if it has, sampling may be inadequate to assess risk, or some activities on site may not have been investigated. Contamination may have occurred but should not be assumed to have occurred." As of December 2023, NRC had no information to suggest that the site is contaminated or poses a risk to human health; and were simply noting its prior land use for future reference.
SLU.804607	Immediately north of Zones 6B and 7	A2. Chemical manufacture, formulation or bulk storage	Verified HAIL: Risk not quantified	Solvent refinery - Allis Bloy Place, Ruakākā. 77 Allis Bloy Place, Ruakākā	Lot 5 DP 436718	77 Allis Bloy Place, Ruakākā, was the location of a solvent refinery business. The site was 'mismanaged,' which resulted in a large volume of chemicals being stored on the site.

File No.	Location*	HAIL classification	Site Classification by NRC	Site Name and Address	Legal Description	Comments from NRC
		A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground G6. Waste recycling or waste or wastewater treatment				Subsequently the site has been subject to varying degrees of investigation, enforcement and remediation. The site was owned and operated by Sustainable Solvents Ltd (SSL) as of 2018, who operated a Rotomax solvent distillation unit for recycling of solvents from used contaminated product. The residue from the distillation process was considered hazardous waste which was placed in bins, allowed to dry until it formed solids blocks. The material was then transported to landfill. ACM was noted to be 'stored loosely' on site as of 2020. Historical aerial imagery shows the site was developed sometime between 2004 and 2007. The solvent refinery ceased operations sometime between 2018 and 2020.
SLU.042424	80 m north of Zone 6B	A10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds	Verified HAIL: Risk not quantified	Market garden - Allis Bloy Place, Ruakākā. 18 Allis Bloy Place, Ruakākā	Lot 4 DP 436718	18 Allis Bloy Place, Ruakākā, came to council's attention following an enquiry about the property. Aerial images and partial site investigation reports indicate the southern end of the site was used as a market garden. A sand extraction operation occupied the northern part of the site (REG.023592.01).

File No.	Location*	HAIL classification	Site Classification by NRC	Site Name and Address	Legal Description	Comments from NRC
						The site was subsequently registered as HAIL A10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds. As of November 2021, NRC had no information to suggest that the site is contaminated or poses a risk to human health; and were simply noting its prior land use for future reference. There has been some sampling of this site carried out as part of an investigation into the adjacent solvent recovery operation and also for the subdivision consent application. NRC stated historical aerial imagery showed the development of the site into a sand mining operation, and potentially a compost operation on the adjacent SSL site and the southern part of the site in 2007.
SLU.042181	Approximately 1.2km north of the site.	A2. Chemical manufacture, formulation or bulk storage A4. Corrosives including formulation or bulk storage A13. Petroleum or petrochemical industries including	Verified HAIL: Risk not quantified	Industrial site - Rama Road, Marsden Point, 45 Rama Road, Marsden Point	Lot 1 DP 199563	45 Rama Road, Marsden Point, is the Carter Holt Harvey Future build site that manufactures LVL. Bulk storage of chemicals, including corrosives and fuel, occurs on site. As of September 2021, NRC had no information to suggest that the site is contaminated or poses a risk to human health; and were simply noting its prior land use for future reference.

File No.	Location*	HAIL classification	Site Classification by NRC	Site Name and Address	Legal Description	Comments from NRC
		a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground				Historical aerial photography shows the site was undeveloped in 1998. An NRC site visit undertaken in June 2011 noted the presence of “large” above ground storage tanks with no signage.
SLU.803478	Between 400 and 600 m south of Zone 3	B4. Power stations, substations or switchyards G3. Landfill sites A13. Petroleum or petrochemical industries	Verified HAIL: Risk not quantified (Commercial/Industrial)	Power station B - Te One Street, Ruakākā	Lot 2 DP 478281	Te One Street, Ruakaka. This was the location of Marsden B power station, constructed between 1974 - 1979. NRC stated the Marsden B power station was never commissioned and ‘the equipment was mothballed until its decommissioning and removal in 2012.’ The site included the power station footprint, a tank farm and a landfill site to the north. Tonkin and Taylor Limited completed a site investigation and site remediation plan for the landfill site. As of October 2024, NRC had no information to suggest that the site is contaminated or poses a risk to human health; and were simply noting its prior land use for future reference.

File No.	Location*	HAIL classification	Site Classification by NRC	Site Name and Address	Legal Description	Comments from NRC
						In 2008, NIWA occupied part of the site for breeding and growing of fish. In 2011, NRC noted possible risks at the site could include old oil tanks, asbestos (old gas cylinders) and old batteries.

* Distance and direction from closest boundary of the site

A number of reports were provided as part of the SLU HAIL statements. For brevity, these documents have not been included in the appendix but can be provided upon request. A summary of relevant information is outlined below, and detailed summaries of the reports are available in **Appendix B.**

The following reports were provided as part of the SLU statement SLU.804607 for the Solvent Refinery at 77 Allis Bloy Place, Ruakākā.

Golder Associates NZ Limited (2015) Partial Site Investigation at Sustainable Solvents Site Ruakākā

- Golder Associates (NZ) Limited (Golder) undertook a partial site investigation to support investigations by NRC into suspected waste dumping at and around a site on Allis Bloy Place near Ruakākā, Whangārei District. The solvent recycling facility site is approximately immediately north-east of Zone 6B and west of the Rama Road zone.
- In summary:
  - Improper drum storage and disused storage tanks, between 10,000 to 20,000 L were observed on the SSL site.
  - Soil, vapour and groundwater sampling was undertaken in March 2015 (**Figure 4**).
  - Concentrations of VOCs in vapour and water samples and heavy metals in soil samples were detected above laboratory reporting limits but below applicable environmental and human health criteria.
- Golder concluded there was no evidence of significant soil or groundwater contamination, either related or unrelated to the adjoining solvent recycling facility, was found on the site during the investigation.

Figure 4. Sampling locations at the former solvent facility, with Rama Road, Zone 6B and Zone 7 sites overlaid in red (Golder Associates, 2015)

Summary of GHD Environmental Investigations at 77 Allis Bloy Place, Ruakākā

GHD Limited was engaged by WDC to carry out a series of environmental investigations and validation activities at the former solvent storage and treatment facility located at 77 Allis Bloy Place, Ruakākā, in accordance with an Environment Court decision. These assessments, conducted between 2020 and 2022, were intended to establish baseline environmental conditions, validate industrial cleaning efforts, and evaluate the site's condition at exit.

The initial Environmental Benchmark Report, completed in October 2020, identified impacts to surface soils from VOC and asbestos. Groundwater monitoring wells BH1, BH5, and BH6 reported VOC concentrations above national and international environmental screening levels. Chrysotile asbestos was also detected in a bulk material sample. These findings informed the scope of remediation activities undertaken by Intergroup Limited between July 2020 and December 2021.

Following the clean-up works, GHD conducted validation sampling in March 2022. Analytical results from validation sample collected from the concrete bunds at the site suggested that the surface cleaning conducted by Intergroup was adequate. Although some heavy metals exceeded guideline values for surface water discharge (ANZECC 2000), these levels were not considered environmentally significant due to expected dilution from rainfall.

A final Site Exit Environmental Benchmark Report was completed in November 2022. GHD collected soil, groundwater, and surface water samples to assess post-remediation conditions. No VOCs were detected in soil above relevant screening criteria. However, groundwater samples from BH06 and BH01 contained VOCs and PAH that exceeded Australian and New Zealand Guidelines for Fresh and Marine Water Quality (DWSNZ) standards, and one surface water sample (SUMP-01) showed VOC concentrations above EPA Regional Screening Levels. Despite these exceedances, GHD concluded that shallow groundwater had not been adversely affected by the remediation works. The cleaning of the containment bund was again validated, and isolated metal exceedances were not considered to pose a risk to human health or the environment.

The following reports were provided as part of the SLU statement SLU.042424 for the Market Garden at 18 Allis Bloy Place, Ruakākā

Cato Bolam (2021-2022) Environmental Investigations for Lakeside Business Park at 18 Allis Bloy Place Ruakākā

Cato Bolam Ltd undertook a PSI in 2021 and a Detailed Site Investigation (DSI) in 2022 for the property at 18 Allis Bloy Place, Ruakākā, supporting its subdivision and assessing potential soil contamination. The site is located approximately 20 m south-west of the Rama Road Zone and 100 m north of Zone 6B.

The 2021 PSI involved desktop review, field screening using a handheld x-ray fluorescence (XRF) spectrometer, and laboratory analysis of eight soil samples. The site was noted to adjoin a solvent recycling facility considered a potentially contaminating HAIL activity. Historical land use included sand quarrying and a market garden. Analytical results showed no exceedances of applicable soil contaminant standards (SCS) or health investigation levels (HILs) for commercial/industrial land use. One soil sample recorded VOC levels marginally above the reporting limit but below human health thresholds.

The former market garden was located north of the site.

In 2022, a DSI was commissioned following an abatement notice issued by WDC due to earthworks occurring within a setback area adjacent to Lot 5 DP 43718. Eight soil samples were collected from the affected zone. Laboratory results confirmed that concentrations of metals, VOCs, and organochlorine pesticides (OCPs) were within acceptable limits and did not breach established SCSs or HILs.

Based on the findings from both investigations, Cato Bolam recommended that the consent condition relating to the 100 m setback restriction be removed, as no evidence of soil contamination had been identified within that area

The following reports were provided as part of the SLU statement SLU.803478 for the Power Station B at Te One Street, Ruakākā.

Tonkin & Taylor (1996-1998) Marsden B Former Landfill Site Investigation and Remediation

Tonkin & Taylor Ltd (T+T) conducted a site investigation and remediation of a former landfill located in the north-east corner of the Marsden B Power Station site, approximately 400 m south of the site of this PSI. Although Marsden B was never commissioned, the landfill was believed to have received operational and domestic waste between 1967 and 1992. The site borders Bream Bay to the east and Department of Conservation land to the north.

In 1996, T+T conducted a detailed intrusive investigation on behalf of the Electricity Corporation of New Zealand Ltd (ECNZ) to assess the extent of the landfill and its potential impacts on groundwater. The investigation involved the excavation of trial pits, installation of groundwater monitoring wells, and sampling of soils and groundwater to depths of 4 m bgl. Laboratory analysis targeted heavy metals, SVOCs, OCPS and TPH. Groundwater levels ranged between 1.8 and 6.4 m bgl, and visual evidence of landfill waste was recorded throughout the site. Contaminant levels were generally below detection or relevant guideline thresholds, with one soil sample showing elevated copper at 0.6 m bgl. Slightly raised nitrate and chloride concentrations in one well suggested low-level leachate effects, though values remained within acceptable drinking water limits. Elevated nitrate detected in an upgradient well indicated potential offsite contributions. Overall, the landfill was found to pose no significant risk to soil or groundwater, and extensive remediation was deemed unnecessary. Instead, reprofiling of the site using existing dune sand was recommended to prevent stormwater ponding and limit further groundwater interaction.

In 1998, T+T undertook reprofiling works, which involved the removal of surface concrete debris and reshaping of the landfill with in situ sand materials. Following these modifications, groundwater monitoring was conducted to validate earlier findings and assess post-reprofiling conditions. Samples from six wells were analysed for water chemistry parameters and contaminants including dissolved metals, TPH, SVOCs, and OCPs. All results were either below detection limits or within the acceptable DWSNZ (1995) standards. The results were consistent with the 1996 investigation findings, confirming that the landfill was not significantly affecting groundwater quality. Waste materials within the landfill were considered inert and unlikely to cause adverse effects. Based on these outcomes, further groundwater monitoring was considered unnecessary, subject to final review in consultation with the NRC and the Department of Conservation.

NRC (1997 – 2017) Summary of Incident Summary Reports at the Marsden B Power Station Site

Several environmental incident reports—including dust nuisance, odour complaints, and waste dumping—were recorded in the wider Marsden B area between 1997 and 2017. However, these incidents occurred over 100 metres from Zones 6B and 7 and are therefore not considered directly relevant to the current investigation.

4.2.4 Client Provided Information

Property files for the Ruakākā WWTP were provided by WDC. The relevant documents to the present investigation have been summarised below and documents are available in **Appendix C.** Only information considered relevant to the discharge zones have been included in this PSI.

NRC (2012) Ruakākā Wastewater Treatment Plant Resource Consent

Resource consent document to *'carry out the following activities associated with the operation of an existing wastewater treatment system and the construction, upgrading and operation of a new Ruakākā wastewater treatment plant, and the provision for the associated discharge of treated wastewater to land and to the coastal marine area'* including:

- To discharge treated wastewater from Ruakākā Wastewater Treatment Plant into or onto land in a manner that it may enter water via surface irrigation on Lot 4 DP 419151 ("Rama Road Block", Rama Road), at or about location co-ordinates 1733400E 6030850N.The discharge contaminants to air,
- To discharge contaminants (mainly odour) to air from surface irrigation of treated wastewater irrigation on Lot 4 DP 419151 ("Rama Road Block", Rama Road), at or about location co-ordinates 1733400E 6030850N
- To discharge treated wastewater into Bream Bay via an outfall off Ruakākā Beach at or about location co-ordinates 1736025E 6028848N.
- To erect and place an ocean outfall structure in, on and under the foreshore and seabed of Bream Bay and the associated deposition of materials on, and disturbance of, the foreshore and seabed in the coastal marine area between approximate location co-ordinates 1733020E 6029630N and 1736025E 6028848N.

The discharge areas for this resource consent included Zone 3, Rama Road Block and has since lapsed.

WDC (2011) Ruakākā Wastewater Long-Term Consent Project: Assessment of Effects on the Environment and Resource Consent Applications

For brevity, the Assessment of Effects on the Environment (AEE) Report documents have not been included in the appendix but can be provided upon request.

- In summary:
  - An AEE Report was prepared to support the resource consent applications for new wastewater treatment and disposal facilities to plan for the projected growth in the Ruakākā and One Tree Point area.
  - The effect of potential contamination of soil and groundwater from nutrients, salts and other micro-pollutants was considered to be 'no more than minor'.

Monitoring Reports for Resource Consents AUT.021532.01 TO AUT.021532.09

Consent compliance reporting relating to resource consents AUT.021532.01 to AUT.021532.09: activities associated with operation of existing WWTPs, construction, upgrading and operation of a new Ruakākā wastewater treatment plant and associated discharge of treated wastewater to land and the coastal marine area (CMA) at Bream Bay were made available for the period 2022 to 2025. Only the earliest and latest reports have been reviewed and summarised below.

NRC (April 2025) Monitoring Report for Resource Consents AUT.021532.01 TO AUT.021532.09

- An officer of the NRC inspected the Ruakākā Wastewater Treatment Plant on Thursday 06 March 2025 to assess compliance with resource consent AUT.021532.01 to AUT.021532.09.
- The monitoring inspection (report attached) assessed the following:
  - Water quality of plant discharge
  - Odour discharge
  - Groundwater quality at monitoring bores
- A moderate non-compliance was identified for the 2025 March quarterly monitoring inspection due to the following:
  - F. coliforms showed three results in a year over the consented limit.
  - Ammonia levels at Bores 1 and 2 were above the consented limit.
- All other relevant conditions were met.

NRC (October 2022) Monitoring Report for Resource Consents AUT.021532.02

An officer of the Northland Regional Council inspected the wastewater treatment system on Tuesday, 30 August 2022 to assessed compliance with resource consent AUT.021532.01.02.

The results indicated compliance with the 2022 quarterly monitoring inspection.

Shane Stratton Surveying Limited (2018) As Built Plans – Ruakākā WWTP – Irrigation Upgrade

As built plans provided by Shane Stratton Surveying for WDC depict the location of the irrigation upgrades across the Rama Road Zone.

Airey Consultants Ltd (2008) Borehole Locations Site Plan

A site plan depicted the location of the monitoring bore locations for the 'Ruakākās WWTP Upgrade Stage 1 Temporary Plant Upgrade'. Boreholes MB01 – MB06 and MB14 were located on Zone 3. MB16 and MB17 appeared to be within Zone 7. MB25 appeared to be located on Zone 6B.

4.3 Site Walkover

A site walkover was undertaken on 20 May 2025 by a Beca Environmental Scientist. Observations from Zones 6B and 7 are summarised below, and site photographs are available in **Appendix D.**

- Zone 6B and 7 are vegetated with a mix of native and pest plant species including gorse and pampas.
- The Pipeline track runs between Zones 6B and 7, and there is a 5 wire post and batten fence in place around Zone 6B to prevent public access into the area. This fence is damaged in a number of locations.
- The track shows evidence of vehicle use. An inspection of the wheel marks indicates that the track is in sand.
- The former solvent facility to the north of Zone 6B now appears to be derelict and overgrown.
- The Electrical Transmission Towers are very evident in the environment as the power lines run through this area.

5 Risk Assessment

5.1 Summary of Information and Discussion

The Ruakākā WWTP currently discharges treated effluent to Zone 3 and to a portion of land at Rama Road, and is proposing a new discharge on the undeveloped land at Zones 6B and 7.

Zone 6B and Zone 7 are part of Poupouwhenua Scenic Reserve. Based on historical aerial imagery (earliest available from 1966), the zones generally appear to have been undeveloped and moderately vegetated. The wastewater treatment pond is present on the western boundary of Zone 3 in the imagery first visible in 2024.

Historical aerial imagery and NRC SLU statements, indicate that industrial and commercial development in the area surrounding the zones began in the 1980s, with the most intensive development occurring between 2000 and 2010.

The following HAIL activity was identified in the NRC SLU register for Zone 3 and Rama Road which is consistent with their current use as wastewater irrigation areas:

- **G6** – Waste recycling or waste or wastewater treatment in relation to the Ruakākā WWTP wastewater discharge to Zone 3 and Rama Road

Zones 6B and 7 are not listed on the NRC SLU register. From the site visit, these areas are undeveloped vegetated areas contain a mixture of native and past plant species.

Zone 6B

The following activities were identified in the NRC SLU for properties in proximity to Zone 6B:

- **G6** – Waste recycling or waste or wastewater treatment in relation to the Ruakākā WWTP wastewater discharge to Zone 3 immediately southwest of Zone 6B and to Rama Road approximately 150 m north-east of Zone 6B and in relation to the former solvent refinery located immediately north of Zone 6B
- **A2** – Chemical manufacture, formulation or bulk storage in relation to the former solvent refinery located immediately north of Zone 6B
- **A13** – Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum based materials, or bulk storage of petroleum or petrochemicals above or below ground in relation to the former solvent refinery located immediately north of Zone 6B
- **A10** – Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds in relation to a former market garden located 80 m north of Zone 6B

A PSI (Cato Bolam, 2021) identified a market garden between 2010 and 2016 at 18 Allis Bloy Place Ruakākā approximately 80 m north of Zone 6B. Owing to the distance to Zone 6B it is not considered that these activities would have resulted in migration of contamination onto the site in sufficient quantities to cause a risk to human health or the environment (HAIL H).

NRC noted in the NRC SLU statements that the former solvent refinery site was ‘mismanaged’ resulting in a large volume of chemicals stored on the site. The property was owned and operated by SSL as a solvent recovery facility approximately in the early 2010’s. As part of investigations and remediation of the former solvent refinery business between 2020 and 2022, soil and groundwater sampling were undertaken. Validation sampling and reporting by GHD Limited in 2022 did not detect VOCs above human health or environmental criteria in soil. However, VOC concentrations were detected above ANZG and DWSNZ criteria in groundwater.

Zone 6B is located within the dune system and is elevated compared to the inland areas where the HAIL activities have been identified. Therefore, it is not considered that these activities would have resulted in

migration of contamination onto the site in sufficient quantities to cause a risk to human health or the environment (HAIL H).

Zone 7

Treated effluent associated with the Ruakākā WWTP is currently discharged to Zone 3 immediately south-west to Zone 7. Zone 7 is located approximately 50 m south-east of the former solvent refinery. Zone 7 is located within the dune system and is elevated compared to the inland areas where the HAIL activities have been identified. Therefore, it is not considered that these activities would have resulted in migration of contamination onto the site in sufficient quantities to cause a risk to human health or the environment (HAIL H).

HAIL Identification

Based on the reviewed information and the site setting, no HAIL activities have been identified for Zone 6B and Zone 7 on a ‘more likely than not’ basis.

A HAIL map of the wider area is included in **Appendix E**.

5.2 Preliminary Conceptual Site Model

As no sources of potential contamination in soil have been identified at the site, there are no potential pathways to receptors to be assessed. All pathways, in absence of a source of potential on-site soil contamination, are considered incomplete.

6 Development Implications

6.1.1 National Environmental Standard

The NESCS applies to land as per clause 5(7):

(7) "Land covered:

The piece of land is a piece of land that is described by 1 of the following:

a. *an activity or industry described in the HAIL is being undertaken on it;*
b. *an activity or industry described in the HAIL has been undertaken on it;*
c. *it is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it."*

HAIL activities have not been undertaken on Zones 6B and 7 as detailed in **Section 5**. Therefore, the site is not a piece of land and the regulations of the NESCS do not apply to Zones 6B and 7.

6.1.2 Proposed Regional Plan for Northland

The contaminated land rules in the NRC PRPN under Chapter C.6.8 refers directly to the requirements of the NESCS and the investigation requirements of 'potentially contaminated land'.

The PRPN defines 'potentially contaminated land' as:

'Land on which either:

1) *an activity or industry described in the current edition of the Hazardous Activities and Industries List, Wellington, Ministry for the Environment (HAIL) is being undertaken, or*
2) *an activity or industry described in the HAIL has been undertaken.'*

HAIL activities have not been identified for the site, thus, the site does not meet the plans definition of 'potentially contaminated land'.

6.2 Soil Management

Given no HAIL activities have been identified on site, a Contaminated Soil Management Plan (CSMP) is not strictly required. However, WDC may elect for a draft to be prepared to outline best practice management procedures so that, if required, this could be amended to suit any final design detail. A CSMP would include:

- A summary of human health controls for health and safety planning/training requirements, personal protective equipment, and personal monitoring.
- A summary of responsible parties to the land disposal works.
- A summary of environmental controls for odour, dust, noise, spoil stockpiling, spoil disposal, groundwater disposal.
- Procedures for encountering unknown contamination.
- Recommendations for groundwater management (if encountered unexpectedly) and soil disposal/reuse considerations.

7 Conclusions and Recommendations

The PSI identified the following:

- The Ruakākā WWTP currently discharges treated effluent to Zone 3 and to a portion of land at Rama Road which is considered HAIL activity G6.
- Zone 6B and Zone 7 are part of Poupouwhenua Scenic Reserve and appear to have been undeveloped and moderately vegetated.
- Industrial and commercial development in the area surrounding the zones began in the 1980s, with the most intensive development occurring between 2000 and 2010.

Zones 6B and 7 were not listed on the NRC SLU register.

Validation sampling and reporting by GHD of the former solvent refinery did not detect VOCs above human health or environmental criteria in soil in 2022. However, VOC concentrations were detected above ANZG and DWSNZ criteria in groundwater.

No HAIL codes were identified on a ‘more likely than not’ basis to be applicable to Zones 7 and 6B.

7.1 Recommendations

- Based on the desktop review, HAIL activities were not considered to apply to Zone 6B and 7, therefore, the NESCS is not considered to apply. Similarly, rules relating to contaminated land in the PRPN are not likely to apply to the proposed works.
- While a CSMP is not strictly required for consenting purposes, WDC may elect for a draft to be prepared to outline best practice management procedures so that, if required, this could be amended to suit any final design detail.

8 Limitations

This report has been prepared by Beca Ltd (Beca) solely for Whangārei District Council (WDC, the Client). Beca has been requested by the Client to provide a site-wide Preliminary Site Investigation for the potential discharge zones for the Ruakākā Wastewater Treatment Plant (Rama Road, Ruakākā). This report is prepared solely for the purpose of the assessment of potential soil contamination (Scope). The contents of this report may not be used by WDC for any purpose other than in accordance with the stated Scope.

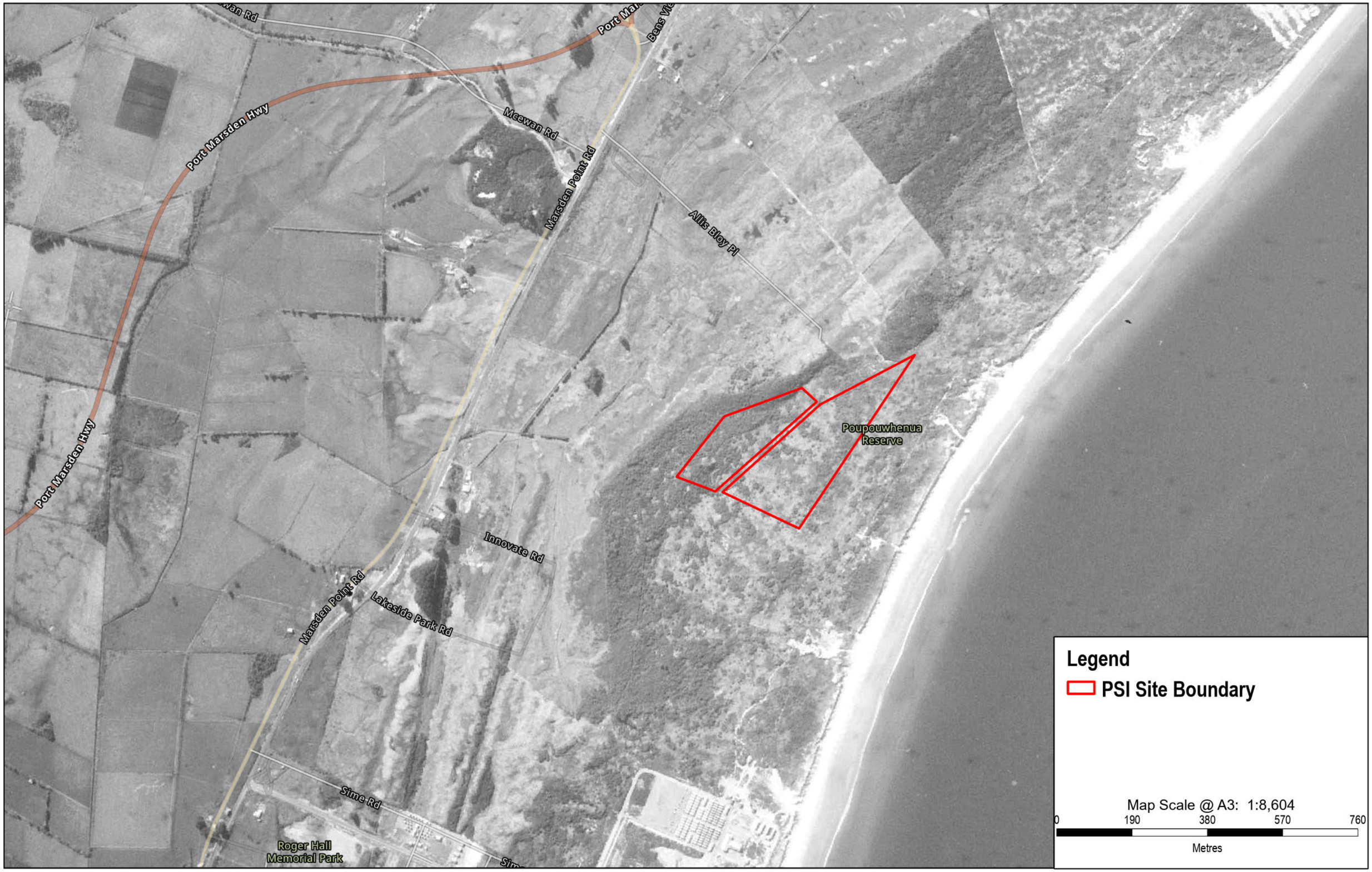
This report is confidential and is prepared solely for the Client. Beca accepts no liability to any other person for their use of or reliance on this report, and any such use or reliance will be solely at their own risk. This report contains information obtained by inspection, sampling, testing or other means of investigation. Unless specifically stated otherwise in this report, Beca has relied on the accuracy, completeness, currency and sufficiency of all information provided to it by, or on behalf of, the Client or any third party, including the information listed above, and has not independently verified the information provided. Beca accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the information provided. Publicly available records are frequently inaccurate or incomplete.

The contents of this report are based upon our understanding and interpretation of current legislation and guidelines (“Standards”) as consulting professionals and should not be construed as legal opinions or advice. Unless special arrangements are made, this report will not be updated to take account of subsequent changes to any such Standards.

This report should be read in full, having regard to all stated assumptions, limitations, and disclaimers.

A

Appendix A – Historical Aerial Photography



Revision	Drawer	Verified	Approved	Date
1	HS	GH	GH	26.08.25

N

Title: **1966 Aerial Image**

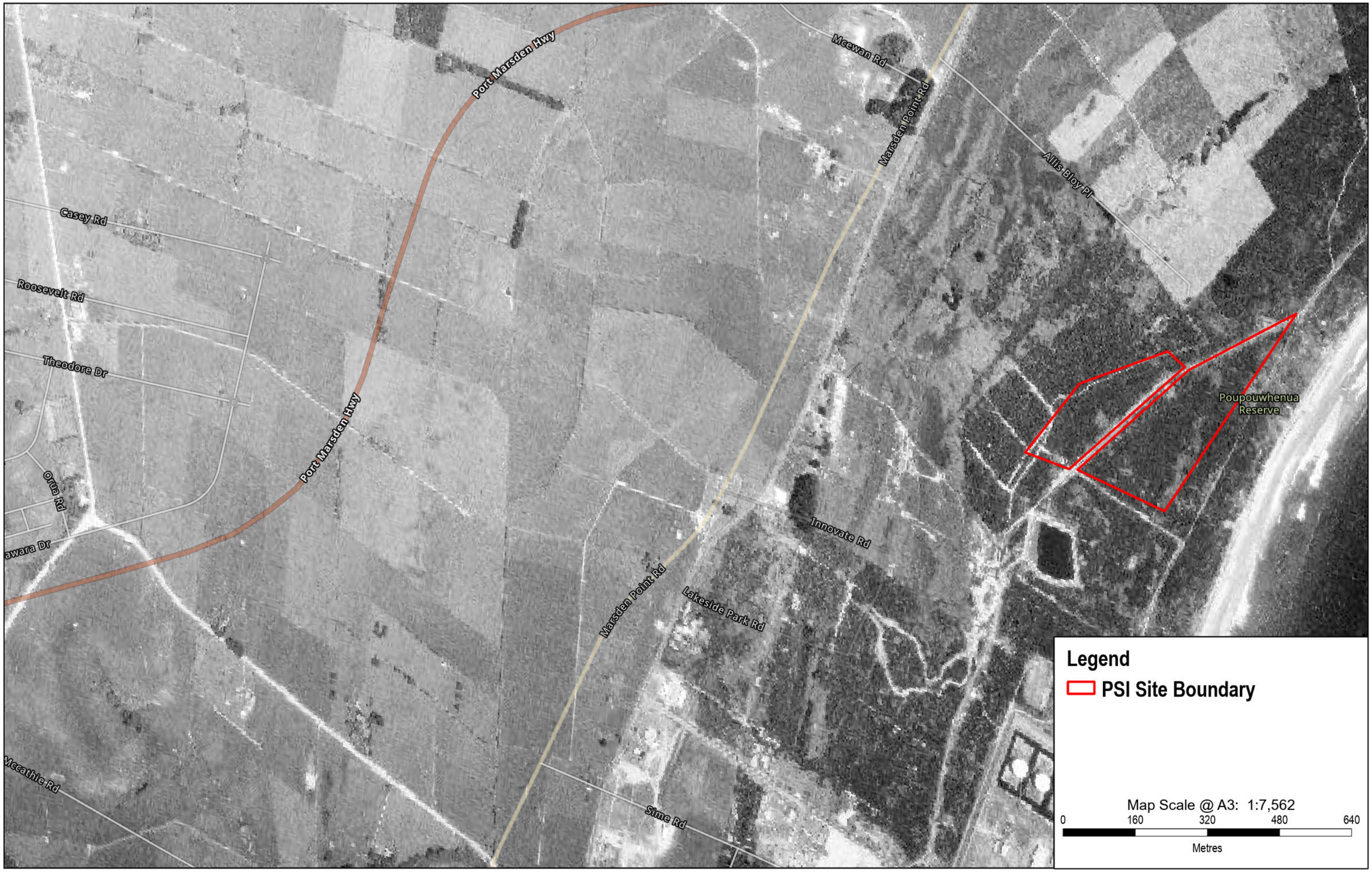
Client: Whangārei District Council

Project: Ruakākā Wastewater Treatment Plant Interim Discharge Options

Beca

Discipline: ENVIRONMENTAL

Drawing No. N/A



Revision	Drawer	Verified	Approved	Date
1	HS	GH	GH	26.08.25

N

Title: **1985 Aerial Image**

Client: Whangārei District Council

Project: Ruakākā Wastewater Treatment Plant Interim Discharge Options

Beca

Discipline: ENVIRONMENTAL

Drawing No. N/A

Revision	Drawer	Verified	Approved	Date
1	HS	GH	GH	26.08.25

N

Title: **2003 Aerial Image**

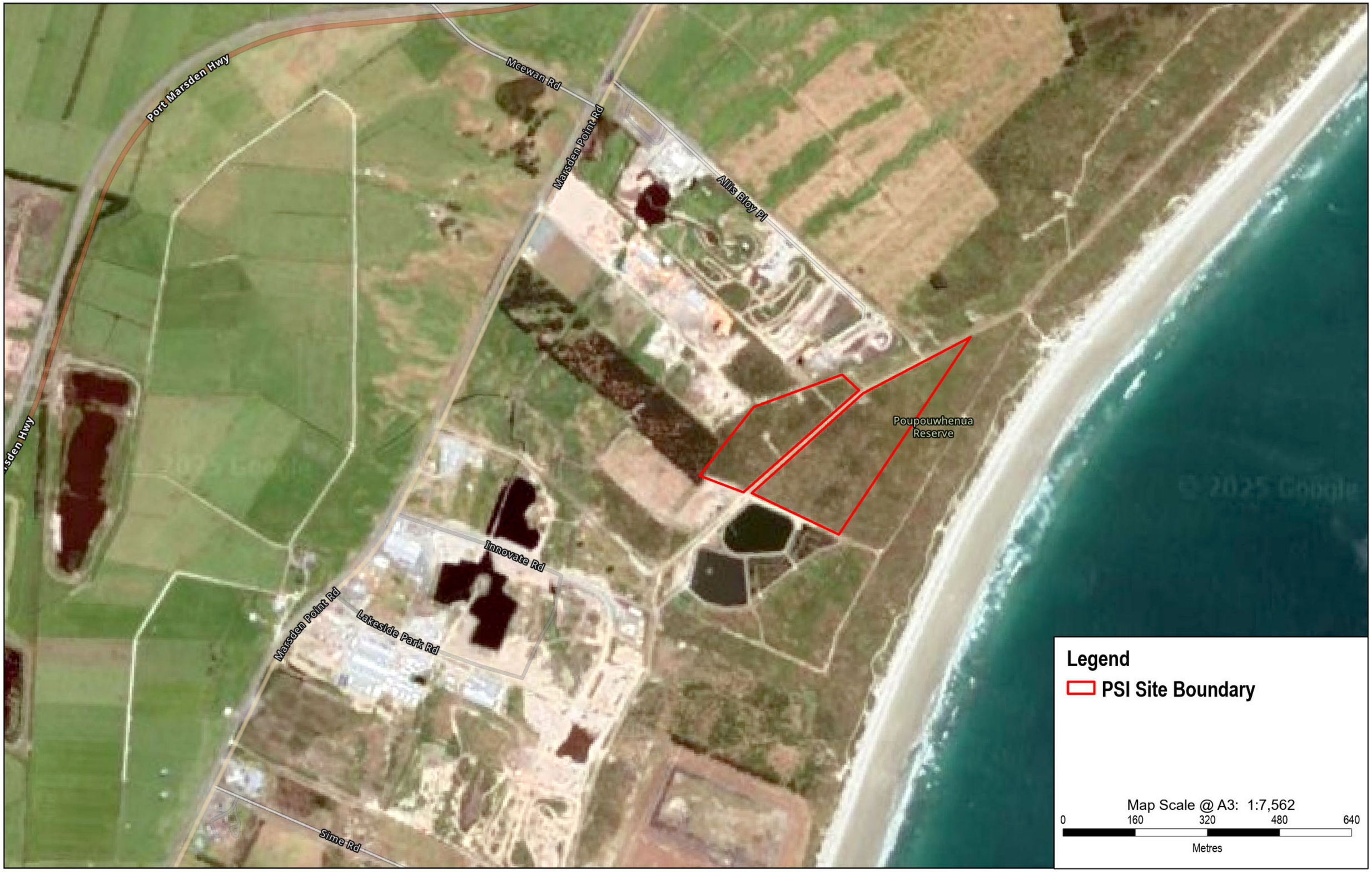
Client: Whangārei District Council

Project: Ruakākā Wastewater Treatment Plant Interim Discharge Options

Beca

Discipline: ENVIRONMENTAL

Drawing No. N/A



Revision	Drawer	Verified	Approved	Date
1	HS	GH	GH	26.08.25

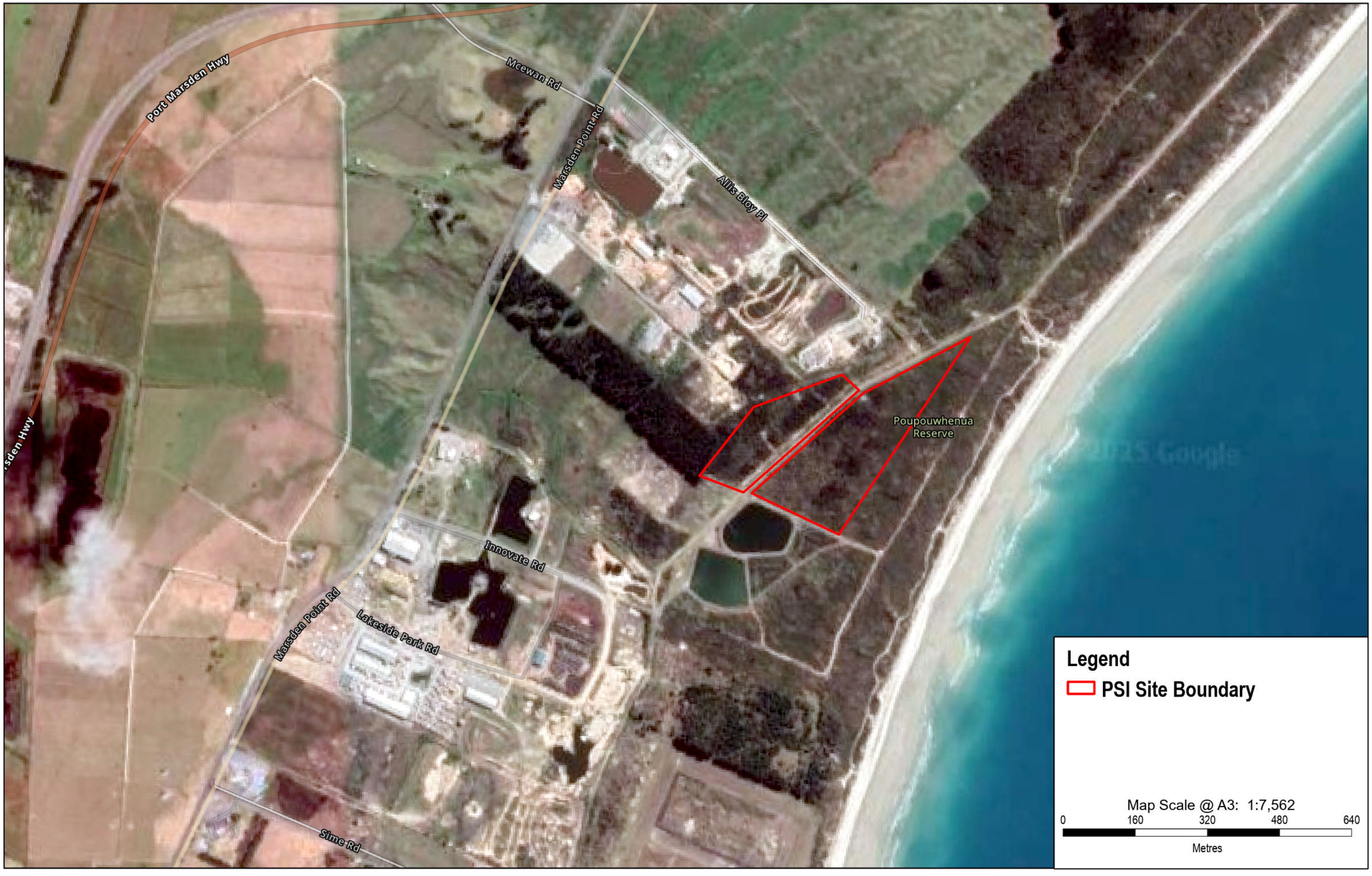
Title: **2012 Aerial Image**

Client: Whangārei District Council

Project: Ruakākā Wastewater Treatment Plant Interim Discharge Options

Discipline: ENVIRONMENTAL

Drawing No.: N/A



N

Revision	Drawer	Verified	Approved	Date
1	HS	GH	GH	26.08.25

Title: **2016 Aerial Image**

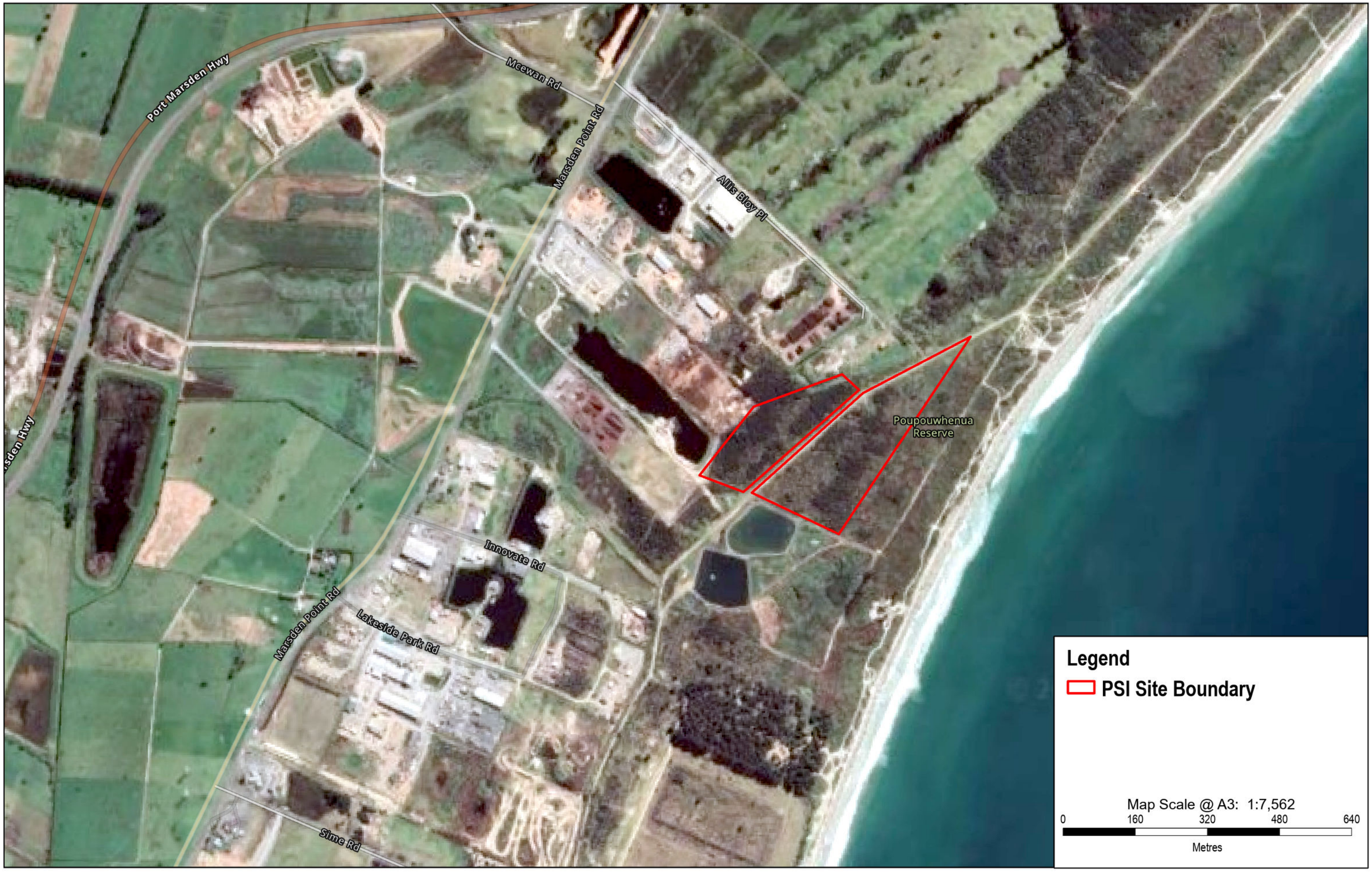
Client: Whangārei District Council

Project: Ruakākā Wastewater Treatment Plant Interim Discharge Options

Beca

Discipline: ENVIRONMENTAL

Drawing No. N/A



Revision	Drawer	Verified	Approved	Date
1	HS	GH	GH	26.08.25

N

Title: **2024 Aerial Image**

Client: Whangārei District Council

Project: Ruakākā Wastewater Treatment Plant Interim Discharge Options

Beca

Discipline: ENVIRONMENTAL

Drawing No. N/A

B

Appendix B – NRC SLU

FILE NOTE

02 October 2024

File No:	SLU.803478
Site Name:	Power station B - Te One Street, Ruakaka
Site Address:	Te One Street, Ruakaka
Legal Description:	Lot 2 DP 478281
Site Classification:	Verified HAIL: Risk not quantified
HAIL Activity:	A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground B4. Power stations, substations or switchyards G3. Landfill sites

Comments:

Te One Street, Ruakaka. Site was the location of Marsden B power station, constructed between 1974-1979. The Marsden B power station was never commissioned, the equipment was mothballed until its decommissioning and removal in 2012. The site includes the power station footprint, a tank farm and a landfill site to the north. Tonkin and Taylor completed a site investigation and site remediation plan for the landfill site.

The site was subsequently registered as HAIL activity:

- A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground
- B4. Power stations, substations or switchyards
- G3. Landfill sites

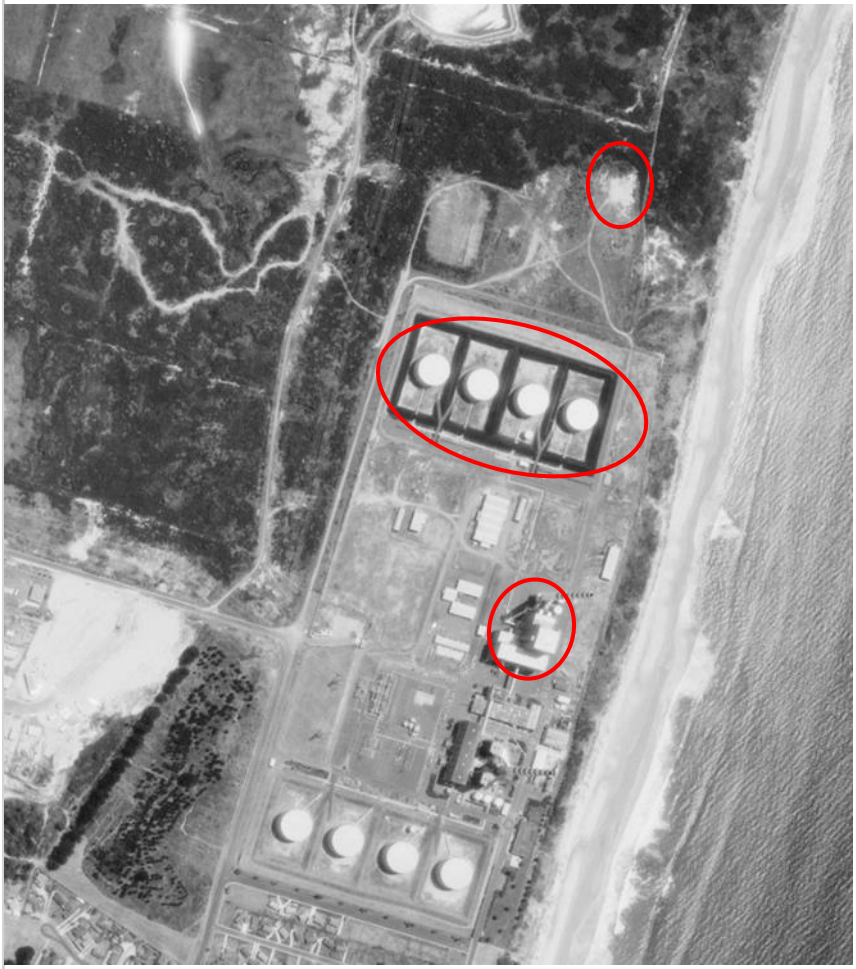
The site has been classified as Verified HAIL: Risk not quantified

Images of the site are shown below.

At this stage we have no information to suggest that the site is contaminated or poses a risk to human health; we are simply noting its prior land use for future reference.

NRC GIS image 2014

NRC GIS image 1993



Retrolens image 1985

Retrolens image 1979

Retrolens image 1974

Retrolens image 1966

Retrolens image 1950

FILE NOTE

09 September 2021

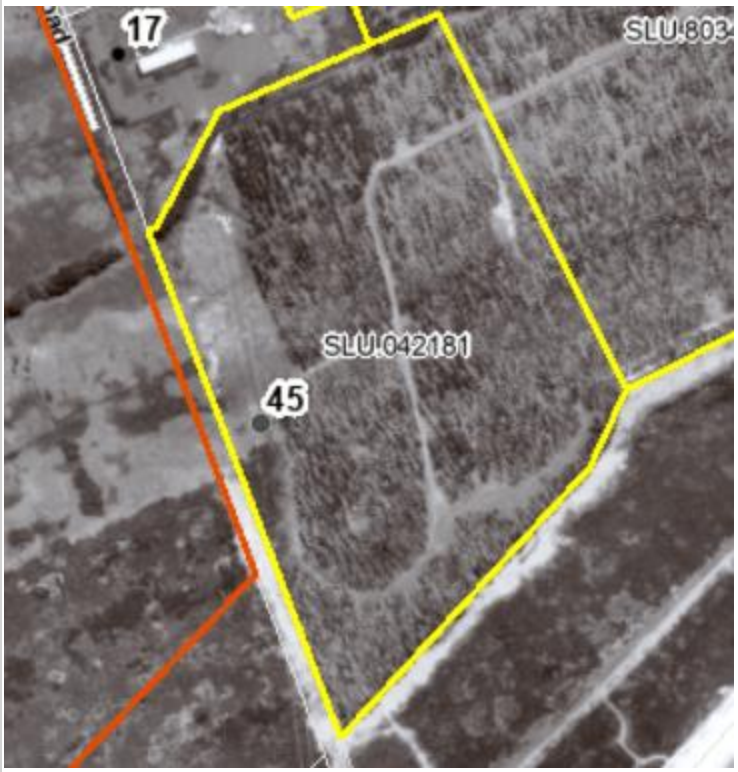
File No:	SLU.042181
Site Name:	Industrial site - Rama Road, Marsden Point
Site Address:	45 Rama Road, Marsden Point
Legal Description:	Lot 1 DP 199563
Site Classification:	Verified HAIL: Risk not quantified
HAIL Classification:	A2. Chemical manufacture, formulation or bulk storage A4. Corrosives including formulation or bulk storage A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground

Comments:
45 Rama Road, Marsden Point, is the Carter Holt Harvey Futurebuild site that manufactures laminated veneer lumber (LVL). Bulk storage of chemicals, including corrosives and fuel, occurs on site.

The site was subsequently registered as HAIL:

- A2. Chemical manufacture, formulation or bulk storage.
- A4. Corrosives including formulation or bulk storage.
- A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground.

At this stage we have no information to suggest that the site is contaminated or poses a risk to human health; we are simply noting its prior land use for future reference.



NRC Aerial image 1998

NRC Aerial image 2004

NRC Aerial image 2015

FILE NOTE

05 November 2021

File No:	SLU.042424
Site Name:	Market garden - Allis Bloy Place, Ruakaka
Site Address:	18 Allis Bloy Place, Ruakaka
Legal Description:	Lot 4 DP 436718
Site Classification:	Verified HAIL: Risk not quantified
HAIL Classification:	A10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds

Comments:

18 Allis Bloy Place, Ruakaka, came to council's attention following an enquiry about the property.

Aerial images and partial site investigation reports indicate the southern end of the site was used as a market garden. A sand extraction operation occupies the northern part of the site (REG.023592.01).

The site was subsequently registered as HAIL A10. Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.

At this stage we have no information to suggest that the site is contaminated or poses a risk to human health; we are simply noting its prior land use for future reference.

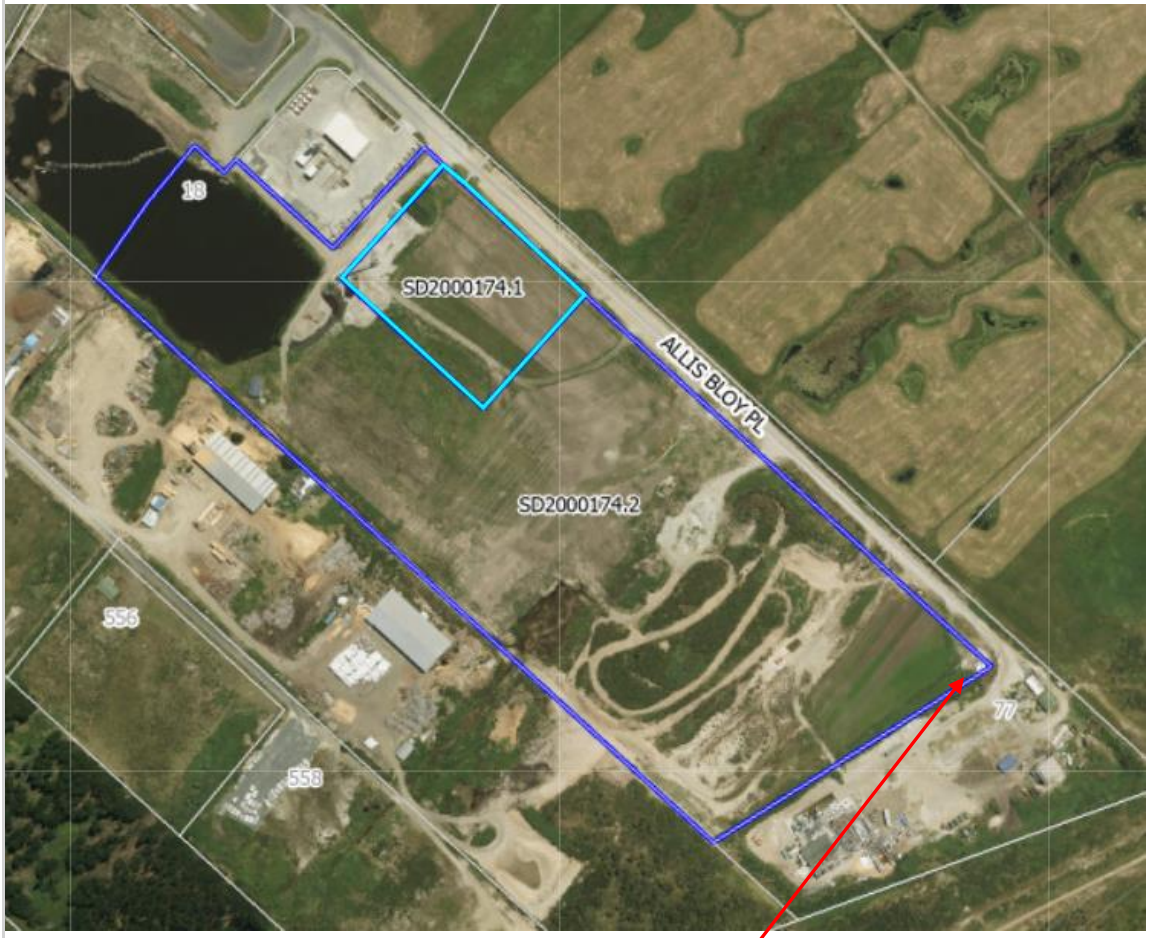
NRC image from 1993.

NRC image from 2004.

NRC image from 2007. Image shows the devlopment of the site into a sand mining operation, and maybe a compost operation on the adjacent sustainable solvents site and the southern part of the site.

NRC image from 2008.

NRC image from 2014.



WDC image (unknown year). Showing subdivision. Lots of heavy machinery used for the sand mining operation on site. Buildings in south eastern corner of site.

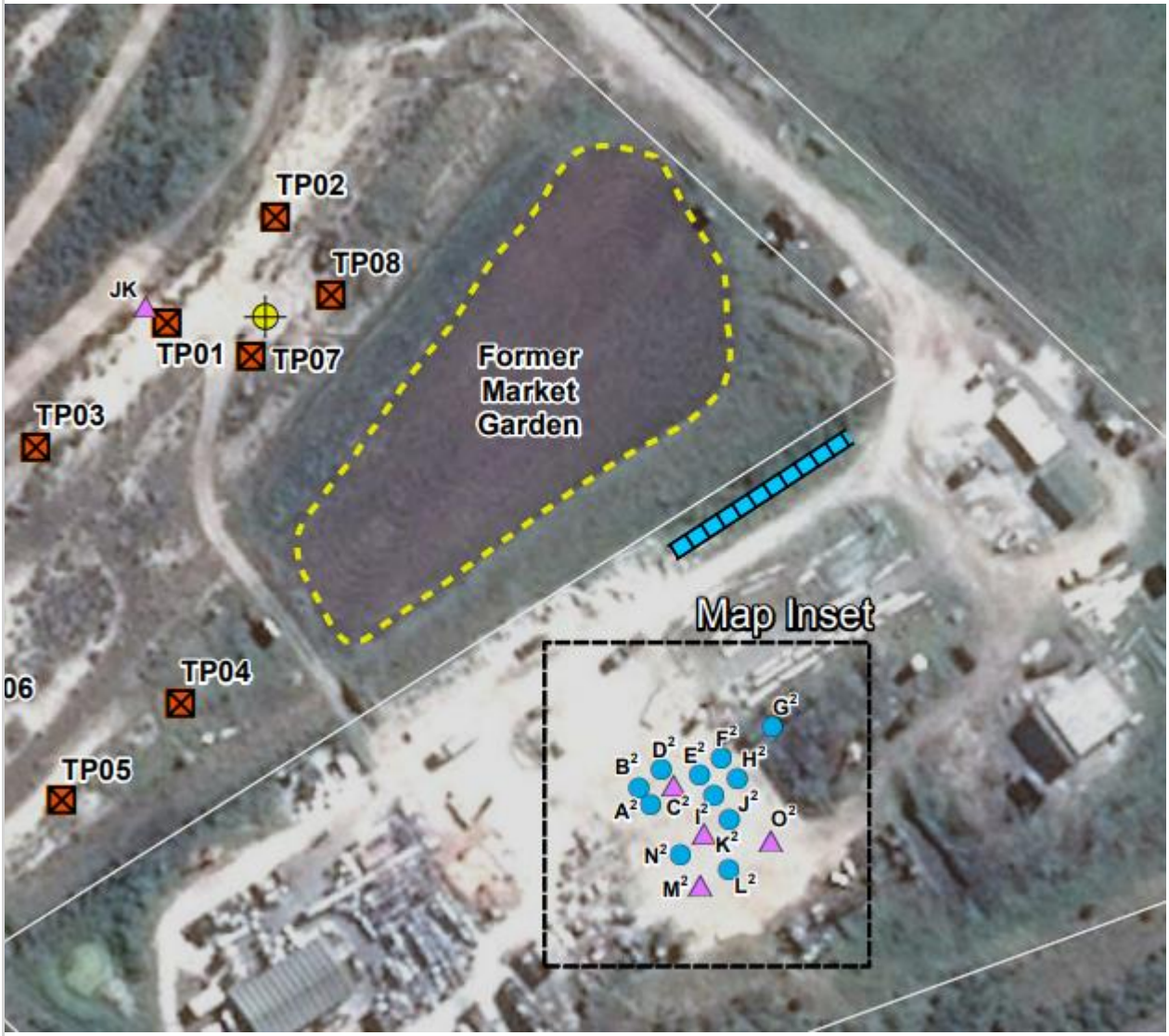


Image from 2015 Golder report showing market garden on site.

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

FILE NOTE

18 December 2023

File No:	SLU.042613
Site Name:	Wastewater treatment plant - Innovate Road, Ruakaka
Site Address:	Innovate Road
Legal Description:	Sec 65 Blk VII Ruakaka SD
Site Classification:	Verified HAIL: Risk not quantified
HAIL Activity:	G6. Waste recycling or waste or wastewater treatment

Comments:

Innovate Road, Ruakaka. Site is the location of WDC's Ruakaka wastewater treatment plant. Wastewater is irrigated to land in the vicinity of the treatment plant. The site is consented and monitored by NRC under REG.021532.01. Previously this WWTP was also monitored under REG.004155.01.

The site was subsequently registered as HAIL activity:

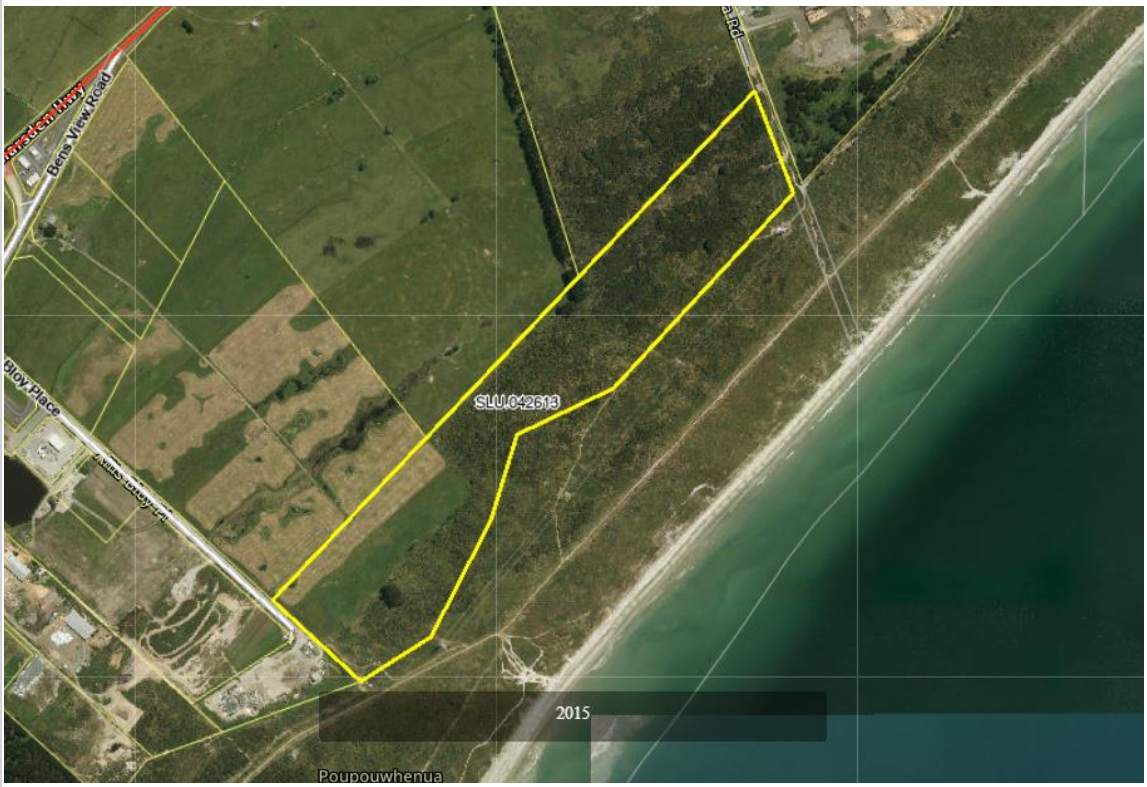
- G6. Waste recycling or waste or wastewater treatment

The site has been classified as Verified HAIL: Risk not quantified.
This is defined as "Insufficient information to quantify adverse effects or risks to people or the environment from known HAIL activity. The site may not have been investigated, or if it has, sampling may be inadequate to assess risk, or some activities on site may not have been investigated. Contamination may have occurred, but should not be assumed to have occurred."

Images of the site are shown below. At this stage we have no information to suggest that the site is contaminated or poses a risk to human health; we are simply noting its prior land use for future reference.

Photoblique image 2021 showing wastewater treatment ponds and one of two irrigation areas

NRC aerial image 2015 showing wastewater treatment plant and one of two irrigation areas



NRC aerial image 2015 showing second irrigation area

NRC aerial image 1993


Retrolens image 1984 showing one treatment pond

Retrolens image 1979, no treatment ponds present

FILE NOTE

10 September 2021

File No:	SLU.804607
Site Name:	Solvent refinery - Allis Bloy Place, Ruakaka.
Site Address:	77 Allis Bloy Place, Ruakaka
Legal Description:	Lot 5 DP 436718
Site Classification:	Verified HAIL: Risk not quantified
HAIL Classification:	A 2. Chemical manufacture, formulation or bulk storage A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground G6. Waste recycling or waste or wastewater treatment

Comments:

77 Allis Bloy Place, Ruakaka, was the location of a solvent refinery business. The site was mismanaged, which resulted in a large volume of chemicals being stored on the site. Subsequently the site has been subject to varying degrees of investigation, enforcement and remediation.

The site has been registered as

- HAIL A2. Chemical manufacture, formulation or bulk storage.
- HAIL A13. Petroleum or petrochemical industries including a petroleum depot, terminal, blending plant or refinery, or facilities for recovery, reprocessing or recycling petroleum-based materials, or bulk storage of petroleum or petrochemicals above or below ground.
- HAIL G6. Waste recycling or waste or wastewater treatment.

NRC Aerial image 2004

NRC Aerial image 2007

NRC Aerial image 2015

LINZ image 2024

Outlook

RE: HAIL Information Request - SLU.803478 (NRC ref: REQ.626723)

From Contaminated Land Management Team <contamination@nrc.govt.nz>
Date Mon 30/06/2025 2:01 PM
To [redacted]

You don't often get email from contamination@nrc.govt.nz. Learn why this is important

Kia ora [redacted]

Regarding your site query for Te One Street, Ruakaka (Lot 2 DP 478281):

The property that you have enquired about is listed on the NRC Selected Land-use Register (SLR) for any current or historical Hazardous Activities and Industries List (HAIL) activities as follows:

Reference Number: SLU.803478
Site Name: Power station B - Te One Street, Ruakaka
Site Description: Te One Street, Ruakaka. Site was the location of Marsden B power station , constructed between 1974-1979. The Marsden B power station was never commissioned, the equipment was mothballed until its decommissioning and removal in 2012. The site includes the power station footprint, a tank farm and a landfill site to the north. Tonkin and Taylor completed a site investigation and site remediation plan for the landfill site.
Site Classification: Verified HAIL: Risk not quantified (Commercial/Industrial)
HAIL Activities:

- A13. Petroleum or petrochemical industries
- G3. Landfill sites
- B4. Power stations, substations or switchyards

Filenotes:

11/08/2008: “NIWA now occupy a part of the site where an establishment for breeding and growing on fish has been established. Last data entry 12 November 2007. Category V site.”

01/06/2011: “XXXX SPI – agents for UTL – bought Marsden B Power Station – fill him in on HAIL Register. Possible risks at the site could include: Old oil tanks, asbestos, (old gas cylinders, BOC will collect. Old batteries - Exide will collect.)”

27/09/2024: “HAIL category G3 added to include the landfill site to the north of Marsden B.”

27/09/2024: “Record reviewed and updated as part of National Data Consistency Project. Previous site name: Marsden B. Previous description: Marsden BMarsden Point Marsden B”

Reports on file:

Tonkin and Taylor, Marsden B former landfill site investigation and remediation plan, October 1996.
Tonkin and Taylor, Reprofiling of the former Marsden power station landfill, March 1998.

Both the above reports are available upon request if required.

There are 4 environmental incidents recorded on the property as detailed below. If you require any further information on any of these please let me know quoting the reference number.

Reference number	Date	Subject	Description	Further information from file
REQ.402769	10/04/1997	Hazardous substances spills and refuse	Trucks dumping foul smelling material in sand dunes.	Alleged dumping of "foul smelling material" in sand dunes. The subsequent investigation found this to be sewage trucks legitimately offloading sewage into district council sewage ponds.
REQ.403433	14/12/1997	Dust nuisance	Dust (sand) nuisance.	Dust from NZEC tank farm causing a nuisance to nearby residents.
REQ.406149	27/3/2001	Other water incident	Concrete residue dumped in carpark.	Small amounts of concrete rubble dumped in walkway to beach.
REQ.583330	27/1/2017	Odour	Odour nuisance @ Station Rd, Ruakaka.	Odour nuisance originating from NIWA facility.

There are no current resource consents recorded on the property.

NRC has aerial images of the site for the following years that can be provided upon request: 1991, 1998, 2002, 2004, 2007, 2008, 2009, 2014, 2015, 2018 & 2024.

Please note, as per Rule C.6.8.1 of the Proposed Regional Plan for Northland, copies of site investigation reports, where land disturbance has occurred, must be provided to the regional council within three months of completion of the investigation.

Reports can be sent to contamination@nrc.govt.nz.

If I can be of any further assistance, please do not hesitate to contact me.

Ngā mihi

Alida Spencer
Environmental Monitoring Officer – Waste Management
Northland Regional Council » Te Kaunihera ā rohe o Te Taitokerau

M [redacted]

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

P 0800 002 004 **» W** www.nrc.govt.nz

Disclaimer

Unless specifically included in the response above, council warns that information is not available about building materials that can cause land contamination at any property, including, but not limited to, wood that has been chemically treated, lead-based paint and asbestos containing materials. Caution is advised with regard to these materials, including undertaking a comprehensive due diligence investigation to establish whether these materials are or have been present at any time, past and present.

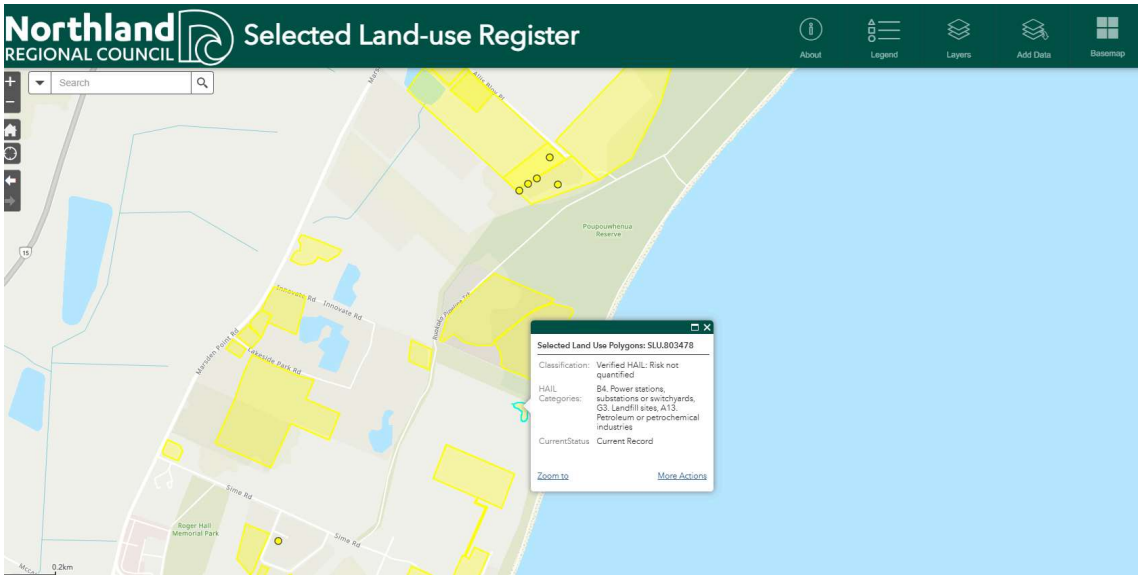
The information provided in this email is information from the Selected Land Use Register and Northland Regional Council Incident Records only, unless otherwise specified. Council may hold information about the site in other registers or databases. A full search of council records will need to be undertaken to determine if this is the case, and which the requestor must specifically request this, and cover council's reasonable costs. The information supplied in this email should not be solely relied upon for determining whether there is contamination at a site, for remediation of the site or any other purpose. Compliance with R6.2 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ('NES') requires that territorial authority records are searched, and any information supplied in this e-mail is required to form part of that search. If contamination is confirmed, there may be contaminant guideline values that apply to the land, in addition to the NES soil contamination guidelines. We cannot accept any liability arising from the absence of information from our registers. We advise clients to engage the services of a suitably qualified and experienced contaminated land specialist where uncertainty exists.

From: [redacted]
Sent: Monday, 30 June 2025 1:06 pm
To: Contaminated Land Management Team <contamination@nrc.govt.nz>
Subject: HAIL Information Request - SLU.803478

Kia ora,

Could I please request for all pertaining information for the following HAIL site?

- SLU.803478



Thanks very much,

[redacted]

Ngā Mihi | Kind regards,

[redacted]
Beca

Phone: +64 9 300 9000
[redacted]
www.beca.com

Summary of Reports provided in NRC SLU Statements

The following reports were provided as part of the SLR statement SLU.804607 for the Solvent Refinery at 77 Allis Bloy Place, Ruakākā.

Golder Associates NZ Limited (2015) Partial site investigation at sustainable solvents site Ruakākā

- Golder Associates (NZ) Limited (Golder) undertook a partial site investigation to support investigations by NRC into suspected waste dumping at and around a site on Allis Bloy Place near Ruakākā, Whangarei District. The site is approximately 20 m south-west of the Rama Road zone and immediately north of Zone 6B.
- Golder undertook a site visit in March 2015. Golder summarised:
  - The site was owned and operated by Sustainable Solvents Ltd (SSL) as a solvent recovery facility.
  - The processing area was sealed and bunded.
  - The remainder of the site was unsealed, comprising sand with some low scrub, and vehicles tracks formed by a concrete waste product from the nearby concrete blending plant.
  - Occasional solvent odours were noted.
  - Drums awaiting treatment were stored within a bunded area and processed drum were placed on pallets. Some drums contained solvent-soaked rags, and some were uncovered and collecting rainfall.
  - Disused storage tanks, capacity estimated between 10,000 to 20,000 L, were observed along the southern boundary,
- Golder undertook surface soil sampling, passive vapour monitoring, a water grab sample and groundwater sampling of a monitoring well in March 2015.
- Golder identified:
  - Trace concentrations of volatile organic compounds (VOCs) were detected at a passive vapour sample point that were considered spurious and not representative of actual conditions at the site.
  - Trace concentrations of several VOCs were reported in a water grab sample collected from a test pit in the area of former sand quarrying on the site.
  - No VOC constituent concentrations were reported above laboratory reporting limits in the water sample collected from an existing well located along the north-central margin of the site.
  - Elevated concentrations of heavy metals (copper and zinc) significantly below applicable soil contaminant standards (SCSs) for commercial/industrial land use were reported in a soil sample collected from a suspected burn pile.
- Golder summarised:
  - No evidence of significant soil or groundwater contamination, either related or unrelated to the solvent recycling facility, was found on the site during the investigation.

Riley Consultants (2016) Contamination Investigation Factual Report Allis Bloy Place Ruakākā

- In 2016, Riley Consultants Ltd (Riley) carried out a contamination investigation for SSL at the solvent recycling facility at Allis Bloy Place, Ruakākā located northeast of Zone 6b and west of the Rama Road Zone.
- The intrusive investigation comprised the following:

  - 28 soil samples were collected from seven hand auger boreholes and seven test pits installed in the vicinity of the former sand quarrying to the west of the former horticultural area and on the northern margin of the site, along Allis Bloy Place.
  - Soil samples were analysed for a combination of heavy metals, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), cyanide and organochlorine pesticides (OCPs).
- Riley identified the following:
  - Reported concentrations of TPH range C10 – C14 exceeded laboratory reporting limits in three samples collected on the northern boundary of the site but no concentration exceeded an applicable Tier 1 soil acceptance criteria for commercial/industrial land use.
  - The inferred groundwater flow is to the south-east, towards the ocean.
  - Heavy metals, PAH and VOCs were detected in groundwater samples from monitoring wells BH1, BH5 and BH6 which were situated downgradient from the site and located along the eastern edge of the adjoining solvent recycling facility.
  - No significant dissolved contamination was reported in the two monitoring wells (BH3 and BH4) located upgradient from the solvent recycling area
  - No other reported concentration of a constituent of concern exceeded an applicable laboratory reporting limit, SCS or health investigation level (HIL) for commercial/industrial land use.
- Riley summarised:
  - No evidence of significant soil or groundwater contamination, either related or unrelated to the adjoining solvent recycling facility, was found on the site during the Riley investigation

GHD (October 2020) Environmental Benchmark Report - Sustainable Solvents

- GHD was engaged by WDC to oversee the removal and disposal of hazardous and non-hazardous materials from a former solvent storage facility at 77 Allis Bloy Place, Ruakākā, in accordance with an Environment Court decision.
- The former solvent storage facility site is approximately immediately north-east of Zone 6b and west of the Rama Road zone.
- Prior to commencement of the removal and disposal works, GHD undertook an environmental benchmark investigation.
- GHD conducted the following:
  - Collection of 55 discrete and composite surface soil samples
  - Collection of groundwater samples from four monitoring wells
  - Collection of a surface water sample from a soakage put at the northern end of the site
- Soil and water samples were analysed for a combination of TPH, PAH, VOCs and heavy metals.
- The following observations of site were identified:
  - GHD observed sporadic staining of surface soils around the outside of the concrete bunded area and within the internal security fence; and
  - Generally, the geology of the surface soils were noted as sand across the Site.
  - Headspace screening was conducted at Site on suspect samples where staining of soil was observed using a photoionization detector (PID). No elevated PID readings were recorded.
  - There was no visual or olfactory evidence of contamination noted from the purged groundwater during sampling. Groundwater ranged from 1.98 metres below top of casing (m BTOC) in BH3 to 3.580 m BTOC in BH5.
- GHD summarised:
  - Generally, the surface soils across most of the Site did appear impacted by VOC or asbestos contamination. However, west and north of the concrete bund, it appeared that trace VOC

contamination associated with the July 2020 discharge of rainwater from the bund was present in shallow soil.
- Monitoring wells BH1, BH5 and BH6 all reported VOC concentrations above the respective assessment criteria. BH1 and BH5 reported VOC concentrations above the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (DWSNZ), whilst BH6 reported VOC concentrations above the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 Guidelines (ANZG) and United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSL) values.
- Generally, VOC concentrations from all samples were reported as trace detections or below the laboratory limits of detection. However, given that BH1, BH5 and BH6 reported VOC concentrations above respective assessment criteria (e.g. BH5 reporting a tetrachloroethene concentration of 3.346 mg/L, two orders of magnitude above the DWSNZ value of 0.02 mg/L) it appears that there is moderate VOC contamination in groundwater at the Site.
- Surface water from the soakage pit at the Site appears not impacted by VOC contamination.
- Chrysotile (white asbestos) was detected in the bulk material sample ASB-01.

GHD Limited (March 2022) Environmental- Industrial cleaning validation sample results - Sustainable Solvents

- GHD Limited was commissioned by Whangarei District Council (WDC) to carry out validation sampling and reporting at the former solvent storage facility located at 77 Allis Bloy Place, Ruakākā.
- The purpose of the investigation was to assess the effectiveness of industrial cleaning undertaken by Intergroup Limited between July 2020 and December 2021, in accordance with an Environment Court decision.
- On 25 November and 15 December 2021, GHD collected seven surface water samples from the concrete containment areas at the site. Surface water samples were analysed for TPH, PAH, VOCs and heavy metals. GHD observed surface water in the concrete containment areas were generally clear.
- GHD concluded:
  - Analytical results from validation sample collected from the concrete bunds at the site suggest that the surface cleaning conducted by Intergroup was adequate.
  - While some heavy metals concentrations exceed the NRC permitted activity criteria (ANZECC 2000 screening criteria) for surface water discharge, the results are not considered to represent a risk to the environment if rainwater is released from the concrete bund. Additionally, these concentrations are likely to be decreased by further rainfall into the containment bund and will likely be below the assessment criteria before the containment bund overflows.
  - However, GHD noted, that these analytical results represented the condition of the site at the time of Intergroup's demobilisation, and once the site was reoccupied and/or put to use by the by the landowner, these results may no longer be representative of conditions at the site.

GHD Limited (November 2022) Site Exit Environmental Benchmark Report - Sustainable Solvents

- GHD Limited (GHD) undertook a Site Exit Environmental Benchmark Report the former solvent storage and treatment facility at 77 Allis Bloy Place Ruakākā.
- This report follows on the previous Environmental Benchmarking Report completed by GHD in 2020 prior to removal of solvents and hazardous substance from site.
- GHD conducted the following between 25 November and 15 December 2021:
  - Collection of 50 discrete and composite surface soil samples
  - Collection of groundwater samples from four monitoring wells

  - Collection of seven surface water samples from the concrete containment areas to validate the surface cleaning completed by Intergroup.
- GHD identified the following:
  - No VOCs were detected above applicable human health or environmental screening criteria in any of the soil samples.
  - PAH was detected above the EPA Resident Tap water standard in the groundwater sample from monitoring well BH06.
  - VOCs were detected above the DWSNZ Maximum Acceptable Values in the groundwater sample from monitoring well BH06.
  - VOCs were also detected above the DWSNZ Maximum Acceptable Values in the groundwater sample from monitoring well BH01.
  - VOCs were also detected above the EPA RSL in surface water sample SUMP-01.
- GHD concluded:
  - Generally, the results were consistent with the results reports in GHD's pre-works environmental benchmarking report and do not suggest that shallow groundwater at the site has been adversely affected by the works conducted by Intergroup.
  - Analytical results from the validation sample collected from the concrete bunds at the site indicate that the surface cleaning conducted by Intergroup was adequate.
  - While some metal exceeded the NRC permitted activity criteria for surface water discharge to a contaminated site, the results are not considered to represent a risk to human health or the environment if rainwater is released from the concrete bund.

The following reports were also provided as part of the SLR statement SLU.042424 for the Market Garden at 18 Allis Bloy Place, Ruakākā

Cato Bolam (2021) Preliminary Site Investigation Report for Lakeside Business Park 18 Allis Bloy Place Ruakākā

- Cato Bolam undertook a PSI at 18 Allis Bloy Place, Ruakākā to support the subdivision of the property into two commercial/industrial lots.
- 18 Allis Bloy Place is approximately 20 m south-west of the Rama Road zone and 100 m north of Zone 6b.
- The desktop information review identified the following:
  - The south-eastern adjoining property was used for a potentially contaminating activity (solvent reprocessing or recycling) listed as HAIL activity A13 that has resulted in soil and groundwater contamination on that site.
  - The site comprised a large warehouse under construction, two sand extraction ponds, a piece of abandoned sand extraction machinery, sand dunes and thick gorse.
  - The site was bordered by Allis Bloy Place to the northeast across which was undeveloped farmland, a solvent recycling facility separated from the site by a pronounced sand berm to the southeast, timber sawmilling properties to the southwest, a ready mix concrete plant and a pond to the northwest and a Caltex diesel truck stop, located further to the northwest.
  - Based on historical aerial photography, sand quarrying was evidence across the centre of the site in 2010.
  - The southeast corner of the site was a market garden between approximately 2010 and 2016.
- Cato Bolam undertook the following:
  - A 26 sample screening survey of the site using a hand-held x-ray fluorescence spectrometer (XRF)

  - Collection of soil samples from eight of the XRF survey locations for laboratory confirmation analysis for heavy metals, VOCs, PAH and OCPs.
- Cato Bolam summarised the following:
  - No XRF survey results suggested that nay metal concentrations exceeded an applicable SCS or HIL for commercial/industrial land use.
  - PAH, OCP and PAH were not detected in any sample above applicable SCS or HIL for commercial/industrial land use.
  - One sample (S1) detected VOC concentrations marginally above the applicable laboratory reporting limit. The report notes 'there is no known human health standard for this constituent and it is not considered to be a significant contaminant.'
- Based on the information reviewed and sampling results, Cato Bolam concluded the following:
  - Based on historical aerial photographs showing HAIL activity on a portion of the site, the site is covered by the NES under Regulation 5(7)(b).
  - No reported concentration of a constituent of concern exceeded an applicable SCS or health investigation level in any sample.
  - No further investigation or management of the site was judged to be necessary.

Cato Bolam (2022) Detailed Site Investigation Report for 18 Allis Bloy Place Ruakākā

- Cato Bolam undertook a DSI at 18 Allis Bloy Place, Raukaka for Lakeside Business Park. WDC observed earthworks within a setback area 100 m from the shared boundary of Lot 5 DP 43718, breaching a Consent Notice in Ruakākā. As a result, an abatement notice was issued, requiring a DSI to assess potential contamination.
- Eight soil samples (S9 – S16) were collected from the area of earthworks along the south-eastern boundary of the property.
- Cato Bolam identified:
  - No reported metal, OCP or VOC concentration exceeded an applicable soil contaminant standard (SCS) or health investigation level (HIL) in any sample collected within the setback area or elsewhere on the site during the PSI or current DSI
  - The results of this DSI indicate that established human health SCSs and HILs have not been exceeded across the site and specifically within the 100 m setback from the shared boundary of Lot 5 DP 436718
- Cato Bolam recommended:
  - Application should be made to WDC for removal of the consent condition related to the setback restriction on the grounds that multiple investigations have failed to identify any soil contamination within 100 metres of the shared boundary of Lot 5 DP 43671

The following reports were also provided as part of the SLR statement SLU. 803478 for the Power Station B at Te One Street, Ruakākā.

Tonkin and Taylor (1996) Marsden B former landfill site investigation and remediation plan, October 1996.

- Tonkin & Taylor Ltd (T+T) undertook a site investigation at a former landfill site, Marsden B Power Station, for electricity Corporation of New Zealand Ltd (ECNZ). A site investigation strategy was developed to characterise the nature and broad spatial extent of the former landfill, and describe the extent and magnitude of any groundwater contamination occurring as a result of the former landfill.
- The former landfill site is located approximately 90 m south of Zone 3.

- The desktop information review identified the following:
  - The Marsden Power Station was commissioned in 1967 and has operated intermittently until decommissioning commenced in 1992. It was assumed that the former landfill site received waste materials over a part of that time period.
  - The former landfill site is located in the north-east corner of the Marsden B sites and is bound by Bream Bay to the east and by Department of Conservation land to the north.
- The intrusive investigation comprised:
  - Excavation of soil sampling trials pits and installation of groundwater monitoring well
  - Collection of soil up to 4 m bgl and groundwater samples in October 1996
  - Selected analysis of soil and groundwater samples for heavy metals, SVOC, OCPs and TPH
- T+T observed the following:
  - Static groundwater levels were recorded between 1.8 – 6.4 m bgl.
  - Visual evidence of landfill waste was recorded in most trial pits excavated at the former landfill site,
  - The waste material observed comprised of concrete, wood, bricks, metal, wire, plastic, linen and various metal and plastic containers.
  - Domestic waste was also evident within several trial pits.
- T+T identified the following:
  - In general, heavy metals, SVOC and TPH were below detection limit and/or below appropriate guideline values for soil samples.
  - One soil sample exceeded ANZECC (1992) guidelines for copper at a depth of 0.6 m bgl.
  - Elevated nitrate nitrogen and chloride were recorded in BH4, suggesting that a low level of leachate contamination of groundwater may be occurring immediately downgradient from the former landfill. The observed concentrations were below the recommended drinking water guideline values (DWSNZ, 1995).
  - Elevated nitrate nitrogen concentrations were also recorded in the upgradient well (BH1), suggesting that an offsite source may be contributing to elevated nitrate levels notes within BH4.
- T+T concluded:
  - Based on the information reviewed and sampling results, the former landfill site is not contributing any significant contamination to groundwater or soil when compared to ANZECC (1992) and NZDWS (1995) guideline values.
  - Considering the negligible impact the landfill had on the surrounding environment, or likely to have in the future, it was considered that excavation and offsite disposal or encapsulation will not be required.
  - Reprofiling the site with existing sand dunes was recommended to discourage stormwater ponding on the site to minimise potential impacts of groundwater.
  - Further groundwater monitoring following site reprofiling was recommended.

Tonkin and Taylor (1998) Reprofiling of the Former Marsden Power Station Landfill

- T+T undertook reprofiling works and associated reporting at the former landfill at Marsden Power Station, Ruakākā for ECNZ.
- Reprofiling works at the former landfill site were undertaken to discourage ponding on the landfill surface, and resduce the potential for percolation of stormwater through the landfill and thereby any potential for further impact on groundwater.
- T+T noted the Marsden B Station was never operated, and the instead placed in storage prior to commisioning work commencing.
- The following works were carried out:

  - Excavation and removal or concrete material; and
  - Reprofiling and landfill surface using in situ dune sand materials
- Following reprofiling of the site, groundwater monitoring was carried out to assess whether reprofiling has impacted on groundwaer and to validatye the analsyis results obtained during previous site investigation.
- T+T summarised:
  - Groundwater samples from six samples wells were analysed for a combination of pH, electrical conductivity, cations and anion, total dissolved solids, dissolved metals, TPH, SVOCs, and OCPs.
  - All analytical results for all parameters were below detection limits or within accepted criteria (DWSNZ, 1995.)
- T+T concluded:
  - Analytical results were generally consistent with previous groundwater monitoring results for the former landfill site and confirmed that the landfill does not appear to be having a significant impact of groundwater.
  - Waste materials encountered within soils were considered to be generally inert and therefore, any adverse effect on groundwater is unlikely to result.
  - Given the very low contaminant concentrations recorded in groundwater at the site, further groundwater monitoring is not necessary, subject to a full review of results in consultation with NRC and DOC representatives.

NRC (1997) Incident Summary Report: Trucks Dumping Foul Smelling Material in Sand Dunes – REQ402769

- NRC received a complaint regarding dumping of foul-smelling material in the dunes.
- The subsequent investigation found this to be sewage trucks legitimately offloading sewage into district council sewage ponds.

NRC (1997) Incident Summary Report: Dust (sand) Nuisance Karawai Street, Ruakākā – REQ403433

- NRC received a complaint in December 1997 regarding wind carrying dust sands off the ECNZ site affecting resident along the boundary road.

NRC (2001) Incident Summary Report: Concrete residue dumped in carpark. Old Powerstation Site, Ruakākā – REQ406149

- NRC received notification of concrete residue dumped in a carpark/pathway to the beach in March 2001. The report notes the truck was owned by Atlas and some residue went down the drain. The manager of Atlas Quarries advised that the material was cleaned up following discussion with NRC.

NRC (2017) Incident Summary Report: Odour Nuisance at Station Road, Ruakākā - REQ.58330

- NRC received a complaint in January and February 2017 regarding a significant odour at the Ruakākā NIWA facility.

C

Appendix C – WDC Information

Resource Consent

File: 21532
03, 04 and 06 to 09
Minor Correction

Document Date: 03.12.2024

Pursuant to the Resource Management Act 1991, the Northland Regional Council (hereinafter called "the council") does hereby grant a Resource Consent to:

WHANGAREI DISTRICT COUNCIL, WASTE & DRAINAGE DIVISION

To carry out the following activities associated with the operation of an existing wastewater treatment system and the construction, upgrading and operation of a new Ruakaka wastewater treatment plant, and the provision for the associated discharge of treated wastewater to land and to the coastal marine area:

Discharge Permits

AUT.021532.01.02	To discharge wastewater to land in a manner that it may enter water via seepage from the base of the Ruakaka Wastewater Treatment Plant on Sec 65 Blk VII Ruakaka SD (Sime Road), at or about location co-ordinates 1732700E 6029800N.
AUT.021532.02.02	To discharge treated wastewater to land in a manner that it may enter water via rapid infiltration basins at the Ruakaka Wastewater Treatment Plant site on Sec 65 Blk VII Ruakaka SD (Sime Road), at or about location co-ordinates 1732700E 6029800N.
AUT.021532.03.01	To discharge contaminants (mainly odour) to air from the Ruakaka Wastewater Treatment Plant site on Sec 65 Blk VII Ruakaka SD (Sime Road), at or about location co-ordinates 1732700E 6029800N.
AUT.021532.04.01	To discharge treated wastewater from the Ruakaka Wastewater Treatment Plant to land in a manner that it may enter water via subsurface irrigation on Lot 1 DP 396871 (known as Roger Hall Memorial Park, Takutai Place), at or about location co-ordinates 1731650E 6029100N.
AUT.021532.05.02	To discharge treated wastewater from Ruakaka Wastewater Treatment Plant into or onto land in a manner that it may enter water via surface irrigation on Lot 4 DP 419151 ("Rama Road Block", Rama Road), at or about location co-ordinates 1733400E 6030850N.
AUT.021532.06.01	To discharge contaminants (mainly odour) to air from surface irrigation of treated wastewater irrigation on Lot 4 DP 419151 ("Rama Road Block", Rama Road), at or about location co-ordinates 1733400E 6030850N.

Coastal Permits

AUT.021532.07.01 To discharge treated wastewater into Bream Bay via an outfall off Ruakaka Beach at or about location co-ordinates 1736025E 6028848N.

AUT.021532.08.01 To erect and place an ocean outfall structure in, on and under the foreshore and seabed of Bream Bay and the associated deposition of materials on, and disturbance of, the foreshore and seabed in the coastal marine area between approximate location co-ordinates 1733020E 6029630N and 1736025E 6028848N.

AUT.021532.09.01 To occupy and use the coastal marine area within Bream Bay with an ocean outfall structure between approximate location co-ordinates 1733020E 6029630N and 1736025E 6028848N.

Note: All location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection.

Subject to the following conditions:

GENERAL CONDITIONS

Inflow, Infiltration and Beneficial Re-use

1 The Consent Holder shall minimise the volume of treated wastewater discharged to land and to the coastal marine area by:

(a) Preventing, as far as is practicable, stormwater inflow and infiltration into the sewage reticulation network and treatment system. This shall include the prevention of stormwater run-off from the surrounding land entering the contingency storage pond system. For compliance purposes, this shall be determined using the daily wastewater inflow volume to the treatment system and rainfall records; and

(b) Providing wastewater that has been sufficiently treated for beneficial re-use within the community if there are parties who wish to take the product and it is of a scale to be economic for the Consent Holder.

Advice Note: *It is the intention that the New Zealand Refinery will by private arrangement take up to 2,000 cubic metres per day of highly treated wastewater for beneficial re-use.*

Management Plans

2 At least three months prior to initiating each activity authorised by the respective consents the Consent Holder shall prepare the Management Plans listed in Table 1. The Management Plans shall give effect to **Schedule 2** (**attached**) and may be prepared as separate plans or as part of a combined plan. The Management Plans shall be subject to the written approval of the Northland Regional Council's Monitoring Manager or their successor or nominee (hereafter referred to as "the Manager"). The consents shall thereafter be exercised in conformance with the approved Management Plans.

3 All Management Plans listed in Table 1 are to be prepared by a suitably qualified and experienced person with expertise in the matters that the individual Management Plan is to address.

4 If more than 24 months pass between the time that the written approval of the Manager is obtained for a Management Plan and the commencement of respective activities, then the Management Plan shall be reviewed by the Consent Holder to ensure that current best practice is reflected in it. If that occurs, the written approval of the Manager must be re-obtained prior to the respective activities commencing.

TABLE 1: Management Plans

	Consents
Construction Management Plan	All
Treatment Plant Operations and Maintenance Management Plan	01, 02, 03, 04, 05, 07
Treatment Plant Air Discharge Management Plan	03
Wastewater Discharge Management Plan for Zone 3	02
Wastewater Discharge Management Plan for Roger Hall Memorial Park	04
Wastewater Discharge Management Plan for Rama Road Block	05, 06
Ocean Outfall Construction Management Plan	08

Liaison Group

5 The Consent Holder shall, by providing reasonable organisational and administrative support for the duration of these consents, facilitate the development and on-going role of the Ruakaka Wastewater Liaison Group (the Liaison Group). The membership of the Liaison Group shall comprise a representative (subject to their agreement) of Patuharakeke Te Iwi Trust Board (Inc) (PTB), Bream Bay Land Owners Association (BBLOA), Ruakaka Parish Residents and Ratepayers Association, Ruakaka Economic Development Group, Ruakaka Surf Club, Bream Bay Action Group, Save our Harbour Collective, Bream Bay Coastal Care, Royal Forest and Bird Protection Society of NZ, the operator of the Bream Bay Aquaculture Park, OceaNZ Blue NZ, Mighty River Power, Northland Medical Officer of Health, Department of Conservation, Whangarei Fisherman's Association/Leigh Commercial Fisherman's Association and Northland Scallop Enhancement Company. The membership of this Group may be varied over the term of the consents, as agreed between the Consent Holder and the Manager. The role and functions of this Group shall include, but not be limited to:

(a) Receiving and discussing with the Consent Holder, the results of the consents compliance annual reporting and associated matters;

(b) Being consulted with by the Consent Holder either as a group or as individual members regarding the development of the Management Plans detailed in Conditions 2 and 4;

(c) Receiving from the Consent Holder periodic updates on, and providing input into, the on-going development and implementation of the Ruakaka Wastewater Strategy and the Wastewater Scheme and the Development, Technology and Environmental/Monitoring Review reports;

(d) Receiving and discussing with the Consent Holder updates on the progress of the beneficial reuse of treated wastewater from the Ruakaka Wastewater Scheme by the New Zealand Refining Company and other beneficial reuse options including industrial reuse and other land application reuse;

(e) Receiving a copy of the report on the Survey and Assessment of the Benthic Biota and Sediment Quality in the vicinity of the outfall as required under Condition 8383;

(f) Receiving a copy of the report on the results of the near field mixing study to confirm the initial dilutions achieved by the outfall and diffuser as required under Condition 75;

(g) Receiving a copy of the notice to upgrade the treatment plant and/or discharge systems as required under Condition 11 and a copy of the design details and construction plans as required under Condition13; and

(h) Receiving copies of all existing and any new Trade Waste consents to this wastewater treatment system.

6 The Consent Holder shall facilitate the Liaison Group meeting at least annually, and on other occasions when significant milestones associated with the implementation of the Ruakaka Wastewater Scheme are reached. These milestones include the planning for a new modular treatment plant, extensions to that new plant, and the planning for construction of the ocean outfall. The Consent Holder shall organise meetings at a local venue and invite all representatives of the Liaison Group. The meeting shall be held at a time convenient for the majority of members of the Liaison Group.

Wastewater Discharge Standards

7 All wastewater shall, as a minimum, receive treatment within an oxidation pond and wetland system prior to it being discharged to land from the outlet of the treatment system, unless Condition 9 applies.

8 Prior to the first exercise of consents (04) and (07), the consent holder shall upgrade the wastewater treatment system to achieve the discharge standards set out in Condition 9A.

9 Once the new treatment plant has been constructed, all wastewater reticulated to the Ruakaka wastewater treatment plant site shall receive treatment within the new wastewater treatment system prior to it being discharged in accordance with consents (02), (04), (05) and (07).

9A At all times following the first exercise of consent (07), the quality of the treated wastewater, as measured at the outlet of the new wastewater treatment system required by Condition 8, shall comply with the following concentration standards, based on 60 samples collected over each year (being 12 months from 1 July to 30 June inclusive):

Constituent	Units	Median	95th percentile	Sample Frequency	Standard
$cBOD_5$	mg/L	5	20	1 sample in every 6 day period	Over one year no more than 30 exceedances above 5, and no more than 3 exceedances above 20
Suspended solids	mg/L	5	30	1 sample in every 6 day period	Over one year no more than 30 exceedances above 5, and no more than 3 exceedances above 30
Total nitrogen	mg/L	10	30	1 sample in every 6 day period	Over one year no more than 30 exceedances above 10, and no more than 3 exceedances above 30
Faecal coliforms	cfu/ 100 ml	10	1,000	1 sample in every 6 day period	Over one year no more than 30 exceedances above 10, and no more than 3 exceedances above 1,000

Advice Note: *The indicative upgrading of the treatment plant to achieve and maintain the standard required by this Condition, including staging of development in relation to average dry weather inflow, is set out in Section 4.8 Staged*

Development of the Proposed Scheme of the "Whangarei District Council Ruakaka Wastewater Long-Term Consents Project Assessment of Effects on the Environmental and Resource Consent Applications, Application Version May 2011".

10 To enable the sampling of the treated wastewater, easy and safe access to a sampling port(s) located as close as is practicable after the outlet from the Ruakaka wastewater treatment system shall be provided and maintained. This sampling port location shall be to the satisfaction of the Manager.

Wastewater Treatment Plant and Discharge System Upgrades

11 The Consent Holder shall notify the Manager in writing that an upgrade to the treatment and/or discharge systems is to be undertaken, within two weeks of that decision being made by the Consent Holder. This written notification shall provide details of the proposed upgrade and a date by which the upgrade will be commissioned. A copy of this written notice shall also be forwarded to representatives of the Liaison Group.

12 When an upgrade to the treatment and/or discharge systems is to occur, the Consent Holder shall forward to the Manager every six months from the date that the Northland Regional Council receives written confirmation of the upgrade as required by Condition 11, a written update on the progress made towards the final design, construction and commissioning of the upgrade and whether the upgrade will be commissioned by the expected date.

If the upgrade cannot be commissioned by the expected date, then the Consent Holder shall provide details to the Manager of the reasons why and the date by which it will be commissioned.

13 The Consent Holder shall forward to the Manager and members of the Liaison Group a copy of the design details, including construction plans, for the treatment and/or discharge systems upgrade within one month of the details for that upgrade being available to the Consent Holder. All plans shall be drawn to a sufficient scale that allows a Northland Regional Council monitoring officer to identify all structures shown on the plans.

14 The Consent Holder shall ensure that the treatment and/or discharge systems are upgraded in general accordance with the design details required by Condition 13 and those details provided in *"Whangarei District Council Ruakaka Wastewater Long-Term Consents Project Assessment of Effects on the Environmental and Resource Consent Applications, Application Version May 2011".*

15 Prior to commissioning the upgrade, the Consent Holder shall update the relevant Management Plans as appropriate in conformance with Conditions 2 to 4.

Trade Waste Consents

16 The Consent Holder shall forward copies of all Trade Waste consents that currently allow discharges to the Ruakaka wastewater treatment system to each member of the Liaison Group. In addition, a copy of every new Trade Waste consent application to discharge to the wastewater treatment system reticulation shall be forwarded to the operator of the Bream Bay Aquaculture Park facility and the Manager within two weeks of the Consent Holder receiving a Trade Waste consent application for that connection.

Advice Note: *The Consent Holder intends to consult with the operator of the Bream Bay Aquaculture Park facility and afford them reasonable opportunity to provide comment about the potential effects of allowing any new trade wastes to be disposed of to the Ruakaka Wastewater Treatment Plant and give reasonable weight to those comments when considering any such application.*

Flow Meters

17 The Consent Holder shall ensure that meters with an accuracy of ±5% are installed and maintained at each of the following locations to record wastewater volumes:

(a) The contributing rising main(s) to the Ruakaka wastewater treatment site;

(b) The outlet from the treatment system to the land discharge systems on Zone 3, Rama Road Block and the Roger Hall Memorial Park;

(c) Any other discharge for reuse or discharge as may develop in future.

17A Prior to the commissioning of the new wastewater treatment plant required by Condition 8, the Consent Holder shall ensure that meters with an accuracy of ±5% are installed and maintained at each of the following locations to record wastewater volumes:

(a) The inlets to the contingency storage ponds;

(b) The outlet from the contingency storage ponds to the treatment system;

(c) The outlet from the treatment system to the ocean outfall.

18 Once installed, the Consent Holder shall either recalibrate or, for magnetic flow meters, test the electronics of the meters required by Conditions 17 and 17A at least every five years to ensure that the specified accuracy is maintained. The Consent Holder shall also provide a calibration and verification schedule for the continuous monitoring system required by Condition 79 to the Manager. Written verification from a suitably qualified person that the meters and the continuous monitoring system have been tested or calibrated shall be forwarded to the Manager within one month following the completion of each five yearly check.

Complaints Register

19 The Consent Holder shall maintain and keep a complaints register for all complaints made about the treatment plant and discharge sites relating to these consents, received by the Consent Holder. The register shall record:

(a) The date, time and duration of the event/incident that has resulted in the compliant;

(b) Weather conditions at the time of the event/incident was detected by the complainant;

(c) The location of the complainant when the event/incident was detected;

(d) The possible cause of the event/incident;

(e) Any corrective action taken by the Consent Holder in response to the complainant; and

(f) The register shall be available to the Northland Regional Council at all reasonable times.

20 Details of all complaints received by the Consent Holder that may indicate non-compliance with the conditions of these resource consents shall be forwarded to the Northland Regional Council within five working days of the complaint being received unless an alternative arrangement is agreed upon in writing by the Northland Regional Council.

Monitoring and Review

21 The Consent Holder shall monitor these consents in accordance with **Schedule 1 (attached**).

22 The wastewater treatment system, contingency storage ponds and the rapid infiltration basins on Sec 65 Blk VII Ruakaka SD shall be fenced so that access by unauthorised persons is restricted, and signs shall be placed on the fence advising the use of the area and unauthorised persons not to enter. Such fencing shall meet the requirements of the Department of Labour for the activity being undertaken on site and the signs shall be in accordance with New Zealand Standard 1319:1994, Safety Signs for the Occupational Environment.

23 The Consent Holder shall, for the purposes of adequately monitoring these consents, as required under Section 35 of the Resource Management Act 1991, on becoming aware of any contaminant associated with the Consent Holder's operations escaping otherwise than in conformity with this consent:

(a) Immediately take such action, or execute such work as may be necessary, to stop and/or contain such escape;

(b) Immediately notify the Manager, the operator of the Bream Bay Aquaculture Park Facility and the secretary of the Patuharakeke Trust Board, by telephone of an escape of contaminant;

(c) Take all reasonable steps to remedy or mitigate any adverse effects on the environment resulting from the escape; and

(d) Report to the Manager and the Ruakaka Wastewater Liaison Group in writing within one week on the cause of the escape of the contaminant and the steps taken or being taken to effectively control or prevent such escape.

With regard to telephone notification, during the Northland Regional Council's opening hours, the assigned monitoring officer for these consents should be contacted. If that person cannot be spoken to directly, or it is outside of the Northland Regional Council's opening hours, then the Environmental Hotline should be contacted.

24 The Northland Regional Council may, in accordance with Section 128 of the Act, serve notice on the Consent Holder of its intention to review the conditions of these consents:

(a) Annually during the month of June. The review may be initiated for any one or more of the following purposes:

(i) To deal with any adverse effects on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or

(ii) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

(b) Within a two month period of the date that the Northland Regional Council formally receives the reports or notifications required by Conditions 11, 23, 35, 41, 46, 68, 74, 82

and 90 to take into account any issues raised by these reports/notifications that have are not covered by the conditions of consent; and

(c) At any time for the following purposes:

(i) To provide for compliance with rules relating to minimum standards of water quality or air quality in any regional plan that has been made operative since the commencement of the consent; or

(ii) To provide for compliance with any relevant national environmental standards that have been made; or

(iii) Where there are inaccuracies in the information made available with the application that materially influenced the decision on the application and where the effects of the exercise of consent are such that it is necessary to apply more appropriate conditions.

Patuharakeke Te Iwi Trust Board

25 The Consent Holder shall establish and maintain an on-going liaison role with Patuharakeke Te Iwi Trust Board (PTB). The Consent Holder shall facilitate a meeting with PTB at least twice annually and on other occasions when significant milestones associated with the implementation of the Ruakaka Wastewater Scheme. As part of this liaison process, the Consent Holder shall:

(a) Provide to and discuss with PTB results of the consents compliance annual reporting and associated matters;

(b) Seek input from PTB into the development of the Management Plans associated with the resource consents, as listed in Table 1;

(c) Provide PTB with periodic updates on the on-going development and implementation of the Ruakaka Wastewater Strategy and the Wastewater Scheme;

(d) Provide to and discuss with PTB updates on the progress of reusing treated wastewater from the Ruakaka Wastewater Scheme by the New Zealand Refining Company or any other significant treated wastewater users;

(e) Seek input from PTB on the Consent Holder's periodic reviews undertaken under the Development Technology and Environmental/Monitoring and Review Conditions; and

(f) Consult and seek input from PTB about the development and implementation of those matters included under Condition 31.

Advice Note 1: *The Consent Holder acknowledges that Patuharakeke Te Iwi Trust Board are recognised as the Treaty partner with the Crown and are therefore regarded as having a specific role and function in relation to the effects on the environment that are associated with the Ruakaka Wastewater Scheme.*

Advice Note 2: *The Consent Holder recognises PTB as the on-going point of contact between the Whangarei District Council and the wider iwi interest groups in respect of information relating to the exercise of these consents.*

26 The Consent Holder shall, in conjunction with PTB, develop a cultural monitoring programme for the purposes of assessing the impacts of the discharges to air, water and the coastal marine area authorised by these consents on cultural health. The monitoring programme will include the development of a Coastal Cultural Health Index (CCHI), specifically for Te Poupouwhenua

to assist in the monitoring of any adverse effects linked to the discharge from the ocean outfall. The monitoring programme including its long-term approach shall be informed by matauranga Maori.

The development of the monitoring programme will include, but not be limited to, the following matters:

(a) Water quality effects;

(b) Air quality effects;

(c) Effects on the coastal environment;

(d) Ecological effects – (marine/terrestrial, particularly mahinga kai species) aquatic life/bird life/natural habitat; and

(e) Customary practices such as rahui and tapu to be followed in the event of observed instances of environmental or ecological impacts.

Advice Note 1: *The Consent Holder should, in conjunction with PTB, seek advice from an appropriate research and/or educational organisation that they may work with in the development of a CCHI.*

Advice Note 2: *The details of how Condition 26(e) is to be implemented is a matter to be negotiated between the Consent Holder and PTB.*

Advice Note 3: *The broader monitoring programme is intended to address the concerns raised by iwi throughout consultation on the Ruakaka Wastewater Long-Term Consents Project.*

27 The Consent Holder shall establish a monetary fund to assist PTB with the development of the cultural monitoring programme under Condition 26. The Consent Holder shall make available a sum of $10,000 per annum (excluding GST) for five years. The first payment will be made two years prior to the proposed commissioning of the ocean outfall.

Advice Note: *The first payment is subject to PTB providing details of the proposed monitoring methodology. Alternatively, PTB may elect to commence this monitoring and utilise up to three years funding, at an earlier date to inform the first Development, Technology and Environmental/ Monitoring Review required under Condition 30.*

This fund may be used to assist with the training of cultural monitors and scholarships for tertiary study in environmental management.

28 The Consent Holder shall review the effectiveness of the monetary fund required by Condition 27 within two years following the implementation of the cultural monitoring programme and the annual provision of the results by PTB to the Consent Holder, the Manager and the Liaison Group. The review shall be undertaken with a view to making further funds available having regard to the implementation of the programme and the further needs for its ongoing development and implementation.

Advice Note: *It is anticipated that the cultural monitoring work undertaken by PTB will support general state of the environment reporting of the area.*

29 The Consent Holder shall protect the cultural and heritage landscape in Te Poupouwhenua as far as it relates to the Ruakaka Wastewater Scheme. Such protection shall include, but not be limited to:

(a) Engaging with PTB in the first instance where an archaeological assessment or authority is required pursuant to the Historic Places Act 1993 for invasive investigative assessments or earthworks;

(b) Ensuring construction activities avoid areas of known cultural heritage significance to Patuharakeke i.e. wahi tapu and wahi taonga areas; and

(c) Undertaking, with the agreement of PTB, a constraints mapping exercise that records the location of culturally sensitive sites and places. The protocols for the appropriate use and dissemination of this information shall be included so that culturally sensitive information is protected.

30 The Consent Holder shall, in conjunction with PTB, prepare the following protocol documents to be used in relation to construction activities associated with Ruakaka Wastewater Scheme:

(a) A Koiwi Tangata/Human Remains discovery protocol;

(b) Artefact discovery protocol (ADP);

(c) Tikanga protocols;

(d) Archaeological site identification training for contractors; and

(e) Cultural training for contractors.

31 The Consent Holder shall, in conjunction with PTB, provide for the following activities as far as these have a relationship with the overall Ruakaka Wastewater Scheme:

(a) Recognition of those cultural heritage sites and places in Te Poupouwhenua which are significant to PTB through Wahi Tapu Registrations under the Historic Places Act 1993;

(b) Assistance to PTB with initiating an interpretation programme outlining the significance of Te Poupouwhenua to tangata whenua;

(c) Establishment of memorial pou/kohatu/plaques to commemorate the significance of Te Poupouwhenua to tangata whenua; and

(d) Provision of opportunities to conduct rituals and ceremonies associated with new buildings and activities associated with the Ruakaka Wastewater Scheme.

Development, Technology and Environmental/Monitoring Review

32 The Consent Holder shall submit to the Manager, a Development, Technology and Environmental/Monitoring Review Report not later than 30 September 2015 and thereafter at six yearly intervals, for the duration of the consents, and also six months prior to the construction commencement of major infrastructural components of the Ruakaka Wastewater Scheme being the modular construction and extension of the new wastewater treatment plant and the construction of the offshore ocean outfall. The Review Report shall be made available to all members of the Ruakaka Wastewater Liaison Group within one month of it being submitted to the Northland Regional Council. The scope of the Review shall address as a minimum the following:

(a) The rate and extent of land use development and associated domestic and business wastewater flows (volumes) and key contaminant loads over the period since either lodgement of the AEE (May 2011) or the previous review, and the future projections at that review time through to the end of the most distant expiry date of the consents;

(b) An update on the on-going development and implementation of the Ruakaka Wastewater Strategy and the Wastewater Scheme. This update shall be based on the further development of Figure 4.1 'Development of the Ruakaka 'Wastewater Strategy' and 'Proposed Scheme' (**Attachment 2**) and shall include the relevant activities as set out in Figure 4.2 'Ruakaka Wastewater Strategy and Scheme Implementation – Activities to be Undertaken Within the Duration of Consents' (**Attachment 3**);

(c) Assessment of the need, justification and cost effectiveness for major components of future upgrades of the Ruakaka Wastewater Scheme including the modular construction and extensions of the wastewater treatment plant and construction of the ocean outfall;

(d) Ongoing compliance with the requirements of these resource consents and any reported non-compliance with consent conditions;

(e) An assessment of compliance/consistency with any relevant national, or regional water quality policies, standards or guidelines in effect at the time;

(f) A summary of any major upgrades made to the wastewater reticulation, treatment or discharge system since the commencement of consent that are likely to have an effect on the exercise of the consents;

(g) A summary of current technological knowledge in relation to wastewater management, treatment, disposal and beneficial re-use technologies that are relevant to the Ruakaka Wastewater Scheme;

(h) Information relating to the use, development and success of alternative wastewater disposal/discharge techniques in New Zealand, in particular land based discharge, and the relevance and possible adoption of these techniques as part of the Ruakaka Wastewater Strategy and Scheme;

(i) A summary of known advancements in the knowledge regarding the presence, monitoring, treatment and environmental effects of contaminants of emerging concern that are relevant to the Ruakaka Wastewater Scheme; and

(j) The applicability of the shortlisted reuse options included in Table 5.1 of the Report titled "Whangarei District Council Ruakaka Wastewater Stage 2 Study, Task 2B Part 2: Review and Development of Stage 1 Options, Investigate Options for Reuse of Treated Wastewater, December 2007, (Support Document 10 of the Assessment Effects on the Environment and Resource Consent Applications, Application Edition May 2011)", along with any new reuse options that may be practicable and have been identified by the Ruakaka Wastewater Liaison Group and/or PTB.

33 In addition to complying with Condition 32(j), the Consent Holder shall continuously evaluate opportunities for reuse and recycling of treated wastewater, and shall implement these opportunities if they are reasonably practicable and affordable in the opinion of the Consent Holder.

(01) Discharge to Land –Wastewater Ponds

34 In addition to the requirements of Condition 13, the Consent Holder shall submit to the Manager for approval the design details for retrofitting the existing oxidation ponds to serve as contingency storage ponds. These design details shall include express provision for preventing the accumulation of rainwater within the contingency storage ponds so that the

maximum storage volume is kept available for contingency use and how the wastewater will be treated to achieve the requirements of Condition 9A.

35 The Consent Holder shall notify the Northland Regional Council by telephone on each occasion that the contingency storage ponds are being used. This notification shall be made as soon as practical after commencement of the use of the contingency storage ponds, but shall not be greater than one working day. During the Northland Regional Council's opening hours, the assigned monitoring officer for this consent should be contacted. If that person cannot be spoken to directly, or it is outside of the Northland Regional Council's opening hours, then the Pollution Hotline should be contacted. Notification is not required if the contingency storage ponds are being utilised for sludge storage.

36 The following information shall be submitted to the Manager in writing no later than seven working days after the cessation of each use of the contingency storage ponds, as notified in accordance with Condition 35:

(a) Reasons for the contingency storage pond use;

(b) Duration of use;

(c) Approximate wastewater volume stored;

(d) If storage was the result of a rainfall event, details of the event and an assessment of whether storage capacity needs to be increased to cope with a similar or greater rainfall event;

(e) If appropriate, means to eliminate or reduce future use of the contingency storage ponds for a similar purpose; and

(f) Any other relevant information.

37 To ensure that the discharge from the treatment plant is meeting Condition 9A as a result of the use of the contingency storage ponds during off-specification incidents and extreme wet weather events, the Consent Holder shall assess the results of the sampling required under the "Continuous" column of Table S.1 in Schedule 1 (**attached**) to ascertain whether or not the Condition 9A determinand limits are being complied with. That assessment shall be forwarded to the Manager upon request.

Advice Note: *The determinands in Condition 9A are not monitored on a continuous basis. They are monitored once every six days. However, some of the determinands that are monitored continuously can be used to verify compliance with Condition 9A when the contingency storage ponds are discharging. For example, turbidity can be used to ascertain compliance with suspended solids limits.*

(02) Discharge to Land – Zone 3

38 The rate of wastewater discharged to land on Sec 65 Blk VII Ruakaka SD ("Zone 3") shall not exceed a daily average of 660 cubic metres. The average daily volume shall be calculated for the period between 1 April and 31 March of the following year.

39 The rate of discharge authorised by Condition 38 may include up to 230 cubic metres per day of reject water from a Reverse Osmosis Treatment Plant or similar treatment unit provided that the reject water is first diluted with treated wastewater at a ratio of at least two parts treated wastewater to one part reject water.

40 There shall be no ponding of wastewater within the land disposal area as a result of the exercise of this consent.

41 If monitoring results show that the exercise of consents (01) and (02) result in the exceedance of any the following determinand concentrations, as measured in the identified monitoring bores shown on NRC Plan 4885 (**Attachment 4**) then the Consent Holder shall forward to the Manager and the Liaison Group, a report that assesses the environmental effects of the exercise of this consent on the water quality of Ruakaka Beach and the Ruakaka River. The report shall identify any actions required to correct any exceedance and identify trends that are evident in the monitoring results and discuss the possible reasons for any exceedance in the concentrations specified.

Seaward Bores from Disposal Area	
Determinand	**Median Concentration**
Faecal Coliforms (Most probable number test)	35 per 100 millilitres
Total Ammoniacal Nitrogen	20 milligrams per Litre
Inland Bores from Disposal Area	
Determinand	**Median Concentration**
Faecal Coliforms (Most probable number test)	50 per 100 millilitres
Total Ammoniacal Nitrogen	2 milligrams per Litre
Nitrate + Nitrite	3 milligrams per Litre
Dissolved Reactive Phosphorus	0.6 milligrams per Litre

The median shall be a "rolling" median calculated using the five most recent sample event results.

42 The consent holder shall undertake the upgrades set out in (a) and (b) below unless condition 43 applies:

(a) Prior to the 31 October 2019, the consent holder shall reconfigure the existing oxidation ponds in order that they operate in parallel, in general accordance with Section 9.3.1 of the report entitled 'Ruakaka WWTP Treatment System Review Report', prepared by MWH Limited and dated July 2016, (**Attachment 9**).

(b) Prior to the average dry weather flows entering the wastewater treatment plant exceeding 1,650 cubic metres per day, the consent holder shall install additional aeration into the oxidation ponds in general accordance with Section 9.3.2 of the report entitled 'Ruakaka WWTP Treatment System Review Report', prepared by MWH Limited and dated July 2016 (**Attachment 10**).

43 The specific upgrade requirements set down in conditions 42(a) or 42(b) do not apply should the following requirement be met for each condition:

(a) The consent holder provides a report to the Manager prepared by a suitably qualified and experienced wastewater engineer that:

ii. identifies the treatment capacity of the oxidation pond system;

iii. identifies upgrade options to increase the treatment capacity;

(b) The consent holder confirms in writing to the Manager the intended upgrade option;

(c) That option is approved in writing by the Manager; and

(d) The upgrade is completed in general accordance with the option approved by the Manager within those timeframes or trigger points specified in conditions 42(a) or 42(b).

44 Notwithstanding any other conditions, the exercise of consents (01) and (02) shall not cause more than minor adverse effects on the following:

(a) Water quality in the coastal marine area;

(b) Edible shellfish quality;

(c) The stability of the foredunes of Ruakaka Beach;

(d) Surface water quality draining to, and including, the Ruakaka River; and

(e) Groundwater levels beneath adjacent properties not covered by this consent.

(03) Discharge to Air – Wastewater Treatment Plant

45 The Consent Holder's operation shall not give rise to any discharge of contaminants at or beyond the boundary of Sec 65 Blk VII Ruakaka SD which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, a more than minor adverse effect on the environment.

46 The Consent Holder shall notify the Northland Regional Council by telephone of any incident, including mechanical or power failures, leading to significant emission of odour from the treatment plant or land disposal area, as soon as practical after becoming aware of the incident, but shall not be greater than one working day. During the Northland Regional Council's opening hours, the assigned monitoring officer for this consent should be contacted. If that person cannot be spoken to directly, or it is outside of the Northland Regional Council's opening hours, then the Environmental Hotline should be contacted.

47 A written report shall be forwarded to the Manager within seven working days of an incident notified in accordance with Condition 46 providing details of:

(a) The incident;

(b) The reasons for it occurring;

(c) Any complaints received;

(d) Measures taken to avoid, remedy or mitigate its effects; and

(e) Measures (if any) undertaken to prevent a reoccurrence of the event.

48 In the event of non-compliance with Condition 45, the Consent Holder shall commission a suitably qualified and independent expert who has been approved by the Manager to undertake an investigation into the source of the odour or airborne contaminants. This person shall provide a written report to the Manager on the outcome of the investigation which shall include recommendations to remedy and/or mitigate the effects so that Condition 45 is complied with. The Consent Holder shall implement those recommendations as soon as it is practicable.

49 All odour control equipment shall be designed by an appropriately experienced wastewater treatment specialist and maintained and monitored in accordance with standard industry practice. Evidence of maintenance and monitoring shall be recorded and provided immediately to the Manager upon written request by that manager.

(04) Discharge to Land – Roger Hall Memorial Park

50 The discharge of treated wastewater shall occur by subsurface irrigation on up to 5.95 hectares of land on Lot 1 DP 396871, as shown in Figure 10-1 of the "*Whangarei District Council Ruakaka Wastewater Long-Term Consents Project Assessment of Effects on the Environmental and Resource Consent Applications, Application Version May 2011*" (**Attachment 5**).

51 No discharge shall occur within 15 metres of the property boundary of Lot 1 DP 396871.

52 The Consent Holder shall, prior to exercising this consent, install signs at regular intervals around the perimeter of the Roger Hall Memorial Park site that advise of the use of the area for subsurface application of treated wastewater. Written confirmation of the signage wording, size and placement shall be provided to the Manager within three months of commencement of these consents.

53 The rate of discharge shall not exceed 260 cubic metres per day during the period from October to March, inclusive, and 123 cubic metres per day during the period from April to September inclusive.

54 The discharge of treated wastewater to the irrigation area shall:

(a) Be evenly distributed to the entire area being utilised for irrigation;

(b) Only be to areas that are in soil moisture deficit;

(c) Not increase soil moisture levels above field capacity.

(05) Discharge to Land – Rama Road Block

55 The discharge to Lot 4 DP 419151, as shown in Figure 11-1 of the "Whangarei District Council Ruakaka Wastewater Long-Term Consents Project Assessment of Effects on the Environmental and Resource Consent Applications, Application Version May 2011" (**Attachment 6**), shall be via a low or medium pressure spray irrigation system and a perforated pipe or similar low pressure surface irrigation system.

56 No spray irrigation shall be undertaken:

(a) Within 30 metres of the property boundary for wastewater treated by the pond and wetland system prior to the operation of the new wastewater treatment plant:

(b) Within 20 metres of the property boundary when the treated wastewater quality meets the standards required by Condition 9A of these consents; and

(c) Within 15 metres of any surface water on the property.

57 The average daily discharge volume shall not exceed 1,700 cubic metres during the period from 1 October to 31 March inclusive or 1,030 cubic metres during the period from 1 April to 30 September inclusive. The daily average discharge volume shall be calculated in accordance with Schedule 1 (**attached**).

58 The rate of discharge authorised by Condition 57 may include reject water from a Reverse Osmosis Treatment Plant or similar treatment unit provided that:

(a) The reject water is first diluted with treated wastewater at a ratio of at least two parts treated wastewater to one part reject water; and

(b) The resultant mixture is not to be irrigated on any areas of sand kanuka or freshwater wetlands.

59 In addition to the requirements of Condition 9A, the treated wastewater discharged to Lot 4 DP 419151 shall not exceed the following standards:

Determinand	Concentration
Sodium	460 milligrams per litre
Chloride	700 milligrams per litre
Fluoride	2 milligrams per litre
Boron	4 milligrams per litre
Sodium Absorption Ratio	20
ECse	3 decisiemens per metre

60 To enable the collection of samples for testing compliance with Condition 59, the Consent Holder shall provide and maintain easy and safe access to the outlet point of the facility used to blend reject water with treated wastewater.

61 Not less than three months prior to commencement of installation of the discharge system on the site, the Consent Holder shall prepare and submit a detailed plan of the following to the Manager for approval:

(a) The location of at least three new groundwater monitoring bores seaward of the Rama Road Block; and

(b) The location of surface water quality monitoring sites including within any interceptor drain(s).

62 If the monitoring results from the groundwater bores show that the exercise of consent (05) results in the exceedances of the specified median concentration for the following determinands, the Consent Holder shall forward to the Manager a report that assesses the environmental effects of the discharge on the water quality of Ruakaka Beach. The report shall identify any actions required to address any adverse effects.

Seaward Bores from Disposal Area	
Determinand	**Median Concentration**
Faecal Coliforms	35 per 100 millilitres
Total Ammoniacal Nitrogen	20 milligrams per Litre

The median shall be a "rolling" median calculated using the five most recent sample event results.

63 Notwithstanding any other conditions, the exercise of this consent shall not cause more than minor adverse effects on the following:

(a) Water quality within the Bercich Drain;

(b) Edible shellfish quality in the vicinity of the Bercich Drain outfall; and

(c) The stability of the foredunes of Ruakaka Beach.

Advice Note: *There are a number of other discharges (diffuse and point source) into Bercich Drain and any drain monitoring related to this consent should consider the ability to distinguish effects of this activity.*

64 The Consent Holder shall, prior to exercising this consent, install signs at regular intervals around the perimeter of the Rama Road Block that advise of the use of the area and warn unauthorised persons not to enter. The signs shall be in accordance with New Zealand Standard 1319:1994, Safety Signs for the Occupational Environment. Written confirmation of the signage wording, size and placement shall be provided to the Manager within three months of commencement of these consents.

65 The exercise of this consent shall not result in more than minor foliar damage to, or die-off of, sand kanuka or other native plant species within the irrigated area. For compliance purposes, a suitably qualified and experienced person shall undertake a baseline study of the type and location of the different vegetation species on Lot 4 DP 419151. A written report by this person shall be forwarded to the Manager not less than three months prior to commencement of installation of the wastewater discharge system on the site. The vegetation study shall then be repeated at five yearly intervals until use of the Rama Road Block for wastewater discharge ceases.

(06) Discharge to Air – Rama Road Block

66 The Consent Holder's operation shall not give rise to any discharge of contaminants at or beyond the boundary of Lot 4 DP 419151 which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, a more than minor adverse effect on the environment.

67 There is no detectable spray drift beyond the boundaries of the property. In addition, there shall be no discharge of wastewater when the wind speed exceeds 12 metres per second for more than 10 minutes.

Advice Note: *It is expected that the Consent Holder will establish and utilise a meteorological station at or close to the main wastewater treatment plant to demonstrate compliance with this condition.*

68 The Consent Holder shall notify the Northland Regional Council by telephone of any incident, including mechanical or power failures, leading to significant emission of odour from the discharge operation, as soon as practical after becoming aware of the incident, but shall not be greater than one working day. During the Northland Regional Council's opening hours, the assigned monitoring officer for this consent should be contacted. If that person cannot be spoken to directly, or it is outside of the Northland Regional Council's opening hours, then the Environmental Hotline should be contacted.

69 A written report shall be forwarded to the Manager within seven working days of an incident notified in accordance with Condition 68 providing details of:

(a) The incident;

(b) The reasons for it occurring;

(c) Any complaints received;

(d) Measures taken to avoid, remedy or mitigate its effects; and

(e) Measures (if any) undertaken to prevent a reoccurrence of the event.

70 In the event of non-compliance with Conditions 66 or 67, the Consent Holder shall commission a suitably qualified and independent expert who has been approved by the Manager to

undertake an investigation into the source of the odour or airborne contaminants. This person shall provide a written report to the Manager on the outcome of the investigation which shall include recommendations to remedy and/or mitigate the effects so that Conditions 66 and 67 are complied with. The Consent Holder shall implement those recommendations as soon as it is practicable.

(07) Treated Wastewater Discharge to the Coastal Marine Area

71 This consent can only be exercised for the first time once the daily volume of wastewater required to be discharged exceeds 80% of the combined average daily volume authorised to be discharged to land under Consents (02) and (05).

72 The treated wastewater discharge to Bream Bay shall not exceed an average dry weather flow rate of 185 litres per second (which equates to 16,000 cubic metres per day) or a maximum wet weather flow rate of 740 litres per second. Compliance with this condition shall be determined in accordance with Schedule 1 (**attached**).

73 The treated wastewater discharge into Bream Bay shall only occur through an ocean outfall pipeline that is located in accordance with Consents (08) and (09) and terminates in a multiport discharge diffuser that is approximately 62 metres long, with 32 ports spaced at two metre intervals.

74 Not less than three months prior to commencement of installation of the ocean outfall pipeline, the Consent Holder shall submit a final design for the multiport discharge diffuser to the Manager for approval. If this final design is significantly different from that required by Condition 73, then sufficient technical detail shall be provided to demonstrate the design will achieve a minimum dilution ratio of 288 to 1 (±15%) at the edge of the mixing zone for a discharge flow rate of 244 litres per second (or equivalent). For the purposes of this consent, the edge of the mixing zone shall be 100 metres from any part of the multi-port diffuser and the design dilution rates apply to dry weather flows.

If the final design is significantly different than that required by Condition 733 and is approved by the Manager, then the design approved in accordance with this condition shall prevail.

Advice Note: *This minimum dilution ratio was the worst case scenario modelled by DHI for average dry weather conditions and is the basis for the assessment of effects for the coastal discharge.*

75 The Consent Holder shall, within the first six months of the commissioning of the ocean outfall, undertake a near-field mixing study at neap tide during the period when the daily treated wastewater flow is at its maximum to confirm the level of initial dilution of the discharged treated wastewater. The study shall include the following:

(a) Calculation of the mixing achieved at the edge of the 100 metre mixing zone using an approved dye dispersion methodology. An alternative method of dilution calculation, that also allows the plume to be detected at the edge of the mixing zone for sampling purposes, may be used with the approval of the Regional Council's Monitoring Manager; and

(b) Measurement of water quality characteristics within the discharge plume, during the dilution study required under (a), at the edge of the 100 metre mixing zone including:

(i) In situ temperature, pH, salinity and dissolved oxygen; and

(ii) Collection of three grab samples at least three minutes apart to be analysed for faecal coliforms, total ammoniacal nitrogen, total nitrogen, nitrite/nitrate nitrogen, total phosphorus and dissolved reactive phosphorus.

(c) Table 3.3 "Predicted CORMIX Dilutions at the Edge of the 100 metre Mixing Zone" (**Attachment 7)** and Section 1.4 both of the DHI report entitled "Bream Bay Dilution and Dispersion Study – Final Report May 2010" shall be used to assist in the preparation of this study.

A written report on the results of this study shall be provided to the Manager and the Liaison Group within one month of the study being completed.

Advice Note: *For the purposes of this condition, the expected minimum dilution at the edge of the 100 metre mixing zone is 437:1 (514:1 less an allowance for 15% modelling accuracy, based on the DHI report entitled "Bream Bay Dilution and Dispersion Study – Final Report May 2010") at a flow of 70 L/s (or equivalent).*

76 If the results of the near-field mixing study required under Condition 75 indicate that the level of initial dilution of the treated wastewater, as measured at the edge of the mixing zone, is less than 437:1 (being 514:1 less 15%) and the Consent Holder wishes to retain the diffuser structure, then the Consent Holder shall, within three months of the results of the study being known, prepare and submit a report to the Manager and the Liaison Group examining the likely effects of the reduced dilution on the coastal water and ecological quality of Bream Bay and associated flow-on effects for other users of the Bay.

Advice Note: *If the proposed alteration to the diffuser may result in adverse effects that are greater than those authorised by this consent, or the change is outside the scope of what was applied for, then either a change to the conditions of this consent under Section 127 of the Resource Management Act, or a new consent would need to be obtained.*

77 The discharge of treated wastewater authorised by this consent shall not cause any of the following effects outside of the mixing zone defined under Condition 75:

(a) The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

(b) Any conspicuous changes in colour or visual clarity; or

(c) Any significant adverse effects on aquatic life.

78 All monitoring methods, procedures and analyses required under Schedule 1 (**attached**) in relation to this consent shall be commenced at least 12 months prior to treated wastewater being first discharged to the coastal marine area via the ocean outfall in accordance with this consent. The purpose of this initial treated wastewater monitoring and analysis shall be to:

(a) Generally establish baseline treated wastewater characteristics in relation to all those determinands specified in Table S1 of Schedule 1;

(b) Compare actual levels of selected determinands against the trigger values specified in Table S1 of Schedule 1 in order to provide an early assessment of the level of risk associated with the discharge of those determinands, if present, to the coastal marine area; and

(c) Derive upper limit values (and for pH, also a lower limit value) for parameters to be used in continuous instrument monitoring under Condition 79(a).

79 During the operation of the Bream Bay Aquaculture Park research facility, the Consent Holder shall:

(a) Install and maintain devices to continuously monitor the following contaminants or their surrogates. The measurement interval and surrogates used shall be agreed between the Consent Holder and the Manager:

(i) temperature

(ii) pH

(iii) electrical conductivity

(iv) turbidity

(v) biochemical oxygen demand

(vi) ammoniacal nitrogen

(vii) nitrate nitrogen

(viii) faecal coliform bacteria

(b) In conjunction with the continuous monitoring described in (a), establish a "real time" information system to alert the operator of the Bream Bay Aquaculture Park research facility and PTB to any exceedances of the upper and lower limit values developed under Condition 78(c).

(c) Monitor treated wastewater quality against the trigger values set out in Table S1 in Schedule 1 (**attached)**.

80 In the event of any exceedance of the trigger values set out in Table S1, the Consent Holder shall undertake the following actions:

(a) Immediately notify the operator of the Bream Bay Aquaculture Park research facility and PTB of the exceedance;

(b) Immediately implement the plant operational checks and procedures required by the approved Treatment Plant Operations and Maintenance Management Plan;

(c) If, following the operational checks and procedures, the wastewater treatment plant is confirmed to be performing to normal specifications, within one week of (a) re-sample and analyse for the trigger value parameter(s) exceeded; and

(d) If a second exceedance occurs, undertake a Toxicity Identification Evaluation (TIE) to examine the cause of the exceedance.

81 A report on the results of the Toxicity Identification Evaluation (TIE), the wastewater flows and likely dilutions at the edge of the mixing zone and at the Bream Bay Aquaculture Park intake at the time when the triggers values were exceeded shall be forwarded to the Manager, the operator of the Bream Bay Aquaculture Park research facility and PTB within 30 days of the TIE results being obtained by the Consent Holder.

82 The Consent Holder shall thereafter, but within 10 working days of the provision of the report under Condition 81, discuss with the operator of the Bream Bay Aquaculture Park research facility how any adverse effect on the Bream Bay Aquaculture Park resulting from further exceedances of the trigger values can reasonably be avoided, including the practicality of

providing additional treatment for the Bream Bay Aquaculture Park intake and the reasonable apportionment of the costs of any such treatment as between the Consent Holder and the operator of the Bream Bay Aquaculture Park research facility. The Consent Holder shall report to the Manager regarding the outcome of the discussions and the timeframe within which any additional treatment (if required) is to be provided at either the wastewater treatment plant or the Bream Bay Aquaculture Park research facility.

Advice Note: *The expe*ctation, based on the evidence provided to the Hearing in 2011, is t*hat the Consent Holder and the operator of the Bream Bay Aquaculture Park research facility will agree on the type of any additional treatment if required and that the Consent Holder will contribute to those costs, with the majority of them being met by the operator of the Bream Bay Aquaculture Park research facility.*

83 At least three months prior to the commencement of any physical works within the Coastal Marine Area, and during the summer months (November to March) the Consent Holder shall undertake a survey of the benthic biota and sediment quality in the vicinity of the outfall that is comparable with the study undertaken by Golder Associates entitled "Bream Bay Environmental Assessment: Bream Outfall Benthic Survey and Assessment. July 2010". A report on the results of this survey shall be forwarded to the Manager prior to the construction of the outfall commencing. This survey shall then be repeated every five years after commencement of the discharge through the ocean outfall. The results of the studies shall be made publicly available by the Consent Holder.

(08) Coastal Outfall Structure and Associated Deposition of Marine Sediments on and Disturbance of Foreshore and Seabed

84 The ocean outfall structure shall be located in general accordance with Figure 4.7 of the Assessment of Effects on the Environment and Resource Consent Applications Application Edition May 2011, entitled "Ocean Outfall Location", MWH dated 20/04/2011, Reference number Z1583510, Revision C (**Attachment 8**).

85 The midpoint of the diffuser section of the outfall terminal structure shall terminate within a radius of 30 metres of location co-ordinates 1736025E 6028848N.

86 The location of the outfall terminal structure shall be clearly marked at all times by a buoy(s) that complies with navigation safety regulations.

Advice Note: *The Consent Holder will need to contact the Regional Harbourmaster for Northland for advice before it proceeds to give effect to this condition.*

87 The erection or placement of structures shall be limited to a pipeline to convey treated wastewater, an outfall diffuser and any temporary structures associated with the construction, repair and maintenance of the outfall structure.

88 During installation of the outfall structure, the Consent Holder shall provide monthly reporting to the Manager, on details of the monitoring undertaken to demonstrate the activities are in accordance with the Outfall Construction Management Plan.

89 The disturbance of the foreshore and seabed and associated deposition of marine sediments shall be limited in area to within 25 metres of the centreline of the pipeline route and limited in volume to that necessary for the construction of the outfall structure as defined in the Outfall Construction Management Plan.

90 The Consent Holder shall contact the Regional Harbourmaster, at least one month in advance of any construction in the coastal marine area, to initiate the issue of a Notice to Mariners regarding any necessary navigation warning arising from construction activities.

91 The Consent Holder shall notify the Manager, a representative of Mighty River Power and the operator of Bream Bay Aquaculture Park in writing of the date construction is intended to commence on the outfall structure, at least two weeks beforehand, on each occasion. The Consent Holder shall arrange a site meeting between the principal contractor and the assigned Northland Regional Council monitoring officer at least five days prior to commencement of construction.

92 The Consent Holder shall publicly advertise the timing of construction activity associated with the construction of the outfall structure that is to take place in the coastal marine area in a local newspaper at least one week beforehand.

93 On completion of the construction activity, all disturbed areas of the foreshore and seabed shall be returned to a state generally consistent with the surrounding seabed and foreshore.

94 All practicable measures shall be undertaken to ensure that construction activities or the completed outfall structure does not exacerbate coastal erosion.

95 In the event of coastal erosion occurring as a direct result of the works, the Consent Holder shall, in consultation with the Manager, undertake all practicable measures to remedy any damages caused and minimise the potential for future erosion.

96 In the event of the detection of any system or mechanical failure of the pipeline, whether during construction, maintenance or operation of the outfall structure, the Manager shall be notified within 24 hours and provided with details of:

(a) The nature of the failure; and

(b) Any remedial works proposed to be carried out in response to the failure.

97 The Consent Holder shall provide to the Manager every five years a report prepared by a suitably qualified and experienced person(s) to demonstrate that the outfall structure is:

(a) In sound condition and that there are no significant losses of wastewater occurring from the pipeline;

(b) The crown of the pipeline, other than any part of the outfall terminal structure that is designed to be above seabed level, is not exposed above the seabed; and

(c) The diffuser ports are in good operating condition.

98 In the event that the Consent Holder becomes aware that the pipeline is exposed, either as a result of an inspection carried out or at any other time, the Manager shall be notified immediately and provided with a report within ten working days providing an assessment of environmental effects resulting from the exposure together with any proposed remediation or risk management action to be undertaken.

99 The Consent Holder shall keep the coastal marine area free of debris resulting from the Consent Holder's activities.

100 Appropriate navigation signals shall be shown on vessels used in construction activities.

101 The Consent Holder shall, immediately upon completion of the installation of all works associated with the outfall structure, notify in writing:

Nautical Information Advisor
Land Information New Zealand
Private Box 5501
Wellington 6140

Maritime Safety Authority
P O Box 25620
Wellington 6140

Whangarei District Council
Private Bag 9023
Whangarei Mail Centre
Whangarei 0148

Northland Regional Council
Private Bag 9021
Whangarei Mail Centre
Whangarei 0148

The Consent Holder shall include a scale plan of the completed works with the notification.

102 The Consent Holder shall forward copies of the results of all testing undertaken as part of the monthly report required by Conditions 88 of this consent to the Northland Regional Council within one month of the test date.

(09) Occupation and Use of Coastal Space by the Offshore Outfall Pipelines

103 The occupation of the Coastal Marine Area of the Bream Bay shall be limited to the physical space of:

(a) The pipeline and outfall diffuser to convey treated wastewater; and,

(b) The temporary structures associated with the construction of the outfall structure.

104 The use of the ocean outfall structure shall be limited to the discharge of treated wastewater from the Ruakaka Wastewater Treatment Plant.

105 The Consent Holder may from time to time temporarily exclude the public from the area of construction, maintenance and operation for safety and security reasons during construction, maintenance and operation of the outfall structure. The area referred to in this condition shall be the minimum area required to provide for the necessary public safety or security. In all cases where this condition is applied, the Consent Holder shall immediately contact the Manager to advise of the detail of the exclusion.

Advice Note: *For the avoidance of doubt, this condition does not provide for any exclusive occupation of the coastal marine area. The Consent Holder may apply for consent for exclusive occupation of an area once its construction method has been established, upon which any need for exclusion of others may be known.*

106 Prior to the expiry, cancellation, or lapsing of this consent the Consent Holder shall remove all structures (other than reclamations) and other materials and refuse associated with this consent from the consent area and shall restore the consent area to the satisfaction of the Manager, unless an application for a replacement consent has been properly made beforehand.

	EXPIRY DATE	EXTENDED LAPSE PERIOD
AUT.021532.01.02	**31 MAY 2046**	**10 YEARS**
AUT.021532.02.02	**31 MAY 2046**	
AUT.021532.03.01	**31 MAY 2046**	
AUT.021532.04.01	**31 MAY 2046**	**10 YEARS**
AUT.021532.05.02	**31 MAY 2031**	**10 YEARS**
AUT.021532.06.01	**31 MAY 2031**	**10 YEARS**
AUT.021532.07.01	**31 MAY 2046**	**15 YEARS**
AUT.021532.08.01	**31 MAY 2046**	**15 YEARS**
AUT.021532.09.01	**31 MAY 2046**	**15 YEARS**

Advice Note: *An application can be made to the Northland Regional Council to extend the period after which the consent lapses pursuant to section 125(1) of the Resource Management Act. Such an application must be made before the consent lapses.*

These consents were granted on 14 June 2019 under delegated authority from the council by Stuart Savill, Consents Manager. The commencement date for consent 02 is 11 July 2019. The commencement date for consents 01 and 03 to 09 is 16 March 2012.

SCHEDULE 1

MONITORING PROGRAMME

The Consent Holder shall undertake the following monitoring:

1. WASTEWATER TREATMENT SYSTEM

1.1 Inflow Volume

A record of the total daily wastewater inflow volume, midday to midday, to the treatment system shall be kept. The average daily inflow volume shall be calculated using the recorded wastewater inflow volumes for the period between 1 April and 31 March each year.

The Northland Regional Council's closest rainfall recorder site – presently being NRC 548215 (Marsden Point) – shall be used as the daily rainfall recorder for these consents to determine wet weather flow events, unless the Consent Holder installs an approved weather station on the treatment site.

For each rain event, the following records shall be kept:

(a) Date(s), duration and intensity of the event;

(b) The duration of any observable increase in the daily wastewater inflow and discharge volumes as a result of the rain event, and

(c) The estimated increase in daily wastewater inflow and discharge volume as a result the rain event.

Advice Note: *The Northland Regional Council will forward a copy of the rainfall records from this recorder site to the Consent Holder on written request.*

2. Discharge Volume

With the exception of wastewater discharged to Zone 3, the Consent Holder shall keep a written record of the daily volume of wastewater discharged, midday to midday, from the outlet of the treatment system to each of the land discharge areas, any reuse system or the ocean outfall using the meters required to be installed and maintained under Condition 17 and 17A.

Wastewater discharged to Zone 3 shall be estimated by subtracting the combined daily discharge volume to all other areas from the total daily inflow volume to the treatment system.

2.1 Daily Average Flow

The daily average discharge volume shall be calculated using the total recorded wastewater volumes for the period specified in the relevant condition and divided by the number of days within that period.

2.2 Average Dry Weather Flow

The average dry weather inflow shall be a "rolling" (moving) average based on the inflow volumes from the 30 most recent "dry weather flow" days.

For the purposes of this calculation, a "dry weather flow" day is any day on which there is less than 1 millimetre of rainfall and that day occurs after three consecutive days either without rainfall or with rainfall of less than 1 millimetre.

2.3 Maximum Wet Weather Flow

For the purposes of Condition 722 of this consent, the maximum wet weather flow shall be the maximum flow recorded on any day that is not a dry weather day as defined in Section 1.2.2 above.

3. Treated Wastewater Quality

3.1 Oxidation Ponds and Wetland

The Consent Holder shall, take a composite* sample of the treated wastewater from:

(a) The oxidation pond outlet(s) to the marsh system; and

The following NRC Sampling Sites, where discharges are occurring, as shown on NRC Plan 4885 (**attached**):

(b) Site 100779: Number 1 Marsh outlet – far

(c) Site 100780: Number 1 Marsh outlet – near

(d) Site 100782: Number 2 Marsh outlet – near

(e) Site 100783: Number 2 Marsh outlet – far

The composite* sample shall be analysed for the following:

(a) Faecal coliforms

(b) Carbonaceous biochemical oxygen demand

(c) Total ammoniacal nitrogen

(d) Total Nitrogen

(e) Total Phosphorous

(f) Suspended Solids

Temperature, pH and dissolved oxygen concentration shall be recorded in the wastewater sample using an appropriate meter, and in accordance with standard procedures.

The frequency of sampling shall be as follows:

(i) quarterly in the months of January, April, July and October; or

(ii) on a monthly basis for a period of five consecutive months following any sampling result from a marsh outlet discharge point exceeding a BOD_5 of 60 mg/L.

**A sample made up of equal volumes from three samples taken at least one minute apart during the same sampling event.*

3.2 New Treatment Plant Wastewater

The Consent Holder shall take samples of treated wastewater from the outlet of the wastewater treatment plant in accordance with Table S1 and analyse these for the determinands, and to the detection limits, and at the frequency specified.

TABLE S1: Treated wastewater sampling frequency, sample type, detection limit and trigger value specifications

Determinand	Monitoring Frequency					Sample Type	Units	Detection limit	Treated wastewater trigger values (composite samples)	Notes A
	Continuous beginning 12 months before first operation of outfall	**1 sample in each 6 day period**	**Monthly**	**Quarterly**	**Additional Quarterly** for 12 months before and 12 months after first operation of outfall; **Annually** thereafter subject to conditions - see (h)					
Temperature	**P**					continuous	^oC	0.1	-	B
pH	**P**					continuous	pH	0.1	-	B
Electrical conductivity	**P**					continuous	mSm	0.1	-	B
Turbidity	**P**					continuous	NTU	0.1	-	B
UV dose	**P**					continuous	mWs/cm^2	1	-	B
$cBOD_5$		**P**				composite	mg/L	1	refer Condition 9A	
COD	**P**					continuous	mg/L	1		
Suspended solids		**P**				composite	mg/L	1	refer Condition 9A	
Faecal coliform		**P**				grab	cfu/100 ml	1	refer Condition 9A	
Enterococci			**P**			grab	cfu/100 ml	1		
Total Nitrogen		**P**				composite	mg/L	0.1	refer Condition 9A	
Ammonia-Nitrogen	**P**		**P**			continuous/ composite	mg/L	0.1	79	B
Nitrate-Nitrogen	**P**		**P**			continuous/ composite	mg/L	0.1	87	B
Nitrite-Nitrogen			**P**			composite	mg/L	0.1	5.1	
Total Phosphorus			**P**			composite	mg/L	0.1	-	
Dissolved Reactive Phosphorus			**P**			composite	mg/L	0.1	-	

Determinand	Monitoring Frequency					Sample Type	Units	Detection limit	Treated wastewater trigger values (composite samples)	Notes A
	Continuous beginning 12 months before first operation of outfall	**1 sample in each 6 day period**	**Monthly**	**Quarterly**	**Additional Quarterly** for 12 months before and 12 months after first operation of outfall; **Annually** thereafter subject to conditions - see (h)					
Arsenic (Total)				**P**		composite	µg/L	5	95	
Cadmium (Total)				**P**		composite	µg/L	0.1	25	
Chromium (Total)				**P**		composite	µg/L	0.5	547	
Copper (Total)				**P**		composite	µg/L	0.2	161	
Lead (Total)				**P**		composite	µg/L	0.1	280	
Mercury (Total)				**P**		composite	µg/L	0.08	0.22	D
Nickel (Total)				**P**		composite	µg/L	0.5	880	
Zinc (Total)				**P**		composite	µg/L	1	635	
Total sulphide					**P**	composite	µg/L	2	3,177	C
VOC					**P**	composite	µg/L	trace	-	E
SVOC					**P**	composite	µg/L	trace	-	E
DDT					**P**	composite	ng/L	trace	52	
Endrin					**P**	composite	ng/L	trace	516	
17β-estradiol					**P**	composite	ng/L	trace	129	
Estrone					**P**	composite	ng/L	trace	387	
17α-ethynylestradiol (EE2)					**P**	composite	ng/L	trace	45	
Octylphenol					**P**	composite	ng/L	trace	4,515	
Nonylphenol					**P**	composite	ng/L	trace	12,900	
Bisphenol A					**P**	composite	ng/L	trace	19,350	
Phthalates					**P**	composite	ng/L	trace	-	E
Whole Effluent Toxicity Testing					**P**	composite	Percent effluent	NA	see note (g)	

For the purposes of this monitoring:

(a) 'Continuous monitoring' refers to the continuous measurement of specified determinands or their surrogates by a suitable monitoring device.

(b) A 'composite sample' means a 24 hour flow weighted sample of the treated wastewater discharge.

(c) A 'grab sample' means a random sample taken from the treated wastewater discharge.

(d) The routine faecal coliform grab sample shall to be taken between the hours of 9.00 a.m. and 4.00 p.m.

(e) Analysis for total metals and metalloids shall be by strong acid digestion.

(f) The timing of the sample collection for analysis of metals, VOC and SVOC shall be the same as for the Whole Effluent Toxicity Testing.

(g) For Whole Effluent Toxicity Testing (WETT) – a 24-hour flow weighted composite sample of the discharge shall be taken and tested for toxicity, using no less than three different trophic levels. The test shall follow internationally accepted protocols, including a reputable method for evaluating chronic toxicity. Compliance shall be based on the statistically derived no observed concentration (NOEC) for the test dilution series, allowing for an 129:1 dilution. Test procedures and choice of test organisms shall be determined in consultation with the National Institute of Water and Atmospheric Research or any successor(s) and approved by the Manager.

(h) The additional quarterly sampling for the specified determinands may only be reduced to annual sampling after the first 12 months of operation of the ocean outfall if the tested levels for the relevant determinand or determinands are less than the specified trigger values. If subsequent annual monitoring indicates that level(s) of the relevant determinand or determinands are at or above the specified trigger values then quarterly sampling shall be resumed. In the event that four consecutive quarterly samples of the those determinands are thereafter less than the specified trigger levels then the sampling frequency for those determinands may be reduced to once yearly.

Advice Notes:

*A. Contaminant concentrations trigger values in the treated wastewater are calculated using guideline concentrations in the WDC AEE (Table 8.12) corrected for background water quality (Roper et al 2006) and allowing a worst case dilution for predicted flows in the year 2047 (129-fold, AEE Table 8.6) at the edge of the mixing zone. The table attached (**Attachment 1**) shows background concentrations, receiving water trigger values, and dilution factors used for the derivations.*

B. Continuous instrument monitoring for process control monitoring. A range of values for 'normal' operation of the plant shall be established over the year prior to discharging to the marine environment.

C. The total sulphide, nitrate and nitrite standards are based on guidelines for freshwater species protection, since no marine guidelines currently exist.

D. Mercury concentration is calculated using food chain bioaccumulation guideline for human consumption of fish (0.0012 µg/L: from US EPA 2001 and using the worst case dilution at the aquaculture intake (405:1, AEE Table 8.7).

E. Standards to be determined based on the ANZECC (2000) guidelines for individual compounds and allowing for a 129-fold dilution.

3.3 Rama Road Block

In order to monitor compliance with Condition 59, any wastewater containing reject water in accordance with Condition 58 and discharged to the Rama Road Block shall be monitored for the following parameters:

(a) Soluble sodium

(b) Chloride

(c) Fluoride

(d) Boron

(e) Sodium absorption ratio (SAR)

(f) Electrical conductivity

The sampling shall be undertaken on a three monthly basis with the exception of the following:

(i) for the first 12 month period of reject water being discharged to the Rama Road block, sampling of all parameters shall be undertaken monthly; and

(ii) at any time a sampling parameter exceeds the limits specified in condition 60, the sampling of that parameter shall be monitored monthly until such time as it can be demonstrated that compliance has been achieved with five consecutive monthly samples.

4. WASTEWATER DISCHARGE SYSTEMS

The Consent Holder shall visually inspect all the land discharge systems at least once every two weeks to assess the hydraulic performance of the systems. A record shall be kept of any areas where ponding has occurred or matting on the infiltration surface is visible.

5. ODOUR

If there are any objectionable or offensive odours detected at the boundary of the area legally occupied by the wastewater treatment and disposal/discharge system, then the Consent Holder shall notify the Manager immediately in accordance with Conditions 466 and 688.

6. GROUNDWATER

6.1 Zone 3

The Consent Holder shall, during the first week of the months of January, April, July and October, take a groundwater sample from each of the following groundwater monitoring bores, as shown on NRC Plan 4885 (**attached**):

Seaward Bores:

(a) Site 100784: Number 1 monitoring bore

(b) Site 100785: Number 2 monitoring bore

(c) Site 100786: Number 3 monitoring bore

(d) Site 100787: Number 4 monitoring bore

(e) Site 100788: Number 5 monitoring bore

(f) WDC monitoring bore 30

Inland Bores:

(a) WDC monitoring bore number 22

(b) WDC monitoring bore number 25

These groundwater samples shall be analysed the following parameters following the commencement of this resource consent:

(a) Faecal coliforms

(b) Total ammoniacal nitrogen

(c) Total Nitrogen

(d) Total Phosphorous

On commencement of the discharge of reject water:

(a) Sodium

(b) Chloride

(c) Boron

Groundwater samples from inland bores shall also be analysed for the following:

(a) Dissolved Reactive Phosphorus

(b) Nitrate + Nitrite

During this groundwater quality sampling, the Consent Holder shall also measure the depth to groundwater in all the above monitoring bores.

6.2 Rama Road Block

The Consent Holder shall, during the first week of the months of January, April, July and October, take a groundwater sample from each of the seaward monitoring bores installed in accordance with Condition 61(a) and analyse the samples for the same determinands as specified for the Zone 3 groundwater monitoring.

7. SURFACE WATER

7.1 Rama Road Block

The Consent Holder shall, during the first week of the months of January, April, July and October, take a surface water sample from each of the surface water sites to be specified in accordance with Condition 61(b).

These surface water samples shall then be analysed for the following:

(a) Faecal coliforms

(b) Total ammoniacal nitrogen

(c) Total Nitrogen

(d) Nitrate + Nitrite

(e) Total Phosphorous

(f) Dissolved Reactive Phosphorus

8. COLLECTION, TRANSPORT AND ANALYSIS OF SAMPLES

The groundwater samples shall be taken in accordance with guidelines provided in Rosen, M R, *et al*., 1999; "New Zealand guidelines for the collection of groundwater samples for chemical and isotopic analysis"; Institute of Geological and Nuclear Sciences Limited; science report 99/9; 80 p.

All wastewater and surface water samples shall be collected using standard procedures and in appropriate laboratory supplied containers.

All samples collected as part of this monitoring programme shall be transported in accordance with standard procedures and under chain of custody to the laboratory.

All samples taken shall be analysed at a laboratory with registered quality assurance procedures[#], and all analyses are to be undertaken using standard methods, where applicable.

[#] *Registered Quality Assurance Procedures are procedures which ensure that the laboratory meets recognised management practices and would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation.*

9. NON COMPLIANCES

The Consent Holder shall notify the Manager of any non-compliance with any conditions of consent immediately after the results of the monitoring required by Sections 1 to 4 become known to the Consent Holder.

If the Consent Holder detects any noxious, dangerous, offensive or objectionable odours at the legal boundary of the treatment or land disposal systems, then the Manager shall be notified immediately.

10. REPORTING

The Consent Holder shall forward a report to the Manager and members of the Liaison Group detailing the monitoring results of Sections 1 to 5 of this Schedule by the 15th day of February, May, August and November for the previous three month period, excluding the month that the report is due in.

The Consent Holder shall, by 1 May each year, for the preceding year 1 April and 31 March, forward an annual report to the Manager and representatives of the Liaison Group detailing the following:

(a) An assessment of compliance with the wastewater treatment quality limits set down in these resource consents; and

(b) The maintenance undertaken on the treatment and discharge systems during the previous 12 month period and any identified maintenance requirements for the following 12 month period.

(c) An assessment of wetland performance including, but not limited to:

  i. Approximate percentage plant cover in each wetland cell; and

  ii. Wetland performance, including an analysis of wetland influent compared to wetland effluent;

  iii. An estimate of sludge volumes within the wetland;

(d) If the BOD_5 trigger of 60g/m^3 has been exceeded at any time within the report period, assessment of the discharge quality from the wetland for the purpose of determining whether BOD loading has resulted in a deterioration of discharge quality over the reporting period.

All required numerical monitoring results shall be provided in a Microsoft Excel spreadsheet, or an alternative format agreed to with the Manager.

SCHEDULE 2

MANAGEMENT PLANS

Construction Management Plans

1. The consent holder shall prepare a Construction Management Plan which shall meet the following outcomes:

   (a) Demonstrate how, where practical, the construction methodology will:

      (i) ensure ongoing access by Transpower to the Bream Bay Deviation A (BBR-DEV A) 220 kV transmission line and support structures for reasonable maintenance at all reasonable times, or for emergency works, whilst construction activities associated with the development are being undertaken;

      (ii) ensure any discharge of dust, odour and/or any other matter does not create any hazard or nuisance to Transpower's Bream Bay Deviation A (BRB-DEV A) 220kV transmission line, including support structures and insulators, which are within or close to the application site;

      (iii) ensure compliance with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001);

      (iv) ensure trees and vegetation used for landscaping are located and managed to comply with the Electricity (Hazard from Trees) Regulations 2003; and

   (b) Demonstrate how the construction methodology has incorporated the outcomes of consultation with Transpower.

2. The Construction Management Plan shall include (but is not limited to) the following details:

   (a) A plan showing the dimensions, location and relative position of any new buildings and other structures required for the new wastewater treatment plant;

   (b) Type of construction method(s) proposed;

   (c) The proposed timeframe and programme for construction (including contingencies relating to time); and

   (d) The proposed mitigation measures that will be put in place to avoid or minimise potential adverse effects including measures to be used to avoid or minimise effects on the Bream Bay Deviation A (BBR-DEV A) 220 kV transmission line and support structures.

   (e) The proposed mitigation measures that will be put in place to avoid or minimise potential adverse effects on neighbouring properties, including but not limited to dust, noise and traffic.

Treatment Plant Operations and Maintenance Management Plan

1. The Consent Holder shall prepare a Treatment Plant Operations and Maintenance Management Plan which shall meet the following outcomes:

   (a) Demonstrate how the wastewater treatment system is to be operated and maintained to ensure compliance with the conditions of these consents.

   (b) The Treatment Plant Operations and Maintenance Management Plan shall include (but is not limited to) the following details:

(i) A description of the entire wastewater treatment plant and sampling points;

(ii) A description of routine maintenance procedures to be undertaken to ensure compliance with these consents;

(iii) An outline of the methods used to monitor the wastewater treatment plant operation and performance and process-oriented influent monitoring;

(iv) Measures to deal with high influent flows under excessively wet weather conditions and contingency measures that will be put in place if the wastewater treatment system is overloaded;

(v) Specific management procedures for ensuring the efficient functioning of the wastewater treatment system and any odour control equipment or technology;

(vi) Procedures for recording routine maintenance and all repairs undertaken;

(vii) Contingency measures in place including the operational procedures for the contingency storage ponds to deal with unusual events such as any process failures;

(viii) Specific management procedures for receiving and responding to odour complaints;

(ix) Specific operational checks and procedures for responding to any exceedance of the trigger values in Table S1 of Schedule 1 (**attached**);

(x) Other actions necessary to comply with the conditions of this resource consent; and

(xi) Procedures for improving and/or reviewing the Operations and Management Plan.

Advice Note: *The operational checks and procedures required under (xi) to ensure that the treatment plant is operating within design specifications and that the exceedance of the trigger values is not due to suboptimal plant performance. The implementation of these checks and procedures are additional to the required actions under Conditions 80 and 81.*

(c) The Plan shall be reviewed by the Consent Holder in consultation with the Northland Regional Council at least every two years after the first staged upgrade of the new treatment plant has been commissioned. The Consent Holder may also amend the Plan at any time following consultation with the Manager and the operator of the Bream Bay Aquaculture Park Facility. If any changes are made to the Plan, then a copy of the amended plan shall be forwarded to the Manager for certification with the requirements of clause 2 above, and the operator of the Bream Bay Aquaculture Park Facility, prior to it being made operative.

Treatment Plant Air Discharge Management Plan

1. The Consent Holder shall prepare a Treatment Plant Air Discharge Management Plan which shall meet the following outcomes:

(a) Demonstrate how the wastewater treatment system is to be operated and maintained to ensure compliance with the conditions of these consents.

2. The Treatment Plant Air Discharge Management Plan shall include (but is not limited to) the following details:

   (a) The details of the operating and maintenance regimes for all of the odour management system;

   (b) The details of the operating and maintenance regime for any biofilter(s) including specification of the optimal operating range for pH, moisture content and back pressure; the monitoring regime for these parameters; the action that will be taken in the event of the filter becoming 'out of range' for any of these parameters;

   (c) The details of influent screening and biosolids management including ingress, egress and covering of trucks, and covering of any stored screenings, sludge or biosolid piles; and

   (d) The details of the odour complaints procedure, record keeping and response procedure.

3. The Plan shall be reviewed by the Consent Holder in consultation with the Northland Regional Council at least every two years after the first stage of the new treatment plant has been commissioned. The Consent Holder may also amend the Plan at any time following consultation with the Manager. If any changes are made to the Plan, then a copy of the amended plan shall be forwarded to the Manager for certification with the requirements of clause 2 above, prior to it being made operative.

Wastewater Discharge Management Plan for Zone 3

1. The Consent Holder shall prepare a Wastewater Discharge Management Plan for Zone 3 (Sec 65 Blk VII Ruakaka SD) which shall meet the following outcomes:

   (a) Demonstrate how the wastewater treatment system is to be operated and maintained to ensure compliance with the conditions of these consents.

2. The Wastewater Discharge Management Plan shall include (but is not limited to) the following details:

   (a) A detailed description of the application method to be used, including the management of the timing and volume of wastewater application;

   (b) Specifications for buffer zone distances from water bodies within the boundaries of the property;

   (c) A system to log when this zone is utilised and which of the wetland outlet(s) are operating;

   (d) How stagnant ponding areas will be avoided; and

   (e) How the system will be operated and maintained.

Wastewater Discharge Management Plan for Roger Hall Memorial Park

1. The Consent Holder shall prepare a Wastewater Discharge Management Plan for Roger Hall Memorial Park (Lot 1 DP 396871) which shall meet the following outcomes:
   (a) Demonstrate how the wastewater treatment system is to be operated and maintained to ensure compliance with the conditions of these consents.

2. The Wastewater Discharge Management Plan shall include (but is not limited to) the following details:

(a) A detailed description of the treatment level (including filtration), application method to be used, including the management of the timing and volume of wastewater application;

(b) A method for ascertaining the soil moisture status prior to and during treated wastewater irrigation;

(c) A system to log the daily applications including application area, duration, time and volume irrigated;

(d) A description of projected daily and annual hydraulic and nutrient (nitrogen and phosphorus) loading rates;

(e) How the system will be operated and maintained;

(f) Monitoring records of days of use of the irrigation scheme and wastewater volumes irrigated on those days;

(g) Location of soils to be monitored and their variability across the site;

(h) The frequency of monitoring events;

(i) The range of parameters to be measured;

(j) Nomination of critical monitoring and wastewater discharge loading parameters that may require changes to management and additional on and offsite monitoring;

(k) A methodology for sample collection and analysis; and

(l) A record of any complaints associated with the irrigation procedures.

3. The Plan shall be reviewed by the Consent Holder in consultation with the Northland Regional Council at least every two years after the Park is first used for wastewater disposal. The Consent Holder may also amend the Plan at any time following consultation with the Manager. If any changes are made to the Plan, then a copy of the amended plan shall be forwarded to the Manager for certification with the requirements of clause 2 above, prior to it being made operative.

Wastewater Discharge Management Plan for Rama Road Block

1. The Consent Holder shall prepare a Wastewater Disposal Management Plan for the Rama Road Block (Lot 4 DP 419151) which shall meet the following outcomes:

(a) Demonstrate how the wastewater discharge system is to be operated and maintained to ensure compliance with the conditions of consents (05) and (06).

2. The Wastewater Discharge Management Plan shall include (but is not limited to) the following details:

(a) A detailed description and plan of the application system to be used, including the management of the timing and volume of wastewater application;

(b) A description of projected daily and annual hydraulic and nutrient (nitrogen and phosphorus) loading rates;

(c) A method for ascertaining the soil moisture status prior to and during treated wastewater irrigation;

(d) Specifications for buffer zone distances from water bodies within the Block's boundary;

(e) A system to log the daily applications including application area, duration, time and volume irrigated;

(f) How the system will be operated and maintained;

(g) Monitoring records of days of use of the irrigation scheme and wastewater volumes irrigated on those days including the section(s) of the Block irrigated, the application depth and duration;

(h) Monitoring records of the locations where Reverse Osmosis treatment plant reject water is applied and a methodology to demonstrate how the dilution rates have been met;

(i) Methods to exclude stock from pasture areas when irrigating and soil moisture is high;

(j) Methods to avoid the disturbance of soil when irrigating and soil moisture is high;

(k) The details of the operating and maintenance regimes for all odour management systems;

(l) The details of operating procedures to minimise aerosols and spraydrift; and

(m) The details of the odour complaints procedure, record keeping and response procedure.

3. The Plan shall be reviewed by the Consent Holder in consultation with the Northland Regional Council at least every two years after the Block is first used for wastewater disposal. The Consent Holder may also amend the Plan at any time following consultation with the Manager. If any changes are made to the Plan, then a copy of the amended plan shall be forwarded to the Manager for certification with the requirements of clause 2 above, prior to it being made operative.

Ocean Outfall Construction Management Plan

1. The Consent Holder shall prepare an Ocean Outfall Construction Management Plan which shall meet the following outcomes:

   (a) Demonstrate how the wastewater outfall is to be operated and maintained to ensure compliance with the conditions of these consents.

   (b) Demonstrate how the construction methodology has incorporated the outcomes of consultation with Mighty River Power regarding potential effects on the existing Marsden A and Marsden B intake and outfall structures.

2. The Ocean Outfall Construction Management Plan shall include (but is not limited to) the following details:

   (a) Pipeline design concept and pipeline material type, cross-sectional dimensions and configuration;

   (b) Type of construction method;

   (c) Details of the hydrostatic and any other testing required of the pipeline during construction and/or upon completion of construction;

   (d) The proposed timeframe and programme for construction (including contingencies relating to time);

(e) The proposed mitigation measures that will be put in place to minimise potential adverse effects, including, but not limited to, measures to be used to minimise effects on marine ecosystems, and on those taking water via the Marsden A and B pipelines.

(f) Health and safety and access matters relating to general public accessing and use of the coastal marine area in an around the construction area during pipeline construction, including, but not limited to, safety signage;

(g) Minimising the footprint of the area disturbed by construction activities;

(h) Fuel storage and machinery refuelling procedures and storage and handling of other hazardous materials and drilling fluid, if any;

(i) The risk management procedures that will be in place; and

(j) Details of proposed testing regime to demonstrate the levels of dilution the diffuser achieves as required under Condition 74.

Advice Note: *The term 'pipeline' means any configuration of one or more pipelines between Mean High Water Springs to and including the outfall terminal structure that forms the outfall diffuser.*

ATTACHMENT 1

Background concentrations, trigger values and dilution factors used to derive allowable concentrations in treated wastewater in Table S1.

Analysis	Background concentration (Table 8.12 AEE)	Units	Trigger value	Dilution factor	Source of Trigger Value
Arsenic (Total)	1.56	µg/L	2.3	129	95% ANZECC As III
Cadmium (Total)	0.006	µg/L	0.2	129	ANZECC human consumption shellfish
Chromium (Total)	0.16	µg/L	4.4	129	95% ANZECC CrVI
Copper (Total)	0.056	µg/L	1.3	129	95% ANZECC
Lead (Total)	0.0142	µg/L	2.2	129	99% ANZECC
Mercury (Total)	0.00065	µg/L	0.0012	405	USEPA 2001
Nickel (Total)	0.175 C	µg/L	7	129	99% ANZECC
Zinc (Total)	0.079	µg/L	5	129	Site specific ANZECC (Clearwater 2009)
Total sulphide	0	µg/L	25 (A)	129	95% ANZECC
VOC	0	µg/L	B	129	ANZECC (2000)
SVOC	0	µg/L	B	129	ANZECC (2000)
DDT	0	ng/L	0.4	129	ANZECC (2000)
Endrin	0	ng/L	4	129	99% ANZECC
17β-estradiol	0	ng/L	1	129	Gadd (2009)
Estrone	0	ng/L	3	129	Gadd (2009)
17α-sthynylestradiol (EE2)	0	ng/L	0.35	129	Gadd (2009)
Octylphenol	0	ng/L	35	129	Gadd (2009)
Nonylphenol	0	ng/L	100	129	Gadd (2009)
Bisphenol A	0	ng/L	150	129	EU (2008)
Phthalates	0	ng/L	B	129	ANZECC (2000)

Advice Notes:

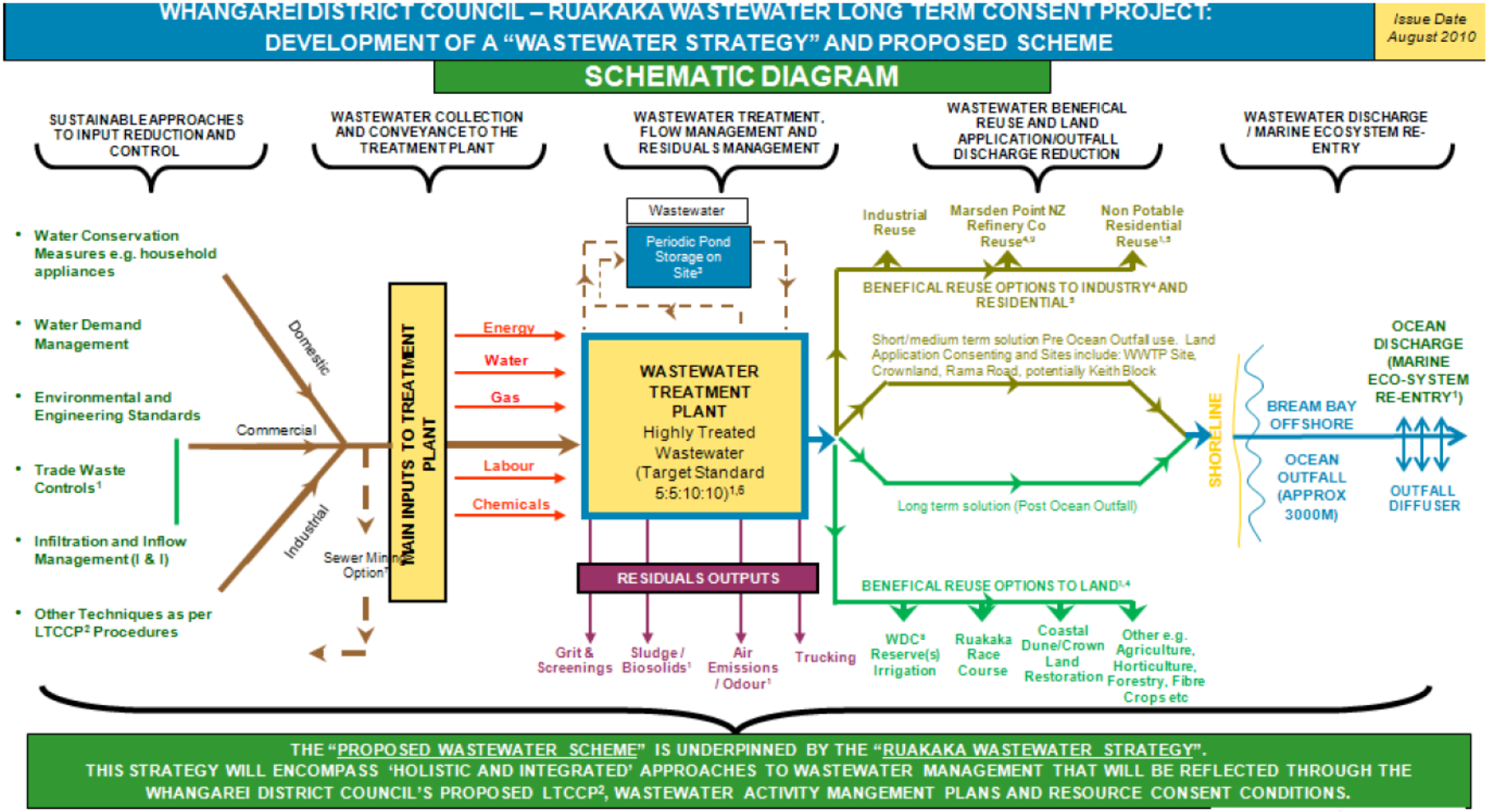
A *Derived from hydrogen sulphide 95% ANZECC marine guideline (1.0 µg/L), using H2S is 4.06% of total sulphides at 20°C, pH 8.0, 32.5 ppt salinity (see ANZECC (2000) Table 8.3.10).*

B *See guidelines for individual VOCs, SVOCs and phthalates, and use most conservative values when measurable in treated wastewater (ANZECC 2000).*

C *Background nickel from Roper et al (2006).*

ATTACHMENT 2

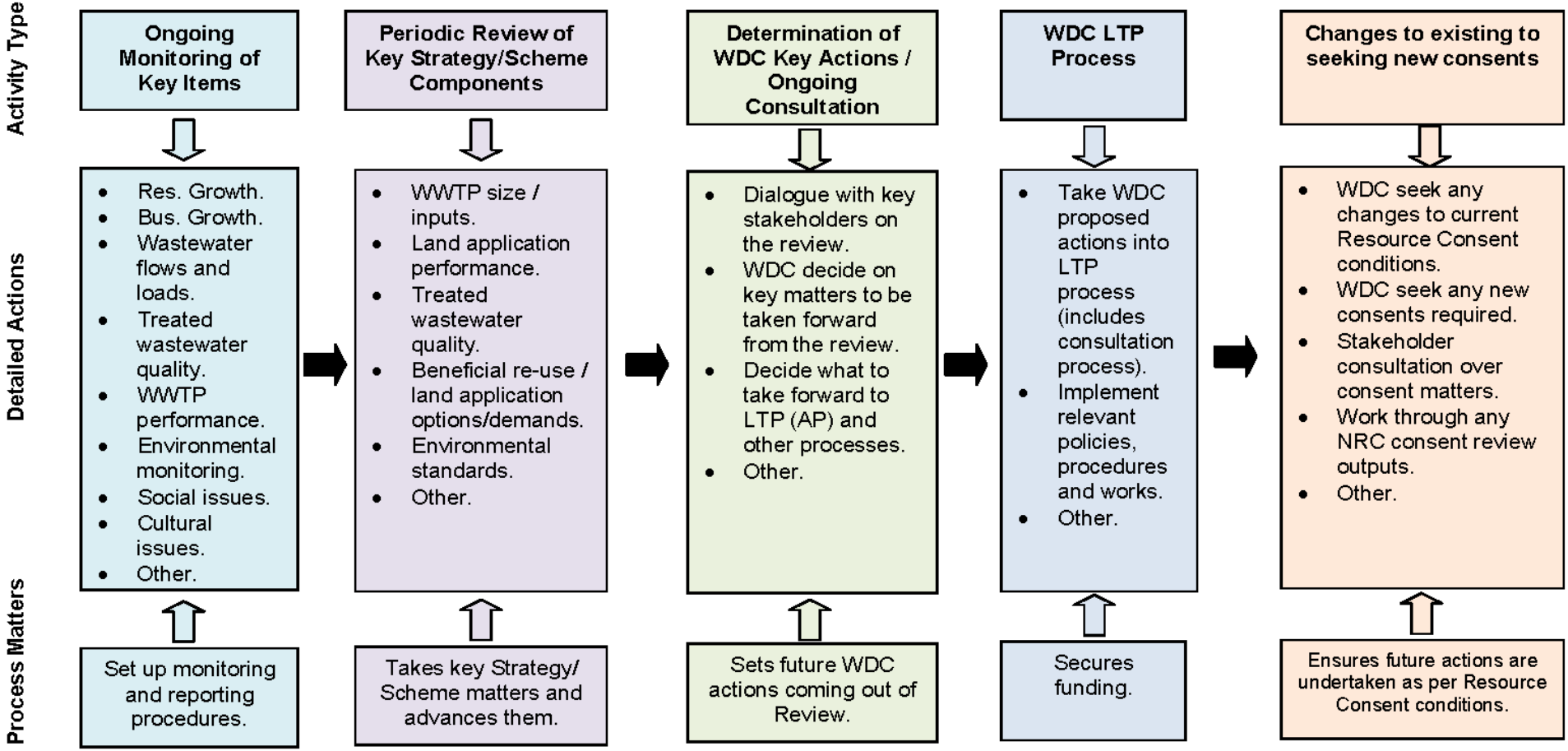
Figure 4.1 Development of a the Ruakaka 'Wastewater Strategy' and 'Proposed Scheme'



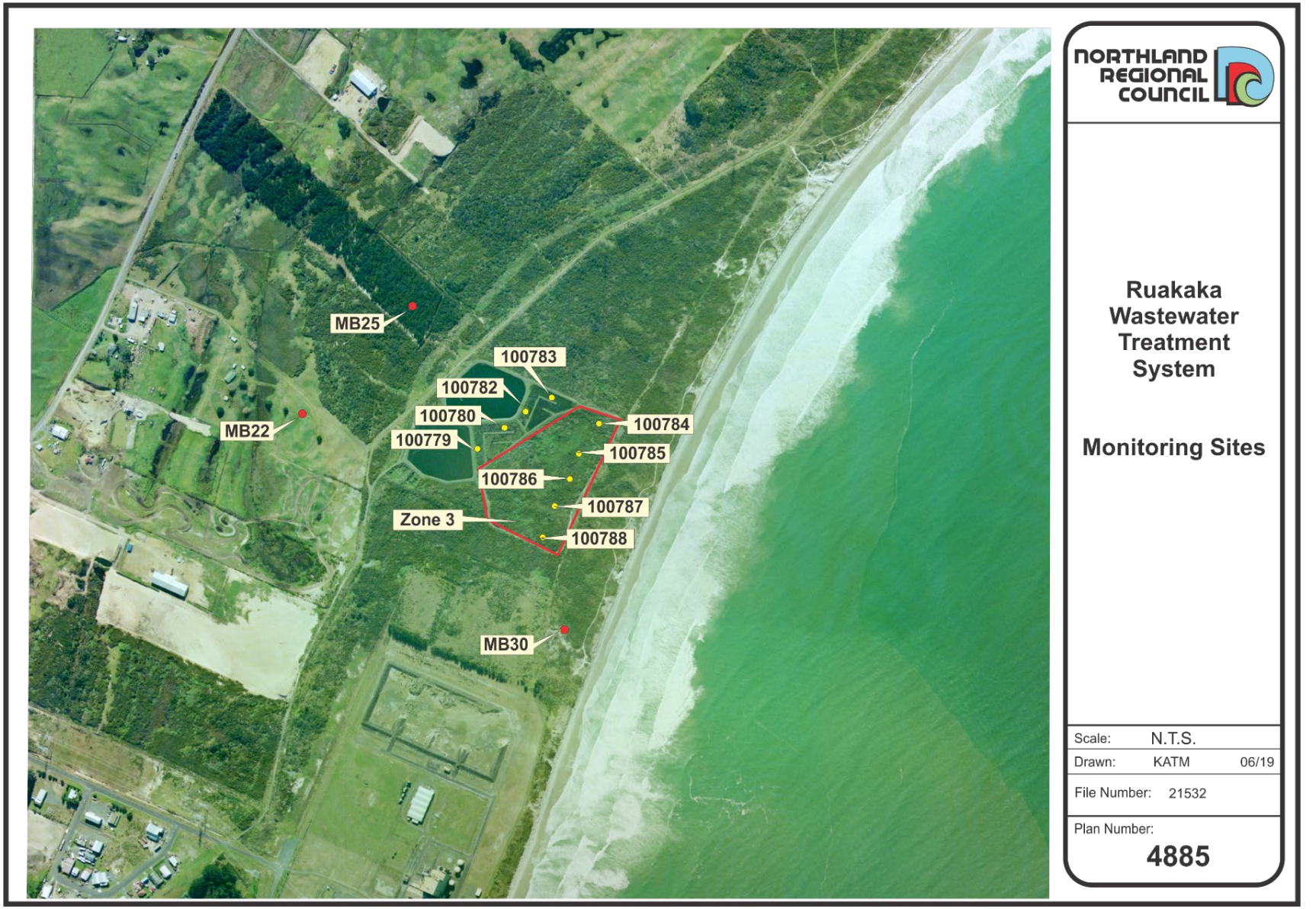
ATTACHMENT 3

Figure 4.2 Ruakaka Wastewater Strategy and Scheme Implementation – Activities to be Undertaken within the Duration of Consents

Activities driven (in part) by key Resource Consent Condition(s) requiring periodic Development, Technology and Environment / Monitoring Review and preparation of a **'Ruakaka Wastewater Strategy and Scheme Review'** Report.



ATTACHMENT 4



ATTACHMENT 5

Figure 10.1 Indicative Footprint of Irrigable Area, Roger Hall Memorial Park

ATTACHMENT 6

Figure 11.1 Aerial Plan Showing the WDC Rama Road Block Outlined in Red

ATTACHMENT 7

Table 3-3 Predicted CORMIX dilutions at edge of 100m mixing zone.

Scenario	Dilution (fold)					
	2012 ADWF		2047 ADWF		2047 PWWF	
	Neap	Spring	Neap	Spring	Neap	Spring
1	514	1533	289	476	86	129
2	986	1463	313	456	91	124
3	1064	1462	334	457	95	124
4	984	1455	334	455	91	124
5	1165	1542	373	476	105	129
6	1057	1532	333	476	95	129
7	1058	1531	333	476	95	129

ATTACHMENT 8

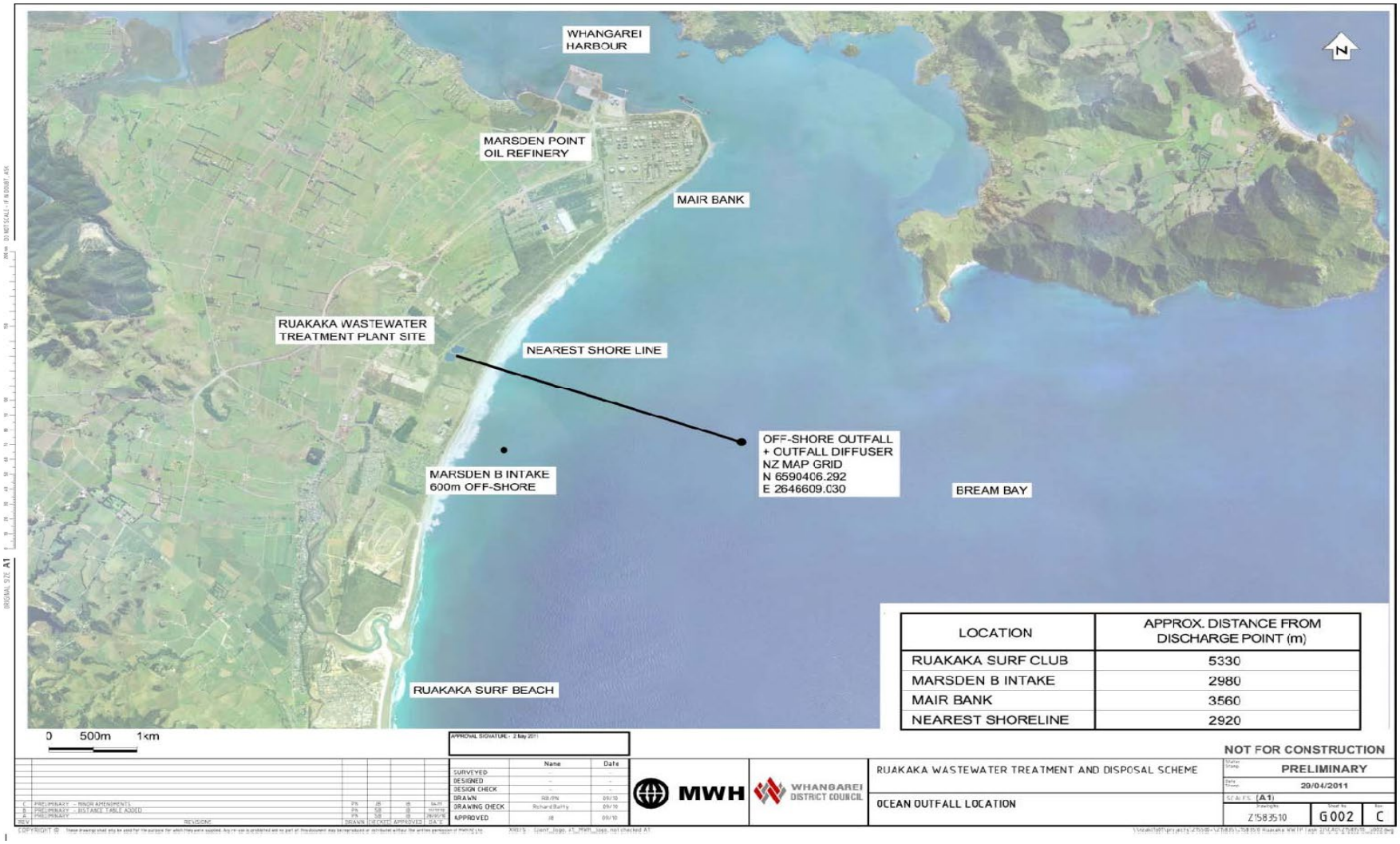


Figure 4.7 Proposed Ocean Outfall Location – Location 22

ATTACHMENT 9

Excerpt from Section 9.3.1 of the report entitled *Ruakaka WWTP Treatment System Review Report*, prepared by MWH Limited and dated July 2016

This option is based on the operation of the two oxidation ponds in parallel (although for simplicity and to minimise capital expenditure, treated wastewater from Pond 1 will continue to be discharged into the south eastern corner of Pond 2) utilising mechanical equipment as installed at present (i.e. a single aerator located in Pond 1).

Screened wastewater will be discharged to a newly constructed manhole/splitter chamber then would be utilised to direct raw wastewater flows to pond 1 and pond 2. A new pipeline would be constructed from the splitter chamber to direct flows to Pond 2. Given the available surface area of the two ponds and the existing supplemental aeration provided in Pond 1, it is envisaged that around 60 percent of the flows would be directed to Pond 1 and 40 percent of the flows to Pond 2.

ATTACHMENT 10

Excerpt from Section 9.3.2 of the report entitled *Ruakaka WWTP Treatment System Review Report*, prepared by MWH Limited and dated July 2016

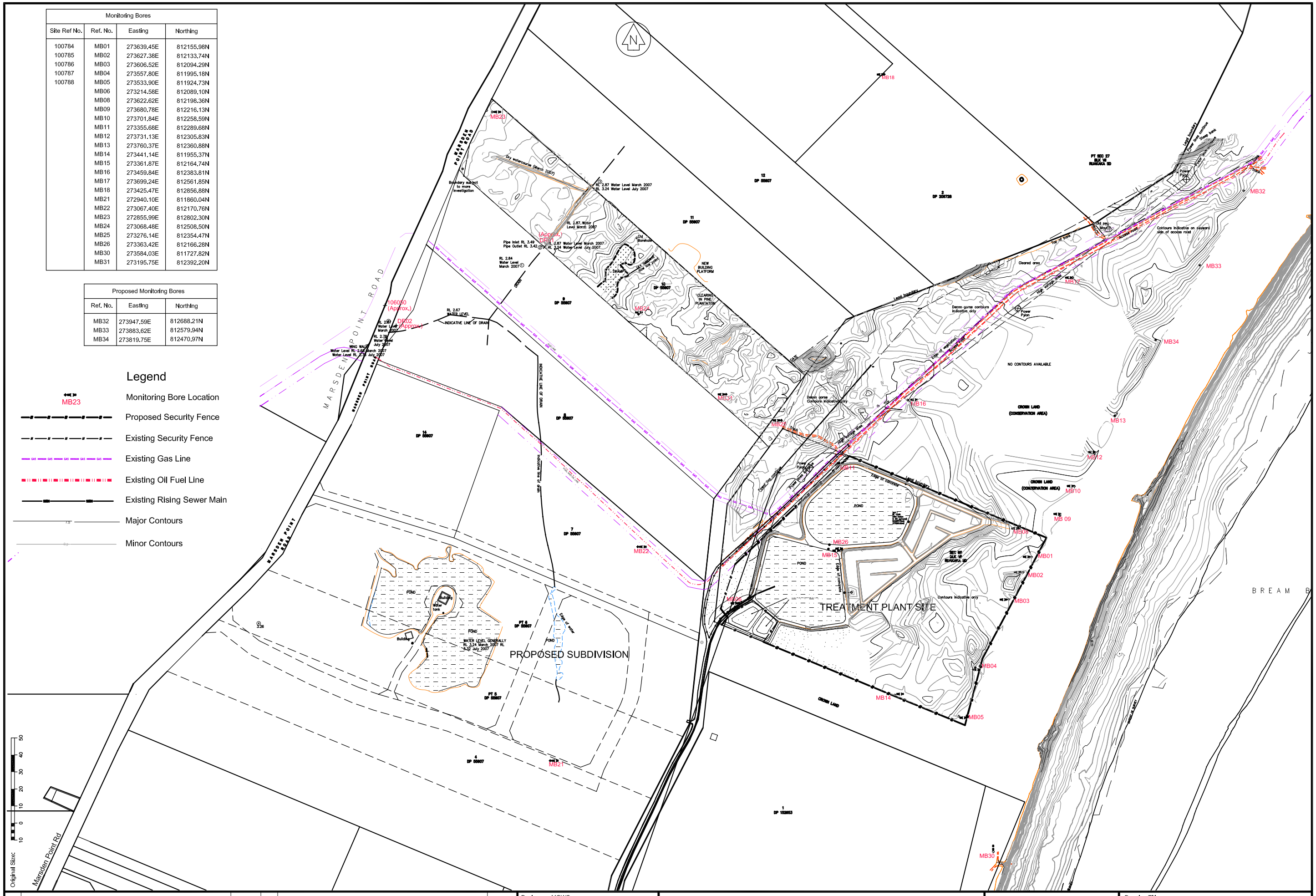
This option follows on from the reconfiguration of the ponds to parallel operation as described in Section 9.3.1 but provision for additional supplemental aeration in both ponds. It is envisaged that two additional 4 kW brush aerators would be provided in Pond 1 and that up to three 4 kW brush aerators would be provided in Pond 2. Flow splitting to the two ponds would be as prescribed in Section 9.3.1, i.e. 60 percent of the flows would be directed to Pond 1 and 40 percent of the flows to Pond 2. Supplemental aeration would be provided such that the flow split remains appropriate.

Monitoring Bores			
Site Ref No.	Ref. No.	Easting	Northing
100784	MB01	273639,45E	812155,98N
100785	MB02	273627,38E	812133,74N
100786	MB03	273606,52E	812094,29N
100787	MB04	273557,80E	811995,18N
100788	MB05	273533,90E	811924,73N
	MB06	273214,58E	812089,10N
	MB08	273622,62E	812198,36N
	MB09	273680,78E	812216,13N
	MB10	273701,84E	812258,59N
	MB11	273355,68E	812289,68N
	MB12	273731,13E	812305,83N
	MB13	273760,37E	812360,88N
	MB14	273441,14E	811955,37N
	MB15	273361,87E	812164,74N
	MB16	273459,84E	812383,81N
	MB17	273699,24E	812561,85N
	MB18	273425,47E	812856,88N
	MB21	272940,10E	811860,04N
	MB22	273067,40E	812170,76N
	MB23	272855,99E	812802,30N
	MB24	273068,48E	812508,50N
	MB25	273276,14E	812354,47N
	MB26	273363,42E	812166,28N
	MB30	273584,03E	811727,82N
	MB31	273195,75E	812392,20N

Proposed Monitoring Bores		
Ref. No.	Eastlng	Northlng
MB32	273947,59E	812688,21N
MB33	273883,62E	812579,94N
MB34	273819,75E	812470,97N

Legend

- MB23 — Monitoring Bore Location
- Proposed Security Fence
- Existing Security Fence
- Existing Gas Line
- Existing Oil Fuel Line
- Existing Rising Sewer Main
- Major Contours
- Minor Contours



No.	Revision Details	Date	No.	Revision Details	Date

Design MGWS
Survey
Drawn W.B.
Checked
Date AUG. 2008
Scale 1:2500 (A1) 1:5000 (A3)
CAD Filename 11139-08-PR05

DRAFT

Job Title.
WHANGAREI DISTRICT COUNCIL &
BREAM BAY LANDOWNERS ASSOCIATION
RUAKAKA W.W.T.P. UPGRADE
STAGE 1
TEMPORARY PLANT UPGRADE

AIREY CONSULTANTS LTD.
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Takapuna, Pukekohe, Howick, Wailuku, Orewa
ACENZ

Drawing Title.
BOREHOLE LOCATIONS

File No. **11139/8**
Rev.
Drawing No. **PR05**

Please Quote File: REG.021532.01, ACT.174860
SHUD:ECOL

14 April 2025

Whangarei District Council - Waste & Drainage
Sent via email to : Hai.nguyen@wdc.govt.nz

Dear Sir

MONITORING REPORT FOR RESOURCE CONSENTS AUT.021532.01 TO AUT.021532.09: ACTIVITIES ASSOCIATED WITH OPERATION OF EXISTING WWTS, CONSTRUCTION, UPGRADING AND OPERATION OF A NEW RUAKAKA WASTEWATER TREATMENT PLANT AND ASSOCIATED DISCHARGE OF TREATED WASTEWATER TO LAND AND THE CMA AT BREAM BAY

An officer of the Northland Regional Council inspected the Ruakaka Wastewater Treatment Plant on **Thursday 06 March 2025** to assess compliance with resource consent AUT.021532.01 to AUT.021532.09.

The monitoring inspection **(report attached)** assessed the following:

- Odour discharge.
- Water quality of plant discharge.
- Groundwater quality at monitoring bores.

The results have been assessed and a moderate non-compliance confirmed for the 2025 March quarterly monitoring inspection.

An invoice which covers council's travel, fieldwork and administration costs for the inspection will follow shortly.

Please do not hesitate to contact me if you have any queries regarding the monitoring report.

Yours faithfully

[redacted]

Shane Hudgell
Environmental Monitoring Officer

Condition 9A	Compliance	Reason
At all times following the first exercise of consent (07), the quality of the treated wastewater, as measured at the outlet of the new wastewater treatment system required by Condition 8, shall comply with the following concentration standards, based on 60 samples collected over each year (being 12 months from 1 July to 30 June inclusive): (Please see Table 9A below) **Advice Note:** The indicative upgrading of the treatment plant to achieve and maintain the standard required by this Condition, including staging of development in relation to average dry weather inflow, is set out in Section 4.8 Staged Development of the Proposed Scheme of the "Whangarei District Council Ruakaka Wastewater Long-Term Consents Project Assessment of Effects on the Environmental and Resource Consent Applications, Application Version May 2011".	Moderate non-compliance	F.coliforms show three results in a year over the consented limit.
Condition 40	**Compliance**	**Reason**
There shall be no ponding of wastewater within the land disposal area as a result of the exercise of this consent.	Full compliance	
Condition 41	**Compliance**	**Reason**
If monitoring results show that the exercise of consents (01) and (02) result in the exceedance of any the following determinand concentrations, as measured in the identified monitoring bores shown on NRC Plan 4885 (**Attachment 4**) then the Consent Holder shall forward to the Manager and the Liaison Group, a report that assesses the environmental effects of the exercise of this consent on the water quality of Ruakaka Beach and the Ruakaka River. The report shall identify any actions required to correct any exceedance and identify trends that are evident in the monitoring results and discuss the possible reasons for any exceedance in the concentrations specified.	Moderate non-compliance	Ammonia level at bore 1 and 2 above consented limit.
Condition 45	**Compliance**	**Reason**
The Consent Holder's operation shall not give rise to any discharge of contaminants at or beyond the boundary of Sec 65 Blk VII Ruakaka SD which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, a more than minor adverse effect on the environment.	Full compliance	
Condition 57	**Compliance**	**Reason**
The average daily discharge volume shall not exceed 1,700 cubic metres during the period from 1 October to 31 March inclusive or 1,030 cubic metres during the period from 1 April to 30 September inclusive. The daily average discharge volume shall be calculated in accordance with Schedule 1 (**attached**).	Full compliance	

<table>
<tr><th>Condition 62</th><th>Compliance</th><th>Reason</th></tr>
<tr><td>If the monitoring results from the groundwater bores show that the exercise of consent (05) results in the exceedances of the specified median concentration for the following determinands, the Consent Holder shall forward to the Manager a report that assesses the environmental effects of the discharge on the water quality of Ruakaka Beach. The report shall identify any actions required to address any adverse effects.

<table>
<tr><th colspan="2">Seaward Bores from Disposal Area</th></tr>
<tr><th>Determinand</th><th>Median Concentration</th></tr>
<tr><td>Faecal Coliforms</td><td>35 per 100 millilitres</td></tr>
<tr><td>Total Ammoniacal Nitrogen</td><td>20 milligrams per Litre</td></tr>
</table>

The median shall be a “rolling” median calculated using the five most recent sample event results.</td><td>Moderate non-compliance</td><td>Ammonia level at bore 1 and 2 above consented limit.</td></tr>
<tr><th>Condition 66</th><th>Compliance</th><th>Reason</th></tr>
<tr><td>The Consent Holder’s operation shall not give rise to any discharge of contaminants at or beyond the boundary of Lot 4 DP 419151 which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, a more than minor adverse effect on the environment.</td><td>Full compliance</td><td></td></tr>
</table>

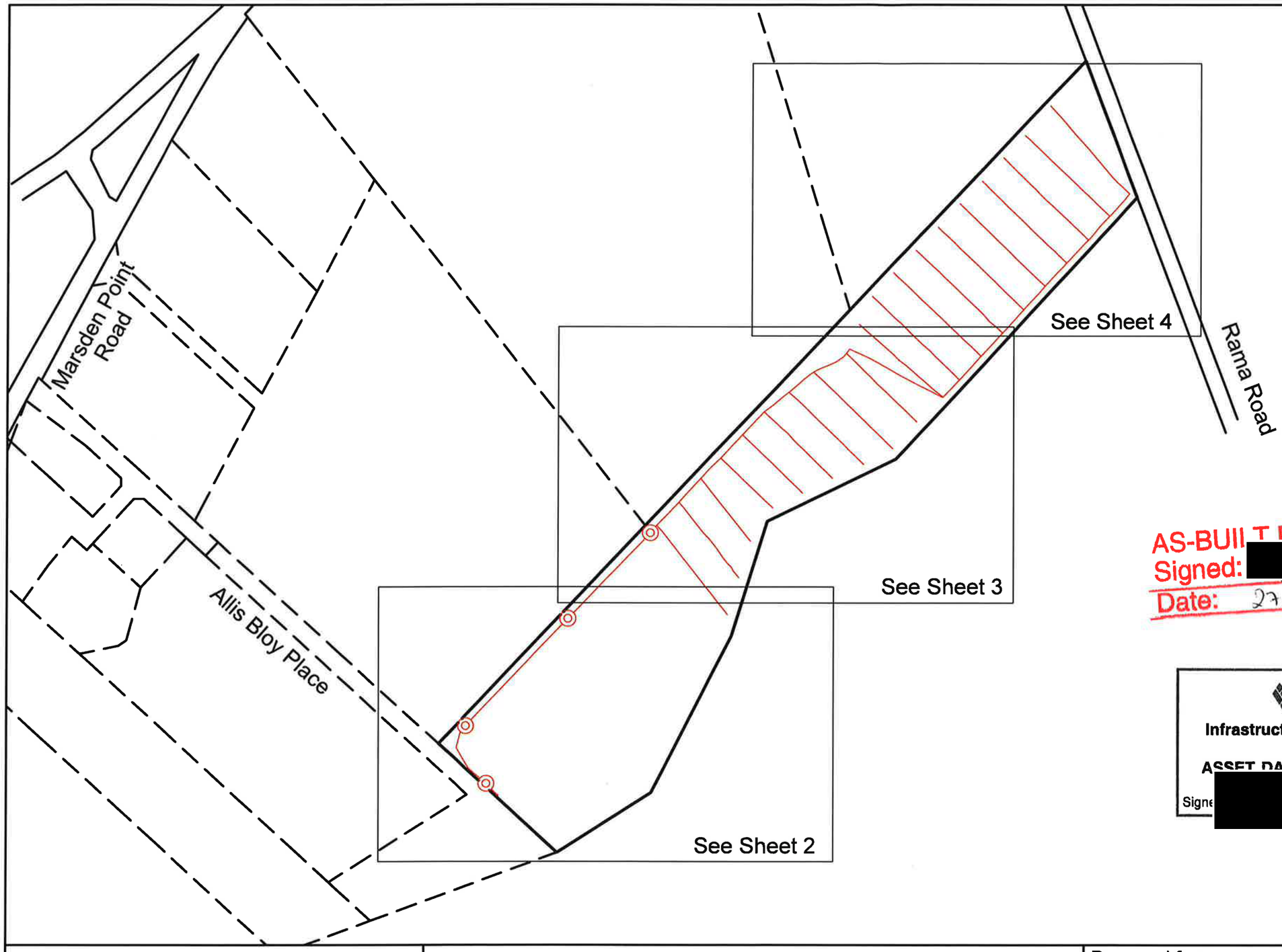
Table 9A

Constituent	Units	Median	95th percentile	Sample Frequency	Standard
$cBOD_5$	mg/L	5	20	1 sample in every 6 day period	Over one year no more than 30 exceedances above 5, and no more than 3 exceedances above 20
Suspended solids	mg/L	5	30	1 sample in every 6 day period	Over one year no more than 30 exceedances above 5, and no more than 3 exceedances above 30
Total nitrogen	mg/L	10	30	1 sample in every 6 day period	Over one year no more than 30 exceedances above 10, and no more than 3 exceedances above 30
Faecal coliforms	cfu/100ml	10	1,000	1 sample in every 6 day period	Over one year no more than 30 exceedances above 10, and no more than 3 exceedances above 1,000

Discharge and Receiving Water Quality Testing Results: 20250384

Sampling Date: 6/03/2025 8:41 AM

Site ID:	100782	100784	100785	100786	100787	100788	304607	304609	304611
Sample ID:	20251829	20251831	20251832	20251833	20251834	20251835	20251838	20251837	20251836
Site Name:	Ruakaka sewage treatment system at Number 2 marsh - near	Ruakaka Sewage Treatment System @ No. 1 monitoring bore	Ruakaka Sewage Treatment System at No. 2 monitoring bore	Ruakaka Sewage Treatment System at No. 3 monitoring bore	Ruakaka Sewage Treatment System at No. 4 monitoring bore	Ruakaka Sewage Treatment System at No. 5 monitoring bore	Ruakaka sewage treatment system at monitoring bore No. 35	Ruakaka Sewage Treatment Sys at Monitoring bore no. 36	Ruakaka Sewage Treatment Sys at Monitoring bore no. 37
Ammoniacal Nitrogen (g/m3-N)	37	43	9.2	26	3.6	0.31	0.013	0.15	0.19
CBOD 5 Day (g/m3)	54								
Conductivity at 25 deg C (us/cm)	923	1225	908	1008	823	380.5	799	767	552
Depth - Groundwater (mm)		2390	1020	4350	2635	1390	5660	9210	4685
Dissolved Oxygen (mg/L)	5.89								
Dissolved Oxygen Percent Saturation	66.7								
Faecal Coliforms (presumptive)	29000	<1.7	9.2	<9	<1.7	33	<1.7	<1.7	<1.7
Nitrite/nitrate nitrogen (g/m3-N)	0.0362	0.0847	23.7	0.269	0.0202	0.48	18.1	0.0038	0.074
pHpH	7.6								
Temperature (degC)	21.3								
Total Kjeldahl Nitrogen (g/m3)	53.9	41.3	10.8	24.9	3.44	0.984	<0.1	0.277	0.253
Total Nitrogen (g/m3-N)	58	40	36	25	3.9	1.4	20	0.35	0.36
Total Phosphorus (g/m3-P)	4.02	4.24	3.28	6.08	0.726	0.358	0.047	0.092	0.123
Total Suspended Solids (g/m3)	176								

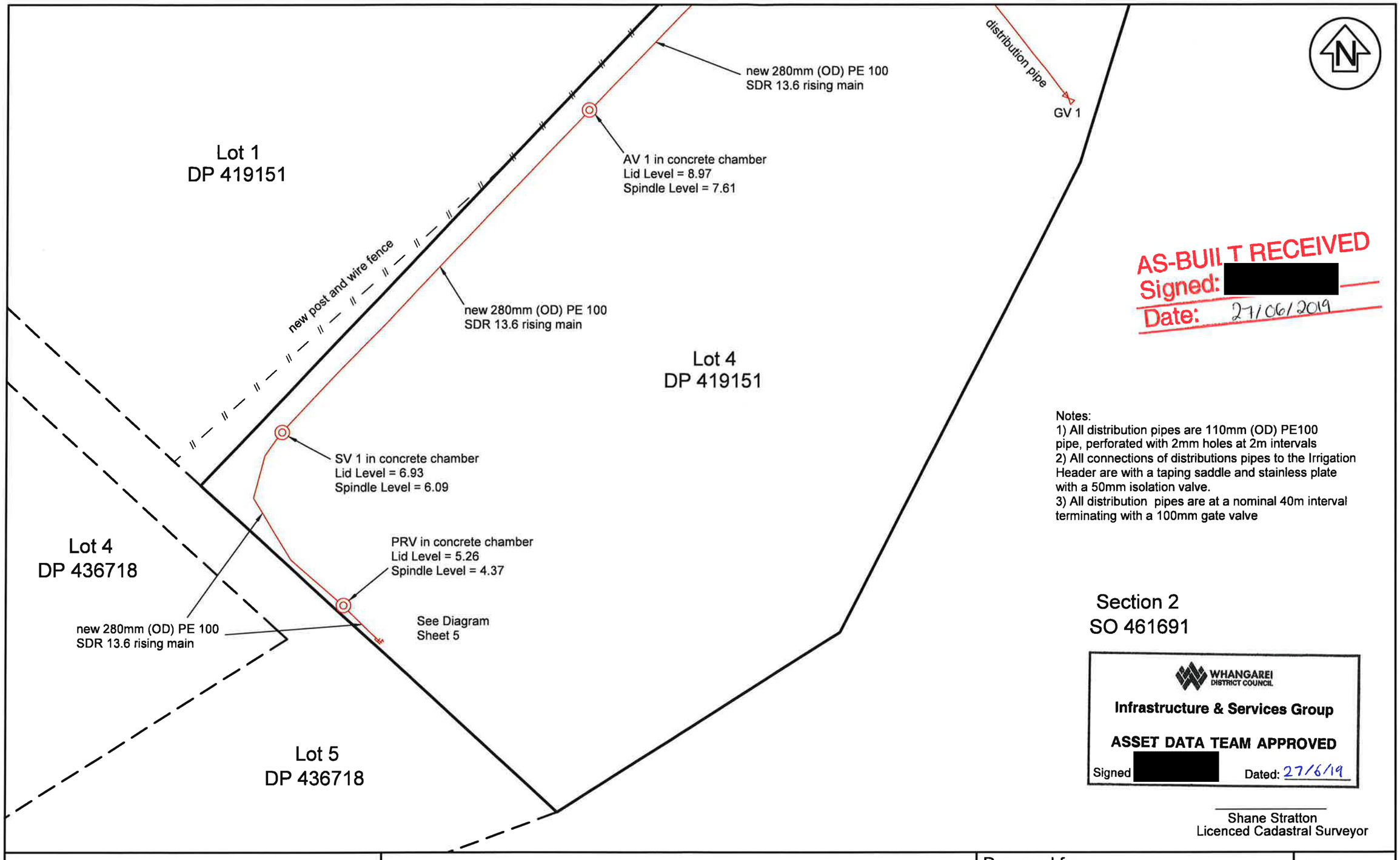


AS-BUILT RECEIVED
Signed: [redacted]
Date: 27/06/2019

WHANGAREI DISTRICT COUNCIL
Infrastructure & Services Group
ASSET DATA TEAM APPROVED
Signe [redacted] Dated: 27/6/19

Shane Stratton
Licenced Cadastral Surveyor

Shane Stratton Surveying Limited [redacted]	ASBUILT PLANS - RUAKAKA WASTE WATER TREATMENT PLANT - IRRIGATION UPGRADE	Prepared for: Northern Drainage / Whangarei District Council	Sheet: 1 of 6
		Drawn: SS / Checked. SS	
		Date: 18/10/18 / Scale: 1:5000 @ A3	Ref: 1339



AS-BUILT RECEIVED
Signed: [redacted]
Date: 27/06/2019

Notes:
1) All distribution pipes are 110mm (OD) PE100 pipe, perforated with 2mm holes at 2m intervals
2) All connections of distributions pipes to the Irrigation Header are with a taping saddle and stainless plate with a 50mm isolation valve.
3) All distribution pipes are at a nominal 40m interval terminating with a 100mm gate valve

Section 2
SO 461691

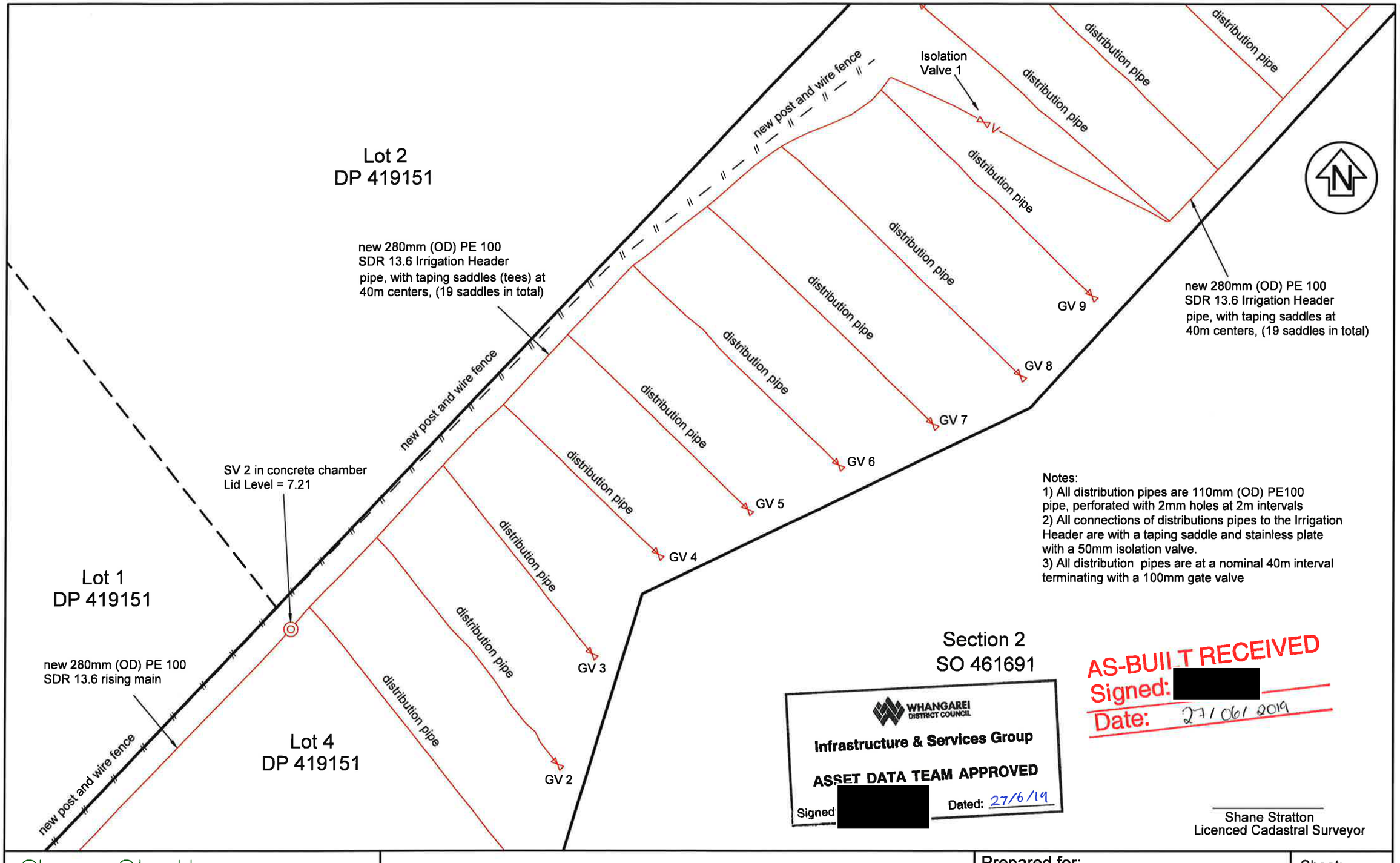
WHANGAREI DISTRICT COUNCIL
Infrastructure & Services Group
ASSET DATA TEAM APPROVED
Signed [redacted] Dated: 27/6/19

Shane Stratton
Licenced Cadastral Surveyor

Shane Stratton Surveying Limited
[redacted]

ASBUILT PLANS - RUAKAKA WASTE WATER TREATMENT PLANT - IRRIGATION UPGRADE

Prepared for: Northern Drainage / Whangarei District Council		Sheet: 2 of 6
Drawn: SS	Checked. SS	
Date: 24/10/18	Scale: 1:1000 @ A3	Ref: 1339



Shane Stratton Surveying Limited
[redacted]

ASBUILT PLANS - RUAKAKA WASTE WATER TREATMENT PLANT - IRRIGATION UPGRADE

Prepared for:		Sheet:
Northern Drainage / Whangarei District Council		3 of 6
Drawn: SS	Checked. SS	
Date: 24/10/18	Scale: 1:1000 @ A3	Ref: 1339

Notes:
1) All distribution pipes are 110mm (OD) PE100 SDR 13.6 pipes, perforated with 2mm holes at 2m intervals
2) All connections of distributions pipes to the Irrigation Header are with a taping saddle and stainless plate with a 50mm isolation valve.
3) All distribution pipes are at a nominal 40m interval terminating with a 100mm gate valve

AS-BUILT RECEIVED
Signed: [redacted]
Date: 27/06/2019

WHANGAREI DISTRICT COUNCIL
Infrastructure & Services Group
ASSET DATA TEAM APPROVED
Sign [redacted] Dated: 27/6/19

Lot 2
DP 419151

Lot 1
DP 419151

Lot 4
DP 419151

Section 2
SO 461691

Rama Road

GV 19
GV 18
GV 17
GV 16
GV 15
GV 14
GV 13
GV 12
GV 11
GV 10

distribution pipe

new 280mm (OD) PE 100 SDR 13.6 Irrigation Header pipe, with taping saddles (tees) at 40m centers, (19 saddles in total)

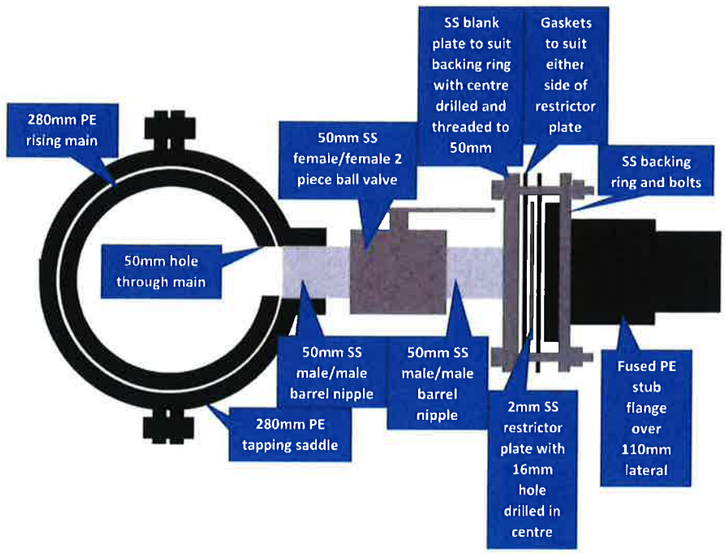
Shane Stratton
Licenced Cadastral Surveyor

Shane Stratton Surveying Limited
[redacted]

ASBUILT PLANS - RUAKAKA WASTE WATER TREATMENT PLANT - IRRIGATION UPGRADE

Prepared for: Northern Drainage / Whangarei District Council		Sheet: 4 of 6
Drawn: SS	Checked. SS	
Date: 24/10/18	Scale: 1:1000 @ A3	Ref: 1339

Ruakaka Irrigation Drip Line Connection Detail



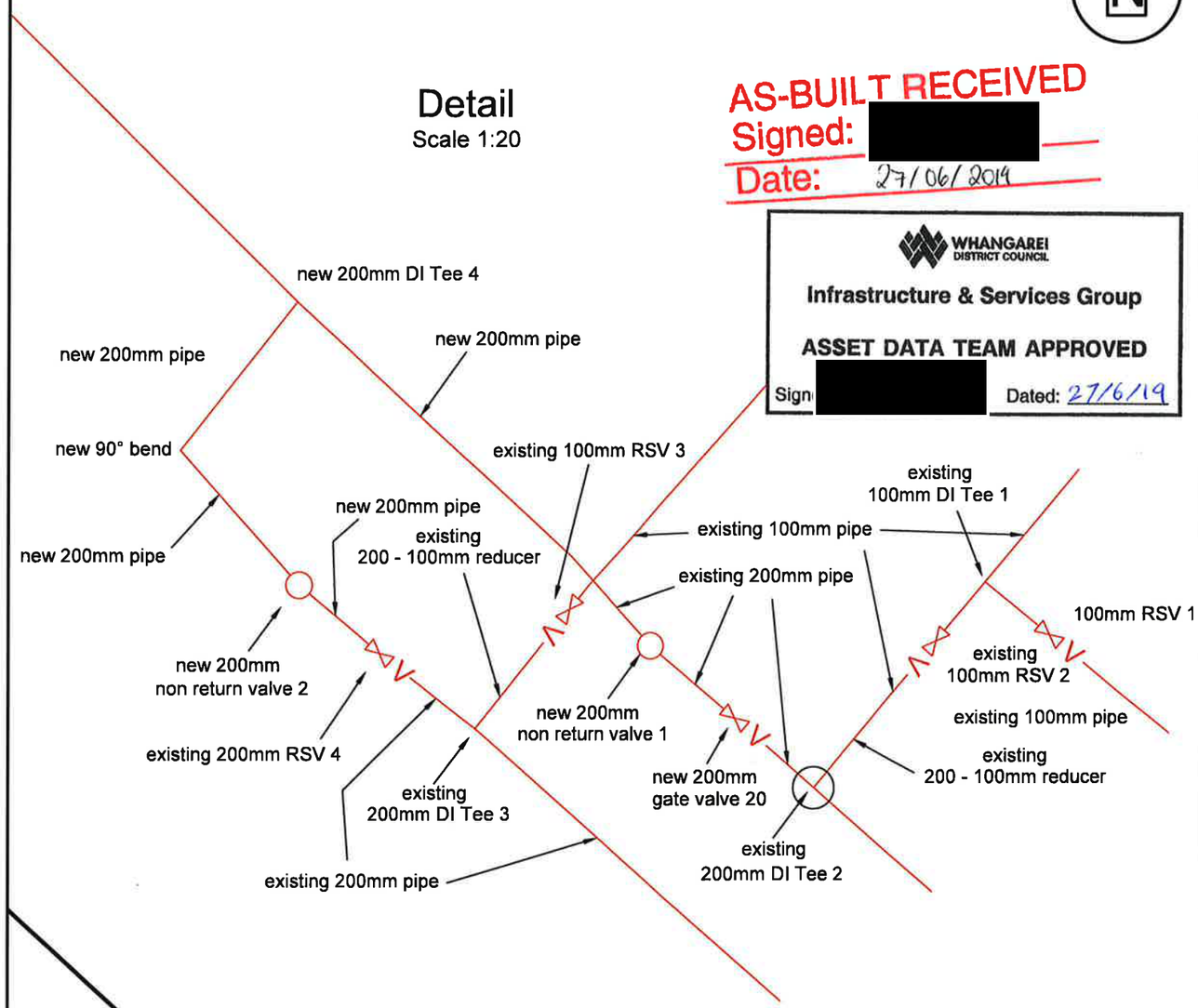
Please ensure all stainless-steel threads have liberal coating of lanicote or similar product to prevent galling

Detail

Scale 1:20

AS-BUILT RECEIVED
Signed: [redacted]
Date: 27/06/2019

WHANGAREI DISTRICT COUNCIL
Infrastructure & Services Group
ASSET DATA TEAM APPROVED
Sign [redacted] Dated: 27/6/19



Shane Stratton
Licenced Cadastral Surveyor

Shane Stratton Surveying Limited [redacted]	ASBUILT PLANS - RUAKAKA WASTE WATER TREATMENT PLANT - IRRIGATION UPGRADE	Prepared for: Northern Drainage / Whangarei District Council	Sheet: 5 of 6
		Drawn: SS / Checked. SS	
		Date: 24/10/18 / Scale: 1:20 @ A3	Ref: 1339

COMPCODE	Xref	UnitType	Description	Inst Date	Exp Life	Xcoord	Ycoord	Zcoord	USINVERT	DSINVERT	Material	Size	Quantity	Serial No	Surface	MF-ctr	Owner Ship
							Sewer										
SV	RSV 1	Sluice	existing sluice valve 1	Jul-18	50 years	1732978.754	6030367.557	5.221			Ductile iron	100mm (ID)	1		earth		public
SSMN		SEWER	line from RSV 1 to RSV 2 including existing tee	Jul-18	50 years				4.12	4.14	PE100	100mm (ID)	1		earth		public
SV	RSV 2	Sluice	existing sluice valve 2	Jul-18	50 years	1732978.323	6030367.535	5.207			Ductile iron	100mm (ID)	1		earth		public
SSMN		SEWER	line from RSV 2 to Tee 2 with 100mm to 200mm reducer	Jul-18	50 years				4.07	4.12	PE100	100mm/200mm (ID)	0.7		earth		public
SND	Tee 2	JUNC - T	new tee junction 2	Jul-18	50 years	1732977.88	6030367.008	4.273			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from Tee 2 to gate valve 20	Jul-18	50 years				4.07	4.07	PE100	200mm (ID)	0.4		earth		
SV	GV 20	Gate	new gate valve 20	Jul-18	50 years	1732977.603	6030367.261	5.123			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from gate valve 20 to non return valve 1	Jul-18	50 years				4.04	4.07	PE100	200mm (ID)	0.7		earth		
SV	NRV 1	Non Return	Non return valve 1	Jul-18	50 years	1732977.284	6030367.526	4.27			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from non return valve 1 to Tee 4	Jul-18	50 years				3.94	4.04	PE100	200mm (ID)	1.5		earth		
SV	RSV 3	Sluice	new sluice valve 3	Jul-18	50 years	1732977.045	6030367.803	5.153			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from RSV 3 to Tee 3 with 100mm to 200mm reducer	Jul-18	50 years				4.19	4.04	PE100	100mm/200mm (ID)	0.7		earth		public
SND	Tee 3	JUNC - T	new tee junction 3	Jul-18	50 years	1732976.639	6030367.223	4.397			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from Tee 3 to RSV 4	Jul-18	50 years				4.17	4.19	PE100	200mm (ID)	0.4		earth		
SV	RSV 4	Sluice	new sluice valve 4	Jul-18	50 years	1732976.299	6030367.491	5.15			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from RSV 4 to non return valve 2	Jul-18	50 years				4.26	4.17	PE100	200mm (ID)	0.4		earth		
SV	NRV 2	Non Return	Non return valve 2	Jul-18	50 years	1732975.994	6030367.747	4.46			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from non return valve 2 to tee 4	Jul-18	50 years				3.94	4.26	PE100	200mm (ID)	1.3		earth		
SND	Tee 4	JUNC - T	new tee junction 4	Jul-18	50 years	1732975.987	6030368.78	4.136			Ductile iron	200mm (ID)	1		earth		public
SSMN		SEWER	line from tee 4 to pressure release valve	Jul-18	50 years				4.13	3.94	PE100	250mm (ID)	19.3		earth		
SV	PRV	Pressure release	new pressure release valve	Jul-18	50 years	1732962.553	6030382.438	5.256			Ductile iron	250mm (ID)	1		earth		public
SSMN		SEWER	line from pressure release valve to scour valve 1	Jul-18	50 years				5.83	4.13	PE100	250mm (ID)	90		earth		
SV	SV 1	Scour	new scour valve 1 on rising main	Jul-18	50 years	1732936.557	6030455.072	6.934			Ductile iron	250mm (ID)	1		earth		public
SSMN		SEWER	line from scour valve 1 to air valve 1	Jul-18	50 years				7.12	5.83	PE100	250mm (ID)	186.6		earth		
SV	AV 1	Air	new air valve 1	Jul-18	50 years	1733065.099	6030590.164	8.973			Ductile iron	250mm (ID)	1		earth		public
SSMN		SEWER	line from air valve 1 to scour valve 2	Jul-18	50 years				6.40	7.12	PE100	250mm (ID)	150		earth		
SV	SV 2	Scour	new scour valve 2 on rising main	Jul-18	50 years	1733169.159	6030698.247	7.209			Ductile iron	250mm (ID)	1		earth		public
SSMN		SEWER	line from scour valve 2 to isolation valve 1	Jul-18	50 years				9.53	6.40	PE100	250mm (ID)	150		earth		
IV	IV 1	isolation	new isolation valve 1	Jul-18	50 years	1733459.926	6030911.165	10.329			Ductile iron	250mm (ID)	1		earth		public
GV	GV1	Gate	new gate valve 1	Jul-18	50 years	1733267.164	6030595.082	11.111			Ductile iron	100mm (ID)	2		earth		public
GV	GV2	Gate	new gate valve 2	Jul-18	50 years	1733281.268	6030641.638	12.221			Ductile iron	100mm (ID)	3		earth		public
GV	GV3	Gate	new gate valve 3	Jul-18	50 years	1733295.895	6030687.694	8.884			Ductile iron	100mm (ID)	4		earth		public
GV	GV4	Gate	new gate valve 4	Jul-18	50 years	1733323.402	6030729.703	8.714			Ductile iron	100mm (ID)	5		earth		public
GV	GV5	Gate	new gate valve 5	Jul-18	50 years	1733361.284	6030748.528	10.277			Ductile iron	100mm (ID)	6		earth		public
GV	GV6	Gate	new gate valve 6	Jul-18	50 years	1733399.285	6030767.241	9.638			Ductile iron	100mm (ID)	7		earth		public
GV	GV7	Gate	new gate valve 7	Jul-18	50 years	1733439.159	6030784.48	8.729			Ductile iron	100mm (ID)	8		earth		public
GV	GV8	Gate	new gate valve 8	Jul-18	50 years	1733476.022	6030804.744	9.513			Ductile iron	100mm (ID)	9		earth		public
GV	GV9	Gate	new gate valve 9	Jul-18	50 years	1733506.163	6030838.361	9.708			Ductile iron	100mm (ID)	10		earth		public
GV	GV10	Gate	new gate valve 10	Jul-18	50 years	1733432.858	6030961.317	7.082			Ductile iron	100mm (ID)	11		earth		public
GV	GV11	Gate	new gate valve 11	Jul-18	50 years	1733449.478	6030996.62	6.436			Ductile iron	100mm (ID)	12		earth		public
GV	GV12	Gate	new gate valve 12	Jul-18	50 years	1733476.598	6031026.476	4.893			Ductile iron	100mm (ID)	13		earth		public
GV	GV13	Gate	new gate valve 13	Jul-18	50 years	1733504.607	6031054.778	5.741			Ductile iron	100mm (ID)	14		earth		public
GV	GV14	Gate	new gate valve 14	Jul-18	50 years	1733532.228	6031083.885	4.332			Ductile iron	100mm (ID)	15		earth		public
GV	GV15	Gate	new gate valve 15	Jul-18	50 years	1733559.567	6031113.166	3.934			Ductile iron	100mm (ID)	16		earth		public
GV	GV16	Gate	new gate valve 16	Jul-18	50 years	1733587.446	6031141.645	5.907			Ductile iron	100mm (ID)	17		earth		public
GV	GV17	Gate	new gate valve 17	Jul-18	50 years	1733614.754	6031171.251	5.835			Ductile iron	100mm (ID)	18		earth		public
GV	GV18	Gate	new gate valve 18	Jul-18	50 years	1733642.231	6031199.173	5.658			Ductile iron	100mm (ID)	19		earth		public
GV	GV19	Gate	new gate valve 19	Jul-18	50 years	1733674.44	6031236.954	6.03			Ductile iron	100mm (ID)	20		earth		public

WHANGAREI DISTRICT COUNCIL

Infrastructure & Services Group

ASSET DATA TEAM APPROVED

Signed: [redacted] Dated: 27/6/19

AS-BUILT RECEIVED
Signed: [redacted]
Date: 27/06/2019

Shane Stratton
Licenced Cadastral Surveyor

Shane Stratton Surveying Limited
[redacted]

ASBUILT PLANS - RUAKAKA WASTE WATER TREATMENT PLANT - IRRIGATION UPGRADE

Prepared for: Northern Drainage / Whangarei District Council

Drawn: SS | Checked. SS

Date: 24/10/18 | Scale: NA

Sheet: 6 of 6

Ref: 1339

Please Quote File: REG.021532.01, ACT.156794
ESTR:NJAC

28 October 2022

Whangarei District Council
Email: hai.nguyen@wdc.govt.nz

Dear Whangarei District Council,

MONITORING REPORT FOR RESOURCE CONSENT AUT.021532.01.02: ACTIVITIES ASSOCIATED WITH OPERATION OF EXISTING WWTS, CONSTRUCTION, UPGRADING AND OPERATION OF A NEW RUAKAKA WWTP, AND ASSOCIATED DISCHARGE OF TREATED WASTEWATER TO LAND AND THE CMA AT BREAM BAY

An officer of the Northland Regional Council inspected the wastewater treatment system on Tuesday, 30 August 2022 to assess compliance with resource consent AUT.021532.01.02.

The results indicate compliance with the 2022 quarterly monitoring inspection.

An invoice which covers council's travel, fieldwork and administration costs for the inspection will follow shortly.

Please do not hesitate to contact me if you have any queries regarding the monitoring report.

Yours faithfully

[redacted]

Emily Stringer
Environmental Monitoring Officer

Condition 9A	Compliance
At all times following the first exercise of consent (07), the quality of the treated wastewater, as measured at the outlet of the new wastewater treatment system required by Condition 8, shall comply with the following concentration standards, based on 60 samples collected over each year (being 12 months from 1 July to 30 June inclusive): *see consent	Full compliance
Condition 40	**Compliance**
There shall be no ponding of wastewater within the land disposal area as a result of the exercise of this consent.	Full compliance
Condition 41	**Compliance**
If monitoring results show that the exercise of consents (01) and (02) result in the exceedance of any the following determinand concentrations, as measured in the identified monitoring bores shown on NRC Plan 4885 then the Consent Holder shall forward to the Manager and the Liaison Group, a report that assesses the environmental effects of the exercise of this consent on the water quality of Ruakaka Beach and the Ruakaka River. The report shall identify any actions required to correct any exceedance and identify trends that are evident in the monitoring results and discuss the possible reasons for any exceedance in the concentrations specified.	Full compliance
Condition 45	**Compliance**
The Consent Holder's operation shall not give rise to any discharge of contaminants at or beyond the boundary of Sec 65 Blk VII Ruakaka SD which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, a more than minor adverse effect on the environment.	Full compliance
Condition 62	**Compliance**
If the monitoring results from the groundwater bores show that the exercise of consent (05) results in the exceedances of the specified median concentration for the following determinands, the Consent Holder shall forward to the Manager a report that assesses the environmental effects of the discharge on the water quality of Ruakaka Beach. The report shall identify any actions required to address any adverse effects. **Seaward Bores from Disposal Area** **Determinand** **Median Concentration** Faecal Coliforms 35 per 100 millilitres Total Ammoniacal Nitrogen 20 milligrams per Litre The median shall be a "rolling" median calculated using the five most recent sample event results.	Full compliance
Condition 66	**Compliance**
The Consent Holder's operation shall not give rise to any discharge of contaminants at or beyond the boundary of Lot 4 DP 419151 which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, a more than minor adverse effect on the environment.	Full compliance

30/08/2022	100783	100784	100785	100786	100787	100788	109645	109647	304607	304609	304611
Determinands	Ruakaka sewage treatment system at Number 2 marsh - far	Ruakaka Sewage Treatment System @ No. 1 monitoring bore	Ruakaka Sewage Treatment System at No. 2 monitoring bore	Ruakaka Sewage Treatment System at No. 3 monitoring bore	Ruakaka Sewage Treatment System at No. 4 monitoring bore	Ruakaka Sewage Treatment System at No. 5 monitoring bore	Ruakaka Sewage Treatment Sys at Monitoring bore no. 22	Ruakaka Sewage Treatment Sys at Monitoring bore no. 25	Ruakaka sewage treatment system at monitoring bore No. 35	Ruakaka Sewage Treatment Sys at Monitoring bore no. 36	Ruakaka Sewage Treatment Sys at Monitoring bore no. 37
Ammoniacal Nitrogen (g/m3-N)	40	3.3	11	10	0.26	0.01	0.017	0.05	0.0064	0.026	<0.005
Biochemical Oxygen Demand 5 Day - Carbonaceous (g/m3)	32										
Conductivity at 25 deg C (us/cm)	720	737	632	754	489.9	269.9	95.6	136.6	397.6	264.6	244.5
Depth - Groundwater (mm)		1400	570	740	1780	1050	4050	5700	5900	2140	4530
Dissolved Oxygen (mg/L)	11.41										
Dissolved Oxygen Percent Saturation (% Sat)	117.7										
Dissolved Reactive Phosphorus (g/m3-P)							0.01	0.082			
Faecal Coliforms (presumptive) (CFU/100ml)	54000	6.6	6.6	6.6	<1.6	3.3	<1.6	200	<1.6	<1.6	1.6
Nitrite/nitrate nitrogen (g/m3-N)	0.24	11	8.4	0.072	0.075	4.3	0.93	2	6.7	0.099	0.18
pHpH	8.16										
Temperature (degC)	16.8										

Total Kjeldahl Nitrogen (g/m3)	47.1	4.52	11.9	10.6	2.37	0.888	0.877	4.54	0.153	0.266	0.168
Total Nitrogen (g/m3-N)	48	15	22	11	3.8	5.1	1.7	6.1	7	0.38	0.37
Total Phosphorus (g/m3-P)	5.47	0.335	1.79	9.89	0.75	0.132	0.09	0.819	0.049	0.12	0.116
Total Suspended Solids (g/m3)	109										

D

Appendix D – Site Walkover Photography

Site Location and Project
Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications

Photo No.	**Date**
1	

Description:
Zone 7, looking north

Photo No.	**Date**
2	

Description:
Zone 7, looking north

Site Location and Project
Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications

Photo No.	Date
3	

Description:
Zone 6B facing south

Photo No.	Date
4	

Description:
Zone 6B facing north

Site Location and Project
Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications

Photo No.	Date
5	

Description:
Land use adjacent to Zone 6B

Photo No.	Date
6	

Description:
Rama Road site paddock irrigation

Site Location and Project
Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications

Photo No.	Date
7	

Description:
Zone 6B and 7

Photo No.	Date
8	

Description:
Zone 3 looking south

Site Location and Project
Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications

Photo No.	Date
9	

Description:
Road along Rama Road site and pipe

Photo No.	Date
10	

Description:
Rama Road site paddock irrigation

Site Location and Project
Ruakākā Sewage Treatment Plant Interim Discharge Options and Applications

Photo No.	Date
11	

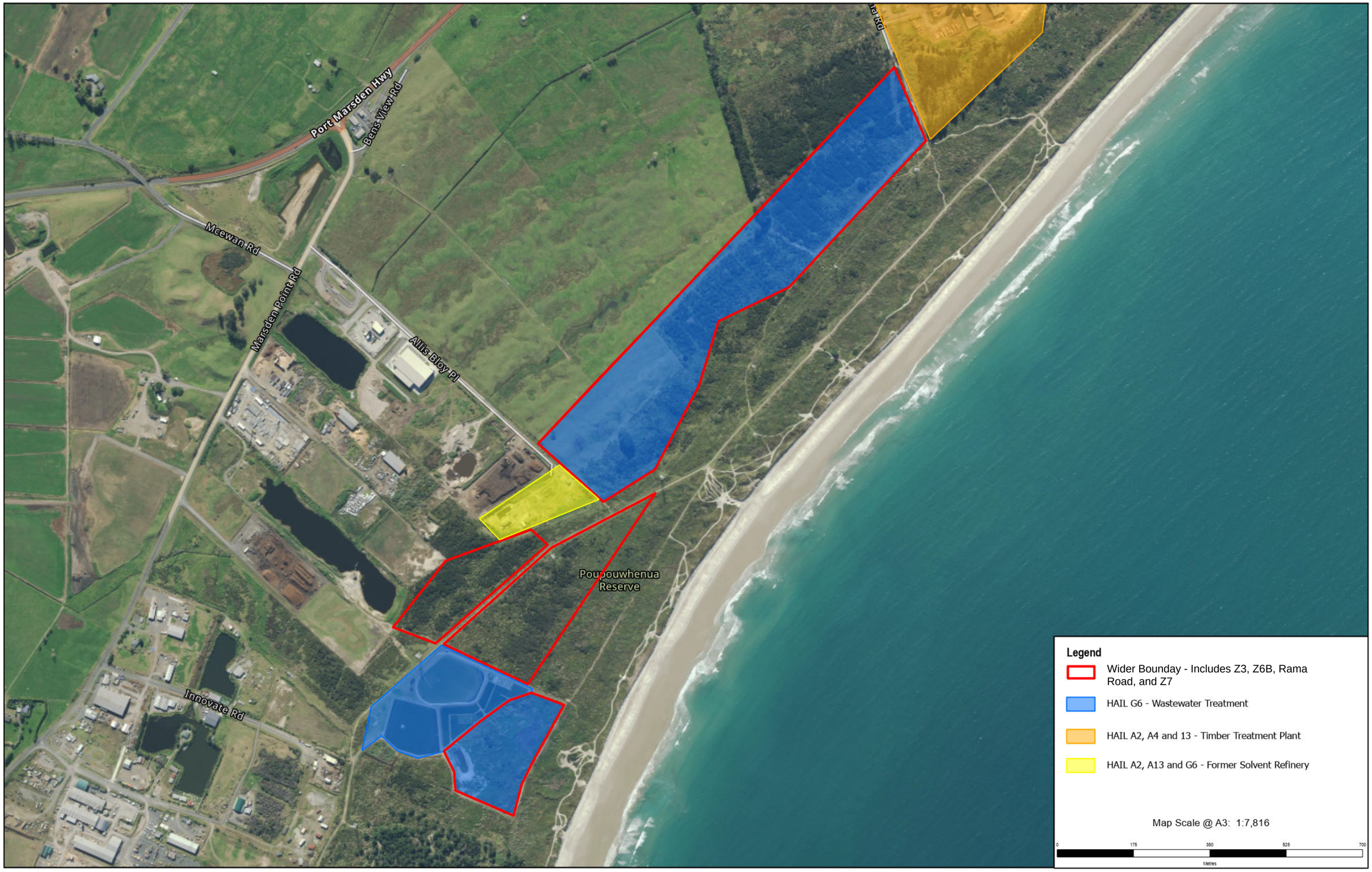
Description:
Looking south at top of Zone 6B and adjacent land use

Photo No.	Date
12	

Description:
Ponding observed at Rama Road

E

Appendix E – HAIL Map



N

Revision	Drawer	Verified	Approved	Date
1	MA	GH	GH	07.07.25

Title: **HAIL MAP - RUAKĀKĀ STP INTERIM DISCHARGE OPTIONS**

Client: WHANGAREI DISTRICT COUNCIL

Project: RUAKĀKĀ STP INTERIM DISCHARGE OPTIONS

Beca

Discipline: ENVIRONMENTAL

Drawing No. 1

MARSHALL DAY Acoustics

RUAKĀKĀ WWTP DISCHARGE CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

Rp 001 20250564 | 2 September 2025

84 Symonds Street
PO Box 5811
Victoria Street West
Auckland 1142 New Zealand
T: +64 9 379 7822 F: +64 9 309 3540
www.marshallday.com

Project: **RUAKĀKĀ WWTP DISCHARGE**
CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

Prepared for: **Beca**
124 Halsey Street
Auckland Central
Auckland 1010

Attention: **Whangārei District Council**

Report No.: **Rp 001 20250564**

Document Control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
Issued			22 July 2025	C. Fenemore	M. Cottle
Issued	01	Incorporated client comments	7 Aug 2025	C. Fenemore	-
Issued	02	Incorporated WDC comments	2 Sep 2025	C. Fenemore	-

Cover Photo: Creative Agency 514-806-1644

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3.0 CONSTRUCTION NOISE PERFORMANCE STANDARD 6

4.0 CONSTRUCTION NOISE ASSESSMENT 6

4.1 Calculated typical construction noise levels 6

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APPENDIX A GLOSSARY OF TERMINOLOGY

APPENDIX B SITE IRRIGATION ZONES

1.0 REPORT SUMMARY

Beca has engaged Marshall Day Acoustics to assess construction noise and vibration for the interim expansion of the discharge capacity at the Ruakākā Wastewater Treatment Plant (WWTP). This report is a supporting document to the application for resource consent.

We calculate that typical daytime construction noise will comply with the relevant Whangārei District Plan (WDP) zone limits at all receivers.

No high-vibration construction activities have been identified. We therefore anticipate that construction vibration will readily comply with the relevant vibration limits and have not addressed this further in this report.

A glossary of terminology is included in Appendix A.

2.0 PROJECT DESCRIPTION

2.1 Site description

The WWTP is located on Marsden Point Road, Ruakākā with discharge to land irrigation proposed to the adjoining land areas. Current resource consents authorise discharge to an infiltration basin (commonly referred to as Zone 3) located at the WWTP site (Section 65 Block VII Ruakākā Survey District) and to an approximately 20 hectare land block (Lot 4 DP 419151) accessed from Rama Road. Refer to Appendix B for the relevant discharge zones.

Figure 1 shows the location of the project and the surrounding receiving environment.

Figure 1: Site and surrounding receiving environment

2.2 Project description

Whangārei District Council (WDC) is planning an interim expansion of the discharge capacity of the WWTP, ahead of the planned construction of a new treatment plant.

Discharge is proposed for Zones 6B and 7. This will require installation of discharge pipework in these zones. The duration of this work is estimated to be 2-3 months.

2.3 Identified potentially noise sensitive receivers

Table 1 lists the receivers we have identified as potentially noise sensitive. The table lists each receiver, the zoning/primary use, and minimum distance to the site works. If compliance is shown at the identified receivers, then it can be inferred with confidence for all other, more distant, receivers not included in the assessment. Figure 1 shows the location of the identified receivers.

Table 1: Receiver table

Receiver no.	Address	Zoning[1] / usage	Min. distance to site works (m)
R1	500 Marsden Point Road	Heavy and Light Industrial / unknown	350
R2	560 Marsden Point Road	Heavy Industrial / unknown	250
R3	53 Innovate Road	Heavy Industrial / recycling depot	330
R4	30 Allis Bloy Place	Heavy Industrial / warehouse	400
R5	77 Allis Bloy Place	Heavy Industrial / warehouse	30

Notes to table:
(1) Zoning as per the Whangārei District Plan.

3.0 CONSTRUCTION NOISE PERFORMANCE STANDARD

Rule NAV-R3 of the WDP states that noise from construction shall comply with the guidelines and recommendations of NZS 6803:1999 "*Acoustics – Construction Noise*". Noise levels shall be measured and assessed in accordance with NZS 6803.

NZS 6803:1999 sets out the following noise limits for noise received in industrial or commercial areas for typical duration works. Levels are assessed at 1m from the façade of occupied buildings in industrial or commercial areas.

Table 2: NZS 6803:1999 construction noise limits in industrial or commercial areas

Time period	Typical duration work (dB L_{Aeq})
0730 – 1800	75
1800 – 0730	80

4.0 CONSTRUCTION NOISE ASSESSMENT

4.1 Calculated typical construction noise levels

Construction works associated with the project will consist of:

- Vegetation clearance
- Minor earthworks
- Installation of irrigation pipework
- Installation of control system and commissioning works

We anticipate the plant and activities shown in Table 3 will be used during construction. The table includes the per unit sound power level, calculated level at the three closest receivers, and the minimum distance required to comply with the construction noise limit (refer to Section 3.1).

We have assumed all construction work will take place Monday to Saturday between 7.30am to 6pm.

Noise from construction activities is calculated to comply at all receivers.

Table 3: Calculated construction noise levels for three closest receivers

Activity	Equipment	Sound Power	Façade Noise Level (dB L_{Aeq})			Limit Setback (m)
		(dB L_{WA})	R5	R2	R3	75 dB L_{Aeq}
Vegetation clearance	5T excavator	102	67	44	41	13
	Truck and trailer	105	70	47	44	18
Earthworks	10T bulldozer	109	74	51	48	28
	Loader	96	61	38	35	6
Installation	Truck and trailer	105	70	47	44	18
	5T excavator	102	67	44	41	13

Notes to table:

(1) Appendix A provides an explanation of technical terms.
(2) In accordance with Section C.2 of NZS 6803:1999 results include 3 dB façade reflection.
(3) R5 represents façade of 77 Allis Bloy Pl located 30m from the site boundary.
(4) R2 represents façade of 560 Marsden Point Rd located 250m from the site boundary.
(5) R3 represents façade of 53 Innovate Rd located 330m from the site boundary.

4.2 Construction noise prediction methodology

The contractor will develop a detailed construction programme prior to the commencement of construction activities. In its absence, we have assumed construction work may occur at any point within the proposed irrigation zones, using the plant provided.

We have calculated construction noise in general accordance with the method detailed in Annex D of NZS 6803:1999. The method considers the sound power level, periods of operation, distance from source to receiver and screening of each source, as well as façade reflection and the degree of soft ground attenuation.

APPENDIX A GLOSSARY OF TERMINOLOGY

dB	Decibel (dB) is the unit of sound level.
dBA	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) to more closely approximate the frequency bias of the human ear. A-weighting is used in airborne acoustics.
$L_{Aeq\,(t)}$	The equivalent continuous (time-averaged) A-weighted sound level commonly referred to as the average level. The suffix (t) represents the period, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
L_{Amax}	The A-weighted maximum sound level. The highest sound level which occurs during the measurement period. Usually measured with a fast time–weighting i.e. L_{AFmax}
NZS 6803:1999	New Zealand Standard NZS 6803: 1999 "Acoustics - Construction Noise"

APPENDIX B SITE IRRIGATION ZONES

Figure 2: Site and surrounds

Ruakākā Wastewater Treatment Plant Land Discharge

Landscape Assessment Report

Prepared for Whangārei District Council
Prepared by Beca Limited

25 August 2025

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Appendix 1 – Methodology

Appendix 2 – Viewpoint Location Map

Appendix 3 – Relevant Rules

Appendix 4 – Landscape Mitigation Plan

Revision History

Revision Nº	Prepared By	Description	Date
Version 1	[redacted]	DRAFT for Internal Review	28/07/2025
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Document Acceptance

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on behalf of	Beca Limited		

Executive Summary

Whangārei District Council (WDC) is considering options to increase the discharge capacity of the Ruakākā Wastewater Treatment Plant (R-WWTP), to alleviate current development constraints in the Bream Bay area. The purpose of this report is to assess the actual and potential landscape effects of construction and operation of treated wastewater discharge to Zones 6B and 7 (the Project) on the identified character and values of the landscape. It has been prepared by Beca Limited following best practice guidelines set out in Te Tangi a Te Manu Aotearoa New Zealand Landscape Assessment Guidelines (2022) to inform the Assessment of Effects on the Environment (AEE) accompanying the application for Resource Consent.

The Project involves wastewater discharge into an area zoned Natural Open Space (NOSZ) with a Coastal Environment overlay. The relevant statutory framework is provided by the Reserves Act 1977, Resource Management Act 1991, New Zealand Coastal Policy Statement 2010, and Whangarei District Plan 2022 (WDP) with requirements to preserve natural character in the coastal environment being a particular focus of these documents for this area. Activities in this zone are regulated to protect ecological, cultural, and landscape values. The activity status is discretionary as a result of rule CE-R7 Earthworks within Sand Dunes. Accordingly, the assessment is made with consideration of the reasonably anticipated outcomes in this zone and is therefore focused on the effects of the proposed activity on the natural character and recreational aspects of area including consideration of its interaction with the coastal environment.

Key Findings:

- The local landscape context features a juxtaposition between extensive areas of industrial land use, and areas of significant natural values such as Outstanding Natural Landscapes (ONL), High Natural Character areas (HNC), and recreational assets like the Te Araroa Trail.
- Zones 6B and 7 are part of the Poupouwhenua Scenic Reserve managed by DOC; their open space zoning prioritises conservation of natural resources.
- Sensitive viewers include users of the Te Araroa Trail, general beach users and Ruakākā Pipeline Road Track users within the Poupouwhenua Reserve

Conclusions:

On balance, it is considered that the adverse effects arising from the Project will result in landscape outcomes for the site which are consistent with those anticipated for the NOSZ and Poupouwhenua Reserve. The natural and recreational values of the Reserve will be maintained, and the Project will not affect the Bream Bay Ocean Beach ONL or HNC area, being adequately physically and visually separated from these areas.

Despite some short-term experiential changes, limited change to landforms and removal of some vegetation, the proposed long-term reestablishment of indigenous planting and reduction of weeds is beneficial for the site. The activity itself requires the exclusion of people, however exclusion and protection form 4WD vehicles is also likely to benefit the site.

Overall **adverse effects on the landscape values including natural character and amenity of Zone 6B and Zone 7 are low-moderate**, reducing over time as planting becomes established. **Adverse visual effects are very low** and limited to users of the Ruakākā Pipeline Road Track.

1 Introduction

1.1 Background

Whangārei District Council (WDC) is evaluating the viability of increasing the discharge capacity of the Ruakākā Wastewater Treatment Plant (R-WWTP), located approximately 4km north of Ruakākā on the Ruakākā Pipeline Road Track. The R-WWTP is approaching the volumetric consent conditions of the resource consent for discharge of treated effluent to land, resulting in a limitation on development in the Bream Bay area.

WDC commissioned Beca Ltd (Beca) to provide a range of technical and planning assessments to firstly assess feasibility of three options and inform the concept design and site selection for the proposed additional discharge area (Phase 1 Assessments). Secondly, assessments have been prepared to support an Assessment of Effects on the Environment (AEE) and application for Resource Consent for the increase to discharge of treated effluent to land (Phase 2 Assessments).

As part of the feasibility assessments, Beca prepared a Preliminary Landscape and Visual Assessment Report. This preliminary report assessed potential risks for two options, focussing at a high level on the landscape issues for each option, given the Natural Open Space zoning of the sites and related policy framework.

1.2 Purpose and Scope

The purpose of this report is to assess the actual and potential landscape effects of the construction and operation of the project, being discharge of treated wastewater to Zones 6B and 7,on the identified character and values of the landscape (refer to Figure 1 below).

Figure 1: Location of existing R-WWTP site and proposed land discharge sites Zone 6B, Zone 7 and existing discharge site at Rama Road. Map also shows planning overlays relevant for landscape matters, including zones, coastal environment overlay and high natural character area (which coincides with an Outstanding Natural Landscape overlay).

The scope of the assessment is underpinned by the methodology provided in Section 1.3 below, where it describes how the report is shaped by established industry guidance and the key activities and process that have been undertaken in preparing this assessment. Section 4 describes the relevant policy context that informs the assessment and shapes the conclusions around aspects of compatibility with the adjoining land uses.

1.3 Methodology

The assessment methodology is based on, and consistent with, the **Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines** (the Guidelines), Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. The Guidelines emphasise the need for the scope and method of assessment be tailored to three key aspects:

- The relevant landscape setting,
- The nature of the proposal and associated degree of change in the landscape, and
- Associated policy framework.

Refer to Appendix 1 for the full Landscape and Visual Assessment methodology and terms used when assessing the potential landscape and visual effects of the proposal. The relevant landscape setting is outlined in Section 2, Existing Environment. The Project is summarised in Section 3 and details the components likely to influence the effects assessment. The relevant statutory framework is described in full in the AEE with policy relating to landscape character and visual amenity outlined in Section 4 of this report.

1.3.1 Scope of the Assessment

The relevant landscape context has been identified by analysing the receiving environment and defining the physical extents of the Project. The analysis of the landscape includes a description of the existing environment, setting out the physical, perceptual and associative attributes that exist across the site and relevant landscape context. These attributes are summarised in a statement of the overarching character and landscape values in Section 2**.**

The Project involves wastewater discharge into an area zoned Natural Open Space (Poupouwhenua Scenic Reserve), near the coastline of Bream Bay. Accordingly, the assessment is made with consideration of the reasonably anticipated outcomes in this zone and is therefore focused on the effects of the proposed activity on the natural character and recreational aspects of area including consideration of its interaction with the coastal environment.

1.3.2 Preparation for this Report

In preparing this report and Appendix 1 to be read in conjunction with the report, the following tasks have been undertaken to identify and assess the landscape values of the site context and the Project's actual and potential effects on those values:

Preliminary Landscape Assessment Report (Version 4, issued 09/07/2025) – The relevant landscape setting and policy framework identified during the feasibility assessments form the basis for this report. The relevant sections from the Preliminary Report have been included in this report for completeness including Section 3 Existing Environment, and Section 5 Statutory Planning Context.

Background documentation and desktop analysis - The following material was reviewed and analysed to develop an understanding of the potential issues and matters to be addressed during the assessment process:

- Project description, concept layout and alignments provided by the project team

- Statutory setting as guided by the Resource Management Act 1991 (RMA), New Zealand Coastal Policy Statement, Northland Regional Policy Statement and the Whangārei District Plan
- Other relevant technical and non-statutory reports including:
  - Ruakākā Solar Park Development - Landscape, Visual Amenity and Rural Character Assessment, Littoralis Landscape Architecture, *September 2023,*
  - Bream Bay Vegetation Assessment and Restoration Strategy, Re-Native, July 2024
- Other technical reports informing the AEE

Site Visits - A site visit was undertaken on 20 May 2025 to investigate the site, local landscape, and existing trees, assess the visual catchments in the area and to take viewpoint photos at local places of interest.

2 Existing Environment

2.1 Local landscape context

The project is located in Ruakākā, approximately 32km from Whangārei. The sites are within 500m of the coastline of Bream Bay, which stretches from Marsden Point (at the entrance to Whangārei's Harbour and Port) to Paepae-o-Tū/Bream Tail. The Ruakākā coastline is fronted by a shallow, relatively low lying, dune corridor, behind which various industrial premises, the R-WWTP, the local racecourse and scattered pockets of residential development all face out across Bream Bay.

To the east of Marsden Point Road, between Ruakākā and Marsden Point, land is largely zoned Heavy Industrial, reflected by the large scale and industrial nature of built form and related land use activities including (at the Ruakākā end) timber milling, storage yards, metal scrap yards, the Marsden Substation, a landscape supply business, concrete facility, and diesel stop. At the Marsden Point end of the industrial area, is Northport, a refinery, a gas plant, an LVL facility, Bream Bay Substation and the Ruakākā Energy Park, currently consisting of a battery storage facility, with consent for construction of a solar farm.

The existing R-WWTP site is zoned Natural Open Space Zone (NOSZ), as shown in Figure 3 below.

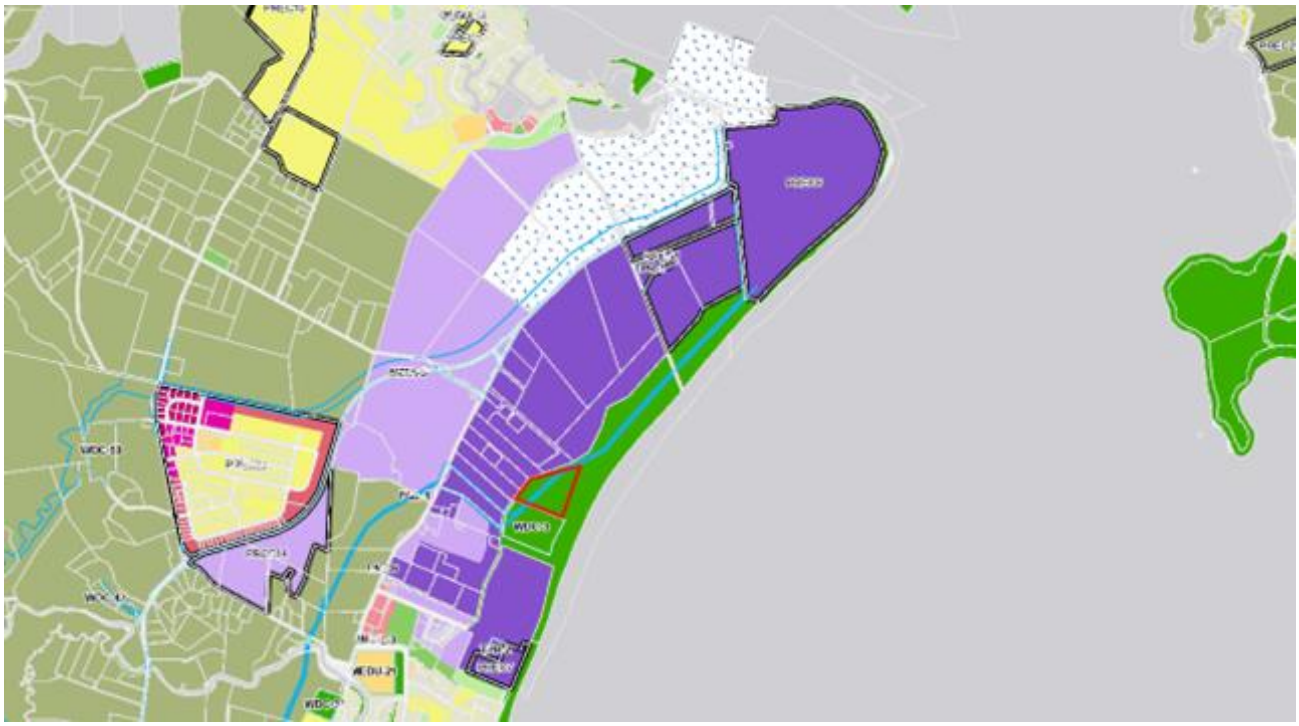


Figure 2: Map showing local area zoning, Project area outlined in red. Existing R-WWTP designated site is labelled WDC-3 and zoned Natural Open Space with Coastal Environment Overlay. The remainder of the NOSZ is known as Poupouwhenua Reserve.

The R-WWTP is owned by WDC but is surrounded by Poupouwhenua Scenic Reserve administered by the Department of Conservation on behalf of the Crown. The Poupouwhenua Reserve has been set aside as a Scenic Reserve under s 19(1)(b) of the Reserves Act 1977 for *"the development and introduction of flora, whether indigenous or exotic, which will be of significant scenic interest or beauty"*. The Reserve is, amongst other things, regulated under the Northland Reserves Bylaws 2007[1]. The Bylaws are "*a tool to help protect*

[1] https://www.legislation.govt.nz/regulation/public/2007/0408/latest/whole.html

natural, historic and recreational values. They describe and regulate the kinds of activities and behaviour which damage those values and affect other people's enjoyment of particular areas or facilities".

The Reserve provides a corridor for transmission infrastructure - large transmission towers are visible along the coastline. Additional designations through the reserve are described in Section 5 Statutory Planning Context, Table 2. Other modifications include the Ruakākā Pipeline Road Track, which runs parallel to the coastline, set back approximately 80m from the beach.

The local landscape has limited landscape value and sensitivity due to the extent of industrial land use and activities. The areas of important landscape values are largely confined to a narrow corridor of the ocean coastline, identified in the WDP by the HNC and ONL overlays – the characteristics of these overlays are outlined in Table 1, below. The Bream Bay coastline is part of the Te Araroa Trail[2], identified as one of the worlds "most diverse long-distance walking trails". Neither Zone 6B or Zone 7 are located within or directly adjacent to the HNC or ONL areas.

Areas of public access are also linked to the coastal area and dunes. A network of four-wheel driving trails is visible on aerial maps which show the recreational value of the coastal environment, which also limit the natural values of the dune ecology due to the destructive nature of the activity which native flora such as spinifex is susceptible to.

2.1.1 Visual Catchment and Viewing Audiences

Visual sensitivity refers to the nature and duration of views. Locations from which a view would potentially be seen for a longer duration, where there are higher numbers of potential viewers and where visual amenity is important to viewers can be regarded as having a higher visual sensitivity. Distance also contributes to the sensitivity of a view. Generally, the greater the distance, the less sensitive the viewpoint. Sensitive audiences for the local context are identified as:

- Te Araroa Trail users
- General beach users
- Ruakākā Pipeline Road Track users

Other existing users include recreational 4WD users, although it is noted that this type of use is generally prohibited, as per the Northland Reserves Bylaw. The undulating dune landforms and scrubby vegetation across the Poupouwhenua Scenic Reserve limit the visibility between the beach and industrial zoned areas to the west, as shown in Figure 3 below.

[2] https://www.teararoa.org.nz/wp-content/uploads/2024/11/ta_v43_Northland.pdf

Figure 3: View facing east from R-WWTP northern boundary adjacent to Zone 7. The Hen and Chicken Islands are visible on the horizon, and the Bream Bay beach itself is not visible, obscured by dune landforms.

2.1.2 Local Landscape Values Summary

The following table outlines the sensitive landscape areas and describes their attributes which contribute to the identified local landscape values. Maintenance and management of these values is unlikely to be an issue for the project due to the physical separation of the proposed discharge sites from the landscape features listed below, depending on the extent of access tracks, vegetation removal and excavation/earthworks which is undertaken. This is discussed further in Section 6, Assessment.

Table 1: Sensitive Landscapes

Landscape	Description[3]	Contributing Values
Outstanding Natural Landscapes - Bream Bay ocean beach[4]	*Characterised by its exposure, simplicity of form and scale, this land type comprises the beach and its immediate backdrop only. The ocean beach extending between Marsden Point and the Waipu River represents the largest example of this land type on the east coast of the Region. It forms a gentle and graceful curve which, when looking north from locations to the south such as that illustrated on the photograph below, is terminated by the distinctive silhouette of the sequence of landforms making up the Manaia group. The landscape has a powerful simplicity engendered by the limited palette of colours, and the scale and form of the beach.*	Physical and Perceptual attributes embodied by the ocean beach landscape identified by the ONL overlay. *The beach is backed by low dunes which in places forms an extensive dunefield (described above), however only the seaward margin of the foredunes are included within the ONL given the modification and weed infestation associated with the remainder of the area.*
High natural character Area – Ruakākā north dune	*Foredune face dominated by spinifex (90%+ native). Cover on swale and secondary dunes include native (pohuehue, pohutukawa) & alien (lupin) shrubs, native (spinifex) and introduced grasses, knobbly clubrush & iceplant. Excludes pampas, gorse, Norfolk pines at Bream Bay aquaculture facility. Several tracks through dunes to the coastline.*	Physical and Perceptual attributes embodied by the foredune area identified by the HNC overlay. *Relatively mature indigenous vegetation relative to the site conditions and natural disturbance history/regime, but backdune weedy. Minimal*

[3] Northland Regional Council Landscape Assessment Worksheets, February 2014

[4] https://www.nrc.govt.nz/media/gz5hsq0m/breambayoceanbeach.pdf

Landscape	Description[3]	Contributing Values
		human-mediated hydrological or landform changes, except for access-ways to beach.
Poupouwhenua Scenic Reserve Entire area zoned NOSZ, excluding the area designated for existing R-WWTP.	*Natural Open Space Zone. Natural, historic and recreational values - DOC managed.* ***Related:*** *named for Te Poupouwhenua*	Physical, perceptual and associative attributes of the broader coastal environment. *Publicly accessible reserve, noted for natural and recreational values (excluding the existing WWTP site which is also zoned NOSZ).*
Te Araroa Trail Follows the Bream Bay coastline for approximately 15km	*"Te Araroa is one of the world's most diverse long-distance walking trails. Across its 3,000 kilometres, Te Araroa unveils the unique beauty of Aotearoa New Zealand's landscapes and communities."*	Perceptual and Associative attributes linked to the Bream Bay ocean beach landscape (ONL).

2.2 Zone 6B site description

Zone 6B is directly northwest of the R-WWTP, adjoining Zone 7, with a land area of approximately 3.58ha (35,790m^2). The site is part of Poupouwhenua Reserve and is bounded to the north by areas zoned Heavy Industrial (HIZ). These HIZ properties consist of open areas of pasture, a discharge site associated with the WWTP (referred to as Zone 6A which was consented for discharge but only up until 2018), and a gravel pit associated with the concrete facility. It is bound by the Ruakākā Pipeline Road Track to the south which is broadly aligned with the transmission corridor (lines and lattice towers).

Figure 4: Site of Zone 6B directly north of the R-WWTP. (Map not to scale. Aerial image source: Google Maps, zone boundaries approximate.)

2.2.1 Physical attributes

Zone 6B is elevated slightly higher than the WWTP and Zone 7. It is a minor high point/slightly higher duneland form within the broader area. The rolling landform is consistent with/reflective of the broader low dunefield backdrop to the Bream Bay ocean beach and coastline. Landcover appears to have been more recently disturbed, with irregular ground lumping and exotic gorse and rank grass cover dominant along the

track edge (refer to Figure 6 below), culminating with some grouped manuka scrub along the highpoint. Access is restricted to this area by way of post and rail fencing and appears unused and the area appears more modified and disturbed, but with no evidence of coastal processes other than historic formation of duneland forms.

Figure 5: View south over northern end of Zone 6B, showing undulating landform and dominant grass/gorse landcover at this end. Refer to Viewpoint location map in Appendix 1.

2.2.2 Perceptual attributes

The Zone 6B site is visually isolated from the beach area (i.e. cannot be seen from the beach itself) and is physically separated by approx. 300m. The publicly accessible Ruakākā Pipeline Road Track borders the southern edge of the zone, for public pedestrian access and operational service vehicles. The key perceptual elements of the Zone 6B site include views across the dunelands, with a backdrop of distant mountain ranges, and the sounds, smells and experience of the coastal environment, particularly exposure to weather patterns. The degree of naturalness is limited by the extent of weed infestation and visible modifications, including in the industrial areas adjacent to the site which are in closer proximity (than the coastline), and the overhead powerlines through the site which can both be heard and dominate some views with their vertical scale. A sense of remoteness may be felt, given the broad area of the scenic reserve and backdunes, particularly with the limited number of access points through the reserve and to the beach.

Figure 6: View of Zone 6B (to the right of track) looking southwest from operational 4WD access road.

2.2.3 Associative attributes

Being zoned NOSZ and part of Poupouwhenua Reserve, the associative aspects relating to this site relate back to the same values identified for Poupouwhenua Reserve in Section 2.1.2. Cultural values are being identified through WDC engagement with mana whenua and will be addressed in the AEE.

2.2.4 Zone 6B landscape values summary

The Zone 6B site is slightly less contiguous with the natural qualities and character of the NOSZ and Poupouwhenua Reserve than the Zone 7 site as it sits adjacent to the industrial areas and is 'severed' from Zone 7 by the Ruakākā Pipeline Rd Track and the existing transmission line.. The landform across most of the site appears to reflect the low dunelands but at the northern end of the site, it appears more recently disturbed, and the vegetative cover is lower quality with a greater proportion of rank grass growth. Despite being adjacent to industrial areas, the site is relatively open and is experienced as part of the coastal environment. The key landscape values for Zone 6B which will drive landscape issues are:

- Areas of dune landforms reflective of the broader coastal environment.
- Native vegetation, including manuka scrub along the high point of the site.
- Experience of the perceptual values of the broader coastal environment via public access along Ruakākā Pipeline Road Track

2.3 Zone 7 site description

Zone 7 is part of the Poupouwhenua Reserve and is located directly north of the existing operational footprint of the R-WWTP with a land area of approximately 7.37ha (73,668m^2). The site is demarcated by the Ruakākā Pipeline Rd Track and Zone 6B to the west. There is no physical demarcation to the eastern boundary, being contiguous with a broader area of Poupouwhenua Reserve, but being set back approximately 200m from the beach, refer to Figure 8 below.

Figure 7: Site of Zone 7, directly north of the R-WWTP. (Map not to scale. Aerial image source: Google Maps, zone boundaries approximate.)

2.3.1 Physical attributes

This zone is characterised by gently undulating terrain that extends the duneland forms inland and includes localised high points with corresponding depressions. The low duneland landforms are evidence of the coastal processes in Bream Bay and perform a coastal protection function. The land is densely covered in mixed native/exotic scrub cover; gorse, toetoe, pampas and kanuka. An area of *Machaerina juncea* sedgeland was identified[5] along the eastern boundary of the site within a topographic bowl and may indicate an area of wetland (to be confirmed). No specific trails or land uses were noted within this area, and as mentioned above, 4WD use in this area of the Poupouwhenua Reserve is prohibited; however the outer-binding four-wheel drive tracks provide recreational (eastern boundary/beachfront only) and operational (western boundary) 4WD access to the site, beach and duneland. Tracks are visually evident as exposed white sand - refer to Figure 9, below.

[5] By a Senior Ecologist at NZ Environmental Management Ltd during a site visit on July 2, 2025.

Figure 8: View east across Zone 7 and adjoining marginal strip of Poupouwhenua Reserve, with pedestrian and 4WD trails evident as white sand. Bream head forms the backdrop to this view, with Whangārei Heads as a central focal point and the Hen and Chicken Islands visible in the distance to the right of the image. The beach itself is not visible.

2.3.2 Perceptual attributes

The Zone 7 site is accessible from the Ruakākā Pipeline Road Track but is visually isolated from the beach area (i.e. cannot be seen from the beach itself) acting as an open space buffer between the HIZ areas and the coastline. The nature of views is that the site forms a relatively homogenous vegetated foreground and midground, with views of background features (such as Whangārei Heads) occasionally available, as show in Figure 9 below.

Figure 9: View across Zone 7 toward Whangārei Head from Ruakākā Pipeline Road Track.

The key perceptual elements include the sounds, smells and experience of the coastal environment, particularly exposure to weather patterns. The extent of weed infestation and presence of the existing R-WWTP and powerlines limit the experience of naturalness, although, views of Bream Bay are likely to be more readily available from this site than Zone 6B as the elevation descends toward the beach. There is a noticeable absence of vertical built form, other than the transmission lines, as shown in Figure 10, below.

Figure 10: View northeast across Zone 7 from the northern boundary of the existing R-WWTP showing gently undulating topography, mixed native/exotic scrub cover and transmission lines to the left rear, with Bream Head and the Whangārei Head forming the backdrop of the image.

2.3.3 Associative attributes

The site appears contiguous with Poupouwhenua Reserve and the publicly accessible areas of the coastal environment. Accordingly, the associative aspects relating to this site relate back to the same values

identified for Poupouwhenua Reserve in Section 2.1.2. Cultural values are being identified through WDC engagement with mana whenua and will be addressed in the AEE.

2.3.4 Zone 7 Landscape Values Summary

The Zone 7 site is physically closer to the beach landscape and recreational areas and is more contiguous with the broader Poupouwhenua Reserve landscape than Zone 6B. The existing dune landforms are relatively undisturbed, with a consistent cover of low vegetation which is a mix of native and exotic. The key landscape values for Zone 7 which will drive landscape issues are:

- Legibility of dune landforms which perform coastal protection and are an environmental buffer to industrial activity along the coastal edge
- Contiguous vegetative cover and presence of indigenous vegetation (although limited)
- Potential wetland areas indicated by *Machaerina juncea* sedgeland
- Experience of the perceptual values of the broader coastal environment via public access along Ruakākā Pipeline Road Track, including a sense of naturalness derived from the broad area of backdunes to Bream Bay beach.

3 Proposal

3.1 Project Background

The R-WWTP is located on land designated for wastewater treatment purposes under the operative Whangārei District Plan 2022. WDC operates the R-WWTP under current resource consents issued by Northland Regional Council (NRC) with concessions from the Department of Conservation (DOC) to carry out associated activities (monitoring bores and pipeline) on the Poupouwhenua Scenic Reserve (Section 2 Survey Office 461691). Discharge of treated effluent from the R-WWTP is to an area (Zone 3) positioned within the eastern extent of the R-WWTP site and to a portion of land at Rama Road (Lot 4 Deposited Plan 419151).

The R-WWTP is approaching the volumetric consent conditions of the resource consent for discharge of treated effluent to land. This limitation, ahead of the planned construction of a new treatment plant and disposal route has resulted in a limitation on development in the Marsden area where additional development of commercial and domestic properties is planned. Further background is included in the AEE report.

3.2 Project components

WDC is still assessing options for the Project (refer to Figure 10, below showing Scenario 2), and these are outlined in the Concept Design Report prepared by Beca Ltd. For the purposes of this assessment, the Project includes discharge to Zones 6B and 7 utilising perforated pipe distribution (similar to the system at Rama Road). This includes:

- A pump
- Perforated pipeline system
- Lateral treated wastewater application lines at approx. 40m intervals.
- A 30m buffer/setback from the Ruakākā Pipeline Rd Track
- A 20m buffer around the potential wetland area

A Landscape Mitigation Plan has been prepared as part of the proposal, including mitigation planting to support the landscape and ecological values of the Poupouwhenua Reserve. This has been prepared in consultation with the project ecologist and WDC, who are in turn, engaging with the Department of Conservation and Patuharakeke. Further detail is included in Section 3.4, below.

Figure 11: Image showing example of proposed irrigation layout for Workstream Three: Zone 6B + Zone 7 + Zone 3 (refer to Concept Design Report for other scenarios). Lateral application lines are shown in black (existing) or red (new).

3.3 Construction methodology

The construction methodology for the irrigation pipework is expected to involve:

- Weed spraying and selected vegetation clearance around the lateral lines (due to the invasive weeds in the Zones 6B/7 it is not recommended that material is mulched but should be removed from site). This is likely to involve a small digger and a truck for vegetation removal to create an approximately 3m wide corridor for each lateral line.
- Earthworks consist of localised contouring in Zones 6B and 7 where required to provide for efficient pipeline layout and even flow distribution (max. 1m depth in discrete areas for concrete chambers)
- Placing of weed suppressant mat/material
- Installation of pipelines (assumed above ground), valves etc, extension and co-laying of valve control cabling (assumed to be up to 1m below ground)
- Undertake low native planting adjacent to pipelines (as guided by findings of ecological observations)

- Installation of a control system
- Commissioning

The construction methodology will be reviewed once the design of the additional irrigation area is finalised. The duration of the irrigation system construction for Zone 6B and Zone 7 is expected to be 2-3 months following weed spraying and invasive species clearance. The appropriate time of the year for spraying should be investigated.

3.4 Landscape Mitigation Plan

Refer to Appendix 4 - Landscape Mitigation Plan.

To manage weed species, protect the site from damage by vehicles, and install and successfully establish mitigation planting to support the landscape and ecological values of the Poupouwhenua Reserve. This will be implemented using native back dune planting, which is appropriate for the ecological units of Waipu Ecological District[6] which are represented in the area, providing visual integration with existing native species. Plant species selection will also consider habitat, microclimate and food for lizards.

In the 30m buffer zone, restoration efforts are visible from the Ruakākā Pipeline Road Track and demonstrate to the public the intention to increase the values of the Zones. Existing native back dune species will largely be retained, and new areas of native planting will provide visual screening of the pipeline system and associated areas of cleared vegetation or minor earthworks.

3.4.1 Weed species management

a. **Zone-wide** - The following species should be targeted for removal across the zones and actively managed for the length of the establishment period for new planting (36 months):

- Iceplant (*Carpobretus edulis)*
- Conifers, generally
- Sweet pea shrub (*Polygala myrtifolia)*
- Bushy asparagus (*Asparagus aethiopicus),* Climbing asparagus (*Asparagus scandens*) and Smilax (*Asparagus asparagoides)*
- Brazilian pepper tree (*Schinus terebinthifolius)*

b. **30m buffer zone** - all weed species shall be removed, indigenous species to be retained and protected.

c. **Wetland buffer zone** - all weed species shall be removed, indigenous species to be retained and protected.

A plan for long term weed management should be prepared to reduce the dominance of the following species across the site, noting that immediate removal is not recommended due to the physical extent of weed species and risk of landscape and visual effects for the duration of the discharge activity:

- Gorse (*Ulex europaeus*),
- Pampas (*Cortaderia selloana*),

3.4.2 Signage and Fencing

Fencing shall be installed to prevent vehicle access to the zones reducing damage to dunes and vegetation and to reduce disturbance to wildlife. Fencing shall be post and 5-wire construction, located around the perimeter of the zones, excluding sections which are already fenced. This type of fencing will allow for views across the Zones, providing for public amenity and appreciation of the broader setting, particularly as viewed

[6] https://www.doc.govt.nz/about-us/science-publications/conservation-publications/land-and-freshwater/land/northland-conservancy-ecological-districts-survey-reports/natural-areas-of-waipu-ecological-district/

from the Ruakākā Pipeline Road Track. Fencing should be regularly checked (monthly) throughout the establishment period (36 months) and maintained, repaired or replaced as required.

Signage may be installed in conjunction with the fencing for the purpose of:

- Health warnings with regard to the discharge activity
- Informational signage regarding revegetation planting and any related community involvement as applicable
- Restricted access signage for the discharge areas
- Directional signage along the pipeline track outlining beach access points, walking distances and times

3.4.3 Revegetation

Revegetation planting shall be undertaken in accordance with best horticultural practice and shall include species in keeping with the following ecological units of Waipu Ecological District[7] which are represented in the area[8]:

(e) kanuka forest on sand dune,

(l) pohuehue–Coprosma acerosa shrubland on sand dune

(o) knobby clubrush– pohuehue sedgeland on sand dune,

(q) harakeke–gorse flaxland on sand dune

Areas to be planted are indicated on the Landscape Management Plan and include:

- 30m buffer zone
- 2-3m wide Pipeline ‘corridors’ (species 0.5m high max to allow for maintenance)

Any new plantings shall be maintained for a period of 36 months from practical completion date to support successful establishment.

[7] https://www.doc.govt.nz/globalassets/documents/conservation/land-and-freshwater/land/waipu-ecological-district/waipu-pna-level-1-q07-112-q07-145.pdf

[8] Landscape Assessment Worksheets, Northland Regional Council, February 2014

4 Statutory Planning Context

The policy framework for this assessment is provided in the Whangārei District Plan (WDP), as directed by the following higher order documents:

- Resource Management Act 1991 (RMA)
- Reserves Act (1977)
- National Policy Statements (e.g. NPS - Freshwater Management 2020)
- New Zealand Coastal Policy Statement 2010 (NZCPS)
- Northland Regional Plan
- Northland Regional Policy Statement (NRPS)

Given the NOSZ zoning and coastal environment overlay for the Zone 6B and Zone 7 sites, consideration is given to the preservation of the natural character of the coastal environment as a matter of national importance under RMA Section 6(a), as directed by Policy 6 of the NZCPS and the NRPS. Zones 6B and 7 are not located within or directly adjacent to any Outstanding Natural Landscape or Features, or areas of High Natural Character. The WDP identifies the coastal environment and manages these coastal environment areas, and their landscape values as follows:

> *"Undeveloped parts of the coastal environment have largely been identified as High Natural Character Areas or Outstanding Natural Character Areas with rules and policies applying to them to protect their ecological, recreational, and landscape values."*

Activity status: is **discretionary** as a result of Coastal Environment rule **CE-R7 Earthworks within Sand Dunes.**

Zones 6B and 7 are within the Poupouwhenua Scenic Reserve; classified under Section 19(1)(b) of the Reserves Act 1977 with the principal or primary purpose of, "*providing, in appropriate circumstances, suitable areas which by development and the introduction of flora, whether indigenous or exotic, will become of such scenic interest or beauty that their development, protection, and preservation are desirable in the public interest."*

The proposed activity is a 'network utility operation', provided for in the Network Utilities chapter of the WDP. Policy NTW-P11 and NTW-P12 describe how these activities should be managed in landscapes:

> ***NTW-P11 Environmental Effects of Network Utility Operations***
>
> *Network utility operations should be sited, designed and operated in such a way that the adverse effects on the environment will be avoided, remediated or mitigated, as far as practicable. When siting and designing network utility facilities, particular regard should be made to:*
>
> - *Areas of Outstanding Landscape value;*
> - *Outstanding Natural Features;*
> - *Significant Ecological Areas;*
> - *The natural character of the coastal environment;*
> - *Ridgelines and skylines;*
> - *Heritage Buildings, Sites and Objects;*
> - *Sites of Significance to Māori.*
>
> ***NTW-P12 Amenity Values of Network Utility Operations***

The adverse effects of network utility operations *should be avoided, remedied or mitigated as far as reasonably practicable in accordance with the* amenity values *of the different Zones. In the* Residential Zones*, the Settlement Zone, the Strategic Rural Industries Zone, the commercial centres and in the* Open Space and Recreation Zones*, telecommunication and electrical services should be underground or by wireless link, where practicable. In other environments, undergrounding or wireless links should be encouraged, but where this is not practicable, feasible services should be sited and designed so as to minimise adverse effects on* amenity values*.*

The proposed activity will also require a concession from DOC for use of Zone 6B and 7, and needs to consider the two relevant provisions of the Northland Conservation Management Strategy:

- ***Policy 14.2.2.7*** *Encourage community research initiatives for more effective management of the natural, historic, cultural and recreational values of the Place.*
- ***Policy 14.2.2.16*** *Through interagency collaboration and application of the Northland Reserve Bylaws 2007, exclude recreational vehicle use on dunelands and advocate for the beach area between the high- and low-tide marks to be for pedestrians and wildlife, especially shorebirds, to support the outcomes of the New Zealand Coastal Policy Statement 2010.*

The relevant statutory framework is outlined in Table 2 below for each site, with relevant rules relating to the landscape matters included in Appendix 2.

Note: Zone 6B and Zone 7 are currently part of the same legal site, so information is consolidated where it is common to both, or unable to be separated at this stage. Rama Rd has been included for completeness, as it relates to the overall selection of options (Workstreams).

Table 2: Landscape-related statutory framework for proposed discharge sites

	Zone 6B	Zone 7	Rama Rd
Legal Description	Fee Simple, 1/1, Lot 1 Deposited Plan 174870		Lot 4 DP 419151
Survey area (m^2)	12,287 m^2		200,002m^2
Zoning	**Natural Open Space Zone**		**Heavy Industrial**
Zoning characterisation (WDP)	The Natural Open Space Zone (NOSZ) identifies areas of open space land primarily managed for the conservation and protection of natural resources. The land is generally in Council or Department of Conservation ownership. Examples of such land include: bush reserves, headlands, natural wetlands and parts of the coastline. The Natural Open Space Zone provides for the natural, ecological, landscape, cultural and heritage values of these open spaces. The Natural Open Space Zone often has high ecological/biodiversity values and it is therefore appropriate to limit the scale and intensity of activities and development to ensure there are minimal adverse effects and as little modification to the environment as possible. The Natural Open Space Zone is characterised by minimal buildings and structures, largely undeveloped areas and open expanses of land. Land may have limited public access and infrastructure such as car parks, walking tracks and camp grounds.		
Overlays	• National Grid Line • National Grid Tower • Northpower critical overhead lines CEL • Coastal Environment Overlay	• National Grid Line • National Grid Tower • Coastal Environment Overlay	• National Grid Line • Northpower critical overhead lines CEL • Coastal Environment Overlay

	Zone 6B	Zone 7	Rama Rd
Designations	First Gas Limited (FGL-1) – Gas Transmission Pipeline (Auckland -Whangārei Gas Pipeline) Channel Terminal Services Limited (CTS-1) – Petroleum Pipeline (Marsden to Wiri Petroleum Pipeline)		None

Table 3: Impact assessment guidance for Zone 6B and 7; landscape values for concession applications under the Northland Conservation Management Strategy, Operative 29 September, 2014

Landscape values	Damage to landforms. Impingement on the landscape i.e. stands out as being 'non-natural'. Damage to geological features. Reduction of the natural character of wetlands, rivers and streams. Loss of open space.	• Any activity that has an impact on landscape values is likely to have other significant impacts on vegetation, wildlife or their habitat. • For the construction of any facility you are required to look at alternative locations outside the conservation area or the national park. • Can any existing buildings/structures be used? • Examine alternative designs that will blend the facility into the landscape. Designs that have relief, as few levels as possible, that use natural materials and colours that harmonise with the environment will be preferred. • Colour schemes should always have dark roofs and all colours should have low light reflectivity. • For telecommunications, look at alternative locations, co-siting and other options to blend in facility.

4.1 Policy Context Summary

The Zone 6B and Zone 7 sites are part of the Poupouwhenua Reserve, zoned NOSZ and managed by DOC. The Coastal Environment and NOSZ rules relevant to these sites are outlined in Appendix 2 and limit the extent of modification in these areas in order to conserve and protect the physical resources of the zone. The activity status is likely to be **discretionary** as a result of **CE-R7 Earthworks within Sand Dunes.**

Relevant considerations in the NZCPS Policy 6 give direction to RMA Section 6a and Northland Regional Plan and Policy Statements which are subsequently given effect through policy provisions in the WDP. Matters relating to Landscape Values arising from concession applications under the Northland CMS are consistent with those in the WDP.

Potential landscape effects for these sites relate to the extent of:

- Earthworks, including permanent landform modifications to dune formations
- (WDP, CE-R7, CE-R8, Northland CMS)
- Loss of vegetation (WDP, CE-R9, NOSZ-R9, Northland CMS).
- Built infrastructure (NOSZ-R3-R7, Northland CMS).

The Northland Regional Plan and Policy Statement give effect to the NPS-FM and provide direction on management of natural inland wetlands. Northland CMS policies are not specifically implicated in the proposed activities, but give direction to possible management and enhancement opportunities, specifically the removal of recreational vehicle access and enhancement of natural, cultural and recreational values.

5 Assessment of Effects

As discussed in Section 2.2 and described in Appendix 1, the following assessment categorises the nature and magnitude of effects into landscape and visual, whereby:

- Landscape effects are those that the project has on the **physical**, **perceptual** and **associative** aspects that comprise landscape character. Effects on natural character and amenity values are part of this evaluation; and
- Visual effects are a subset of landscape (perceptual) effects that require the consideration of project visibility and assessing potential effects on specific 'viewing audiences', as identified in Section 2.1.1 Visual catchment and viewing audiences.

5.1 Landscape Effects Analysis

The Project involves wastewater discharge into an area zoned Natural Open Space (Poupouwhenua Scenic Reserve), within the Coastal Environment Overlay and is a discretionary activity as a result of earthworks required to install the pipeline system. Accordingly, the assessment is made with consideration of the reasonably anticipated landscape outcomes in this zone and is focused on the effects of the Project on the natural character and recreational aspects of area, including consideration of its interaction with the coastal environment.

5.1.1 Physical Effects

The character of the local landscape is influenced by the industrial land use activities, with much of the broader landscape zoned and used for industrial activity, and limiting the landscape values. The Zone 6B and Zone 7 sites are part of the Poupouwhenua Reserve, zoned NOSZ and managed by DOC. The Project sites are comprised of the backdune area of Bream Bay beach and are not located within the ONL or HNC mapped areas. The quality of the landcover is limited by the extent of weed species, although some indigenous vegetation is present.

Earthworks consist of minor contouring and vegetation removal will be limited to ~3m wide corridors for the installation of the perforated pipeline system. This will result in a series of cleared lines, revealing exposed ground and changing contours at 40m intervals across the sites, introducing a geometric patterning across the dune landforms. Given the relatively undisturbed dune landforms and continuous vegetative cover present (despite the presence of weed species), this is likely to have an **adverse effect on the physical values which is low-moderate**, reducing over time as new planting established adjacent to the irrigation lines. The removal of weed species is a notable benefit of the Project, providing the opportunity to re-establish indigenous vegetation.

5.1.2 Perceptual Effects

Perceptual effects are related to how people perceive or experiences places. The perceptual values of the sites are influenced by the coastal environment, particularly exposure to weather patterns, sounds and smells. The aesthetic quality and degree of naturalness is limited by extent of weed infestation, presence of the existing R-WWTP industrial areas nearby, and visually dominant transmission lines. There is otherwise, a noticeable absence of vertical built form. The proposed modifications including earthworks and vegetation removal will result in a geometric patterning and therefore a reduction in the degree of naturalness experienced. Given the undulating nature of the landform and nature of views focussing on a visually homogenous vegetated foreground and midground, the **adverse effect on the perceptual values is likely to be low**, reducing over time as exposed ground is re-established with planting adjacent to the irrigation lines, blending in with the midground vegetative cover.

5.1.3 Associative Effects

The Poupouwhenua Reserve and coastal environment will maintain the expected level of recreational access which underpins the associative values of the broader area. Additionally, clearance of weeds and introduction of new indigenous planting will improve the natural qualities and support the purpose of the reserve long-term. As a result, the **adverse effects on associative values are considered to be negligible**.

At the time of preparing this assessment there are no known cultural values that may materially influence the assessment of associative effects – noting that engagement with mana whenua is being undertaken by WDC and cultural values are to be identified and integrated into the AEE.

5.2 Visual Effects Analysis

Visual effects are a subset of landscape (perceptual) effects that require the consideration of project visibility and assessing potential effects on specific 'viewing audiences'. Three groups of sensitive audience were identified:

- Te Araroa Trail users
- General beach users
- Ruakākā Pipeline Road Track users
- It is noted that 4WD vehicles are prohibited from using the reserve for recreational purposes and therefore views for this audience is excluded.

The undulating dune landforms and scrubby vegetation across the Poupouwhenua Scenic Reserve limit visibility between the beach and the Project sites (refer to Section 2.2.2 and 2.3.2). Accordingly, for both Te Araroa Trail users and general beach users the adverse effects on views are considered to be **negligible**. The nature of views for these audiences is focused on the beach, foredune and seascape of Bream Bay.

Zones 6B and Zone 7 act as an open space buffer between the HIZ areas and the coastline. Views from the Ruakākā Pipeline Road Track toward Bream Bay are limited and are generally dominated by a visually homogenous foreground and midground of mixed exotic and native vegetation. Although the Whangārei Heads can be seen above the dune landforms in some locations, the low quality landcover and presence of large-scale transmission infrastructure reduces the existing level of naturalness.

The Project requires removal of vegetation and earthworks, which will result in open lineal corridors and exposed white sand which may be partially and intermittently visible across the undulating landforms, from the Ruakākā Pipeline Road Track. Given the undulating landform and that the works will be set back a minimum of 30m from the track, the adverse effects of views for these audiences are likely to be **very low**, as native planting establishes over time, visually blending these corridors into the landscape.

5.3 Temporary Effects

Potential adverse effects on landscape values may result from construction activities including (but not limited to):

- **Site enabling works** - site establishment and vegetation clearance.
- **Project formation works** – earthworks, installation of pipeline system.
- **Finishing works** – mulch/weed mat installation, planting adjacent to pipelines (to be determined at detailed design stage of project).

The perceptual quality of the landscape is likely to be adversely affected during the construction phases of the project as a result of visual clutter, noise (machinery and activities) and disruption created by construction activities, particularly during site enabling and project formation works. It is considered that the degree of adverse effect on perceptual values is likely to be generally **very low**, given the limited viewing audiences and intermittent nature of views/experiences.

5.4 Summary of Effects

The following table summarises the analysis of effects of the Project on the identified landscape values.

Table 4: Landscape and Visual Effects Summary

Landscape Dimension	Assessment	Magnitude of Effect
Landscape Effects		
Physical	• Vegetation loss • Earthworks in dunes area • Introduction of geometric patterning	**Low-moderate**
Perceptual	• Reduction in naturalness	**Low**
Associative	Noting that Cultural Values are yet to be identified	**Negligible**
Visual Effects		
Te Araroa Trail Users		**Negligible**
General Beach users		**Negligible**
Ruakākā Pipeline Road Track users	• Reduction in naturalness, limited audience, intermittent views due to undulating landform	**Very low**
Temporary Effects		
General	• Adverse effect on perceptual (experiential and visual) values due to visual clutter, noise and disruption	**Very low**

6 Conclusion

On balance, it is considered that the adverse effects arising from the Project will result in landscape outcomes for the site which are consistent with those anticipated for the NOSZ and Poupouwhenua Reserve. The natural and recreational values of the Reserve will be maintained, and the Project will not affect the Bream Bar Ocean Beach ONL or HNC area, being adequately physically and visually separated from these areas.

Despite some short-term experiential changes, limited change to landforms and removal of some vegetation, the long-term reestablishment of indigenous planting and reduction of weeds is beneficial for the site. The activity itself requires the exclusion of people, however exclusion and protection form 4WD vehicles is also likely to benefit the site. Overall **adverse effects on the landscape values including natural character and amenity of Zone 6B and Zone 7 are low-moderate**, reducing over time as planting becomes established. **Adverse visual effects are very low** and limited to users of the Ruakākā Pipeline Road Track.

6.1 Recommendations

There is an opportunity to improve the site and contribution to the broader Poupouwhenua Reserve at the end of the consent period for the land discharge. Landscape Mitigation provided in the scope of this project (refer to Section 3.4) undertakes some critical first steps (such as exclusion of vehicles and weed management) which may be leveraged by a plan for long term restoration or rehabilitation of the site.

6.1.1 Long term restoration

Long term restoration efforts may include further revegetation planting – this is reliant on implementation of a long term weed management plan to remove dominant weed species across the site and subsequently provide the opportunity for native species to establish. Given that the project is intended to be a ‘temporary’ solution, this long-term plan should be addressed at a later date, commencing near the end of the consent period for discharge in these zones. This would include progressive or staged removal of gorse and pampas, in conjunction with native revegetation planting, to prevent re-establishment of weed species.

The measures outlined in Section 3.4 from a. to c., include some necessary first steps to set the Zones up for successful restoration in the long term, so that the landscape and ecological values of the Poupouwhenua Reserve may be managed successfully.

Appendix 1: Assessment Methodology

Industry Guidance

The New Zealand Institute of Landscape Architects (NZILA), Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines (July 2022) provides the technical backdrop to this landscape assessment. The guidelines are recognised within the landscape architectural profession as providing good practice guidance in the assessment of landscape effects under the Resource Management Act 1991 (RMA).

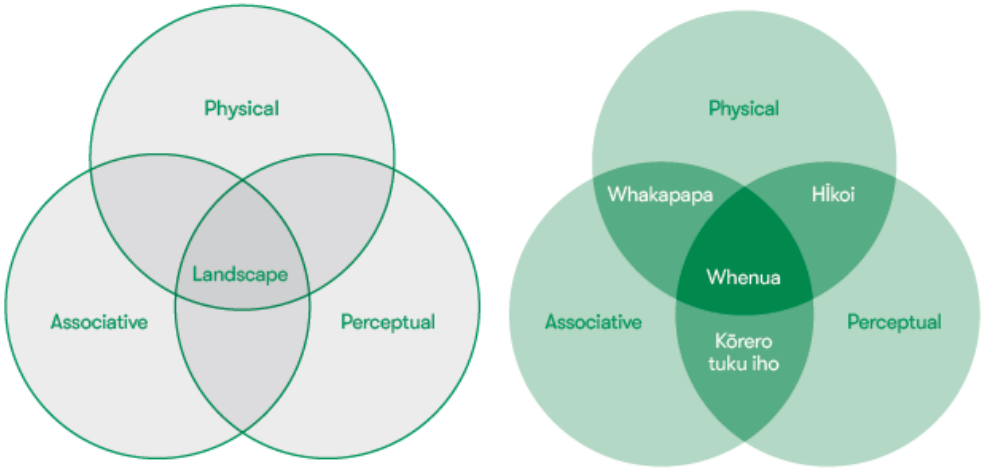
"The Guidelines adopt a principles-based approach to methodology that allows for assessment methods to be tailored to each situation. They emphasise transparency and reason, rather than adherence to prescriptive methods."[9]

The principles-based approach presented in the Guidelines, includes several key tenets to landscape assessment within New Zealand. Firstly, the Guidelines emphasises the need for the **scope and method of assessment be tailored** to:

- The nature of the proposal and associated degree of change in the landscape,
- The relevant landscape setting, and
- Associated policy framework.

Secondly, the guideline presents **three overlapping dimensions** shown below in the conceptualisation of the landscape[10], consisting of:

- **Physical:** the physical environment—its collective natural and built elements, patterns and processes
- **Associative:** the meanings and values we associate with places; and
- **Perceptual:** how we perceive and experience places, including views and visual qualities.



'Landscape' is a term that describes an integrated whole. It is the combination of all attributes and phenomena that manifest in a particular place. In assessment terminology, 'landscape' encompasses or includes the likes of natural character, visual effects and amenity.

[9] Para 1.04, Page 22. The New Zealand Institute of Landscape Architects (NZILA), Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines. July, 2022.

[10] Para 4.10 and Figure 4, Page 72. Ibid.

Thirdly, and central to the overall process of landscape assessment (in general and specific to this assessment) is the notion that *"to assess a landscape is to assess its **character and values**".*[11] In summary:

"*While landscape assessment methods vary, they are all based on landscape character and values. **Character** is an expression of the landscape's collective attributes. **Values** are the reasons a landscape is valued. Values, though, are embodied in attributes. **Effects** are consequences for a landscape's values resulting from changes to attributes. The landscape's values are managed through managing such attributes."*[12]

Assessment Process

Analysis of existing landscape

Landscape is an expression of those natural and cultural features, patterns and processes that exist in an area. The analysis of the landscape includes a description of the existing environment, setting out the physical, perceptual and associative components that exist across the site and relevant wider landscape context (e.g. local and/or broader scale landscape). These components are synthesised into a description of the landscape values for the site and broader landscape context. The process of undertaking a site visit assists with informing or verifying these landscape values.

Assessing Effects

Effects fall into two categories: landscape and visual. Two 'timeframes' are also considered: temporary (during construction) and permanent (operational effects).

Landscape effects:

Landscape Effects are essentially those that the Project has on the physical, perceptual and associative aspects that comprise landscape character. These effects are considered separately, with a summary statement regarding effects on landscape character and values. Effects on amenity values are inherent within this context.

Visual Effects:

Visual effects are a subset of **perceptual effects** that require the consideration of project visibility and assessing the effects for specific viewing audiences. Factors that (generally) contribute to visual effects include:

- The nature and sensitivity of the viewing location (e.g. static or moving; orientation of view; public or private location)
- The nature and sensitivity of the viewing audience (e.g. homeowners, local road users, tourists etc)
- Overall bulk and scale of the proposal.
- Distance of the proposal from key viewpoints
- The complexity of the view and extent of intervening elements (e.g. topography, structure and vegetation)
- The nature of the existing view (e.g. heavily modified vs 'natural'; fixed or moving structures)
- Transient values such as seasonal variation and weather patterns.

Temporary Effects (Construction Effects):

- Describes the anticipated impacts on the bio-physical elements and features of the landscape resource resulting from the construction of the Project. It also includes visual amenity effects for both public and

[11] Para 5.01, Page 105. Ibid.

[12] Para 5.02, Page 105. Ibid.

private viewing audiences from construction works, which is likely to include vegetation clearance and earthworks.

Permanent Effects (Operational Effects):

- Describes the effects on the landscape of completed works (including integrated landscape mitigation measures), the significance of physical landscape change and ultimately the resulting effects of the Projects on landscape character and visual amenity for both public and private viewing audiences. This section summarises the potential effects and mitigation measures proposed.

Magnitude of Effect

The effects ratings below are based on a seven-point assessment scale which is outlined in Te Tangi a te Manu[13]. The scale ranges from very low to very high for assessing the degree of landscape character and visual effects that have been identified. The scale is used to determine negative effects of the proposal, whereas positive effects of the proposal are not scaled, they are simply described as positive effects. Where proposed changes are deemed to result in less than very low or no effect on the landscape values, this may be described as 'negligible'.

To assist project planners and decision makers in understanding the degree of landscape and visual effects of the proposal in relation to the requirements under the RMA, those effects that are assessed as 'low moderate' are considered 'minor' in planning evaluation terms. Effects that are at the 'very low' end of the scale are less than minor, refer to Figure 2 below.

Figure 12: Effects rating scale[14]

[13] Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines (NZILA, 2022)

[14] Ibid, 6.39

Appendix 2: Viewpoint Location Map

Figure 13: Viewpoint locations and orientation relative to interim option zones surrounding R-WWTP.

Appendix 3: Relevant Rules

Table 5: R-WWTP Landscape Assessment - Relevant Rules (WDP)

Natural Open Space Zone	Heavy Industrial Zone
NOSZ-R9 Indigenous Vegetation Clearance Activity Status: Permitted Where: 1. The clearance of indigenous vegetation: a. Does not exceed 250m^2 per site within each 10-year period from 15 July 2020. b. Is not undertaken within 20m of a water body. c. Do not occur within three times the maximum radius of the canopy dripline of a New Zealand Kauri tree (Agathis Australis). OR 2. The clearance of indigenous vegetation is associated with: a. Routine maintenance within 7.5m of the eaves of existing buildings: i. Including the removal of any tree where any part of the trunk is within the 7.5m distance. ii. Excluding damage to the roots or removal of any tree where the trunk is outside the 7.5m distance. b. Operation, maintenance and repair of existing tracks, lawns, gardens, fences, drains, drainage infrastructure, new walking tracks and other lawfully established activities. Except that no indigenous vegetation clearance shall occur within three times the maximum radius of the canopy dripline of a New Zealand Kauri tree (Agathis Australis). c. Pest plant removal and biosecurity works. d. Vegetation removal for customary rights. e. Conservation planting, including planting for ecological restoration purposes. *Note:* *1. See the TREE Chapter for rules relating to Notable Trees.* Activity Status when compliance not achieved: Discretionary	**CE-R4 Construction, Alteration and Maintenance of Buildings and Structures within the Heavy Industrial Zone** Activity Status: Permitted Where: 1. The activity is outside of a High Natural Character Area or Outstanding Natural Character Area.
CE-R8 Earthworks in the Coastal Environment	

Natural Open Space Zone	Heavy Industrial Zone
Within the Coastal Environment but outside of Sand Dunes or the Heavy Industrial Zone or the Strategic Rural Industries zone Activity Status: Permitted Where: 1. The earthworks: a. do not exceed the maximum volume of 500m^3 material disturbed or removed within each 10-year period from 21 February 2019; and b. Do not exceed the maximum face height of any cut, fill, and/or batter faces of 2m. OR c. Are associated with: i. The repair and maintenance of fences, utility connections, accessways, parking areas, effluent disposal systems, swimming pools, or farm and plantation forestry tracks. ii. Garden amenities, gardening or the planting of any vegetation. iii. The provision and maintenance of walking or cycling tracks. iv. The burial of marine mammals. v. Any lawfully established mineral extraction activity. Activity Status when compliance not achieved: Discretionary	

CE-R7 Earthworks within Sand Dunes (applies to both zones)

Activity Status: Permitted

Where:

1. The earthworks are associated with:
   a. A dune restoration project.
   b. A weed or pest management program.
   c. The provision and maintenance of public accessways.
   d. The burial of marine mammals.
   e. A temporary military training activity.
   f. The maintenance, minor upgrading or replacement of existing lawfully established pipeline infrastructure, provided that the dunes are returned to the same form to that which existed prior to the earthworks being undertaken.

Activity Status when compliance not achieved: Discretionary

CE-R9 Indigenous Vegetation Clearance (applies to both zones)

Activity Status: Permitted

Where:

1. **The clearance of indigenous vegetation does not exceed 500m^2 per site within each 10-year period from 21 January 2019 unless the clearance is associated with:**

Natural Open Space Zone	Heavy Industrial Zone

a. **Routine maintenance within 3m of the eaves of existing buildings:**

   i. Including the removal of any tree where any part of the trunk is within the 3m distance.

   ii. Excluding damage to the roots or removal of any tree where the trunk is outside the 3m distance.

b. Maintenance and repair of existing tracks, lawns, gardens, fences, or drains.

c. Pest plant removal and biosecurity works.

d. Vegetation removal for customary rights.

e. Conservation planting, including planting for ecological restoration purposes.

f. Routine maintenance for the safe operation of the transport network.

g. Understorey clearance permitted in accordance with REG93(1) and (2)(a) of the National Environmental Standard for **Plantation Forestry** 2017.

Activity Status when compliance not achieved: Discretionary