

Stratigraphic Column No: 94-64

Grid Reference:

NZMS 260 R17

Region: Te Kuiti

E: 2672100

Location: Puketiti Station, south of Mangaotaki

N: 6302800

94-64

NZMS 260 Sheet: R17/721028

Page 1 of 1 **Author:** A.S. Anastas
Modified: A. Tripathi

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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description			
Lw	Otorohanga Limestone	0-70	Otorohanga Limestone		<p>Sharp</p> <p>Gradational-irregular</p> <p>Flat</p> <p>Pebbles</p> <p>Pebble layer</p> <p>Hardground</p> <p>← Hardground: glauc., pyrite, irregular (15 cm)</p> <p>Sharp irregular contact</p> <p>Sharp, irregular top contact</p> <p>Sharp top contact</p> <p>Gradational contact</p>		<p>L8</p> <p>L3</p> <p>L5</p> <p>L2</p> <p>L3</p> <p>L6</p> <p>L2</p> <p>L4</p> <p>L2</p> <p>L4</p>			<p>Argillaceous lst., horizontal bedding, foram-ech.-bryozoan, mud clots.</p> <p>Gently inclined beds, lst., packaged (30 cm), fine grainstone, well sorted.</p> <p>Massive lst., pebbles common.</p> <p>Deeply weath., cavernous, bry.-ech. grainstone, diff. to see x-bedding, amal. sets, bed-parallel lamin., 5-20 cm.</p> <p>Cross-bdd lst., 2 lge. sets, basal set coarser, grain-rudstone, coarsening upward, 2% non-biocl. frags., brys. and echs. <4 mm, lithic frag. pebbs. rare, appears compound.</p> <p>Low an. incl. beds, 30-50 cm, styl. beds, x-bdd?, pebbly, large bul. bry., grain-packstone.</p> <p>Pebbly cross-bedded packstone, 1 set, bryozoans, 10-20 cm beds.</p> <p>Horizontally bedded grainstone, sandy, basement pebbles.</p> <p>Mass. fossiliferous bryozoan wackestone floatstone, seams, pebbly, pyritic.</p> <p>Horizontally bedded lst., no packages, basement pebbles.</p> <p>Bro. packstone-floatstone, mass.-thick bdd, pyritic seams, cellapora, spar-filled cavities.</p> <p>Bryozoan-oyster floatstone, basement pebbles, rare articulated oysters, large fossils.</p> <p>X-bedded rudstone, tabular shape, fossilif., ech., bivalve, oyst., internal erosion surfaces.</p> <p>Fossiliferous sandy grainstone.</p> <p>Thick bedded sandy grainstone, 50-70 cm partings, thick bedding plane zones.</p> <p>Cross-bedded lst.</p> <p>Thick bedded sandy grainstone, pebbles, rare large oyster frags.</p> <p>Sandy grainstone, low ang. inclin. beds, moll. frags., possibly x-bdd, echs., bryozoan.</p>			
				Ld	Orahiri Formation	Orahiri				L4			<p>Sandy grainstone, massive to thin seamed (pyritic), seams 2-3 cm, 10% non-biocl. frags.</p>

mud
 lime
 silty
 calcareous
 sand
 gravel

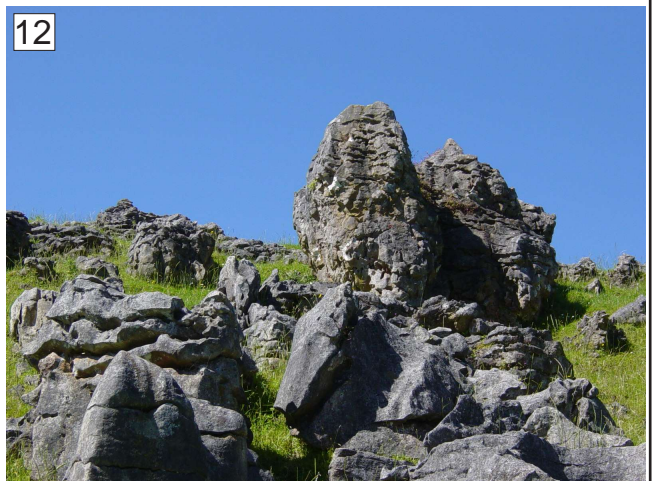
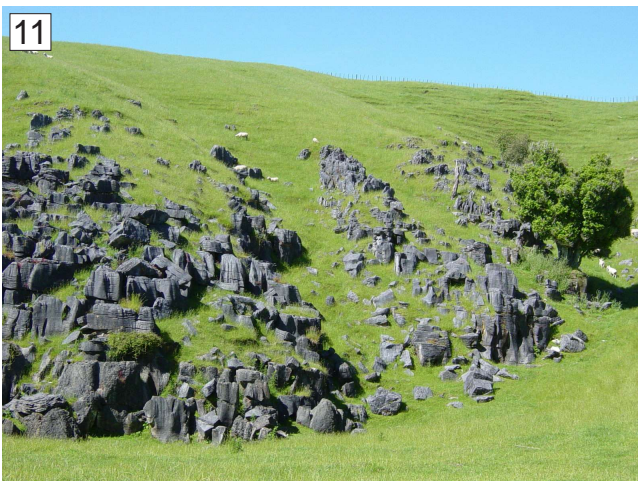
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Stratigraphic Column No: C-174

Grid Reference:

NZMS 260 R17

Region: King Country/Waitomo

E: 2685293

Location: Near Wairere Falls, Aria

N: 6295033

C-174

NZMS 1 Sheet: R17

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Author: C. Nelson
Modified: A. Tripathi

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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description
Lw	Otorohanga	0 to 20	Otorohanga Limestone		<p>Contact unseen</p> <p>Weathering break</p>		L3			<p>Blue-grey mst. of Mn Group.</p> <p>Well flagged 2.5-5 cm pure lst.</p> <p>Scattered pebbles. av 0.6 cm above and below Weathering break.</p> <p>Pure well flagged av. 5-7.6 cm lst., smooth regular seams.</p> <p>Massive, irreg. weath. lst. equivalent to knobby weathering type.</p> <p>Slightly pebbly well flagged av. 12.7 cm, but var., lst., small sand content. Scatt. pebbles av. 1.3, max 12.7 cm in basal 15 cm, sharp contact on irregular Mesozoic basement surface; along the contact basal pocket congloms. 0-1.5 m thick appear with pebbles av. 2.5 cm, max. 18 cm.</p>
				<p>mud</p> <p>lime</p> <p>sh</p> <p>fine</p> <p>fine</p> <p>sand</p> <p>coarse</p> <p>gravel</p>						

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Stratigraphic Column No: C-184

Grid Reference:

NZMS 260 R17

Region: King Country/Waitomo

E: 2670672 - 2670700

Location: Mangaorongo Road, north of Mahoenui

N: 6295446 - 6294600

C-184

NZMS 1 Sheet: R17

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Author: C. Nelson

Modified: A. Tripathi

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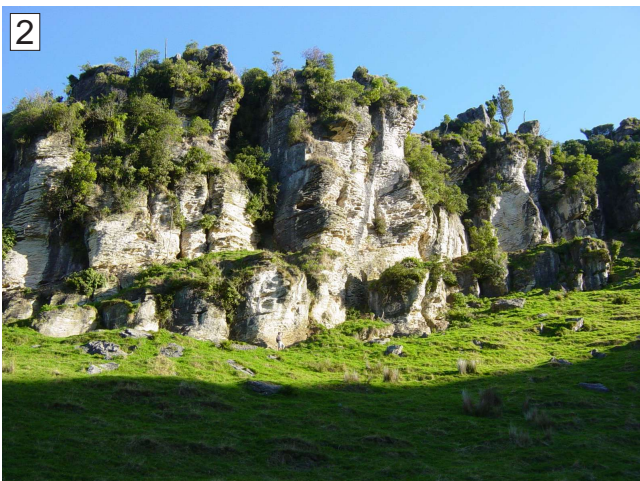
Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description
Lwh	Glen Massey Dunphail	0-20	Whaingaroa Siltstone				S6			Massive bl/gr. friitery calc. mst., scattered bivalves eg. <i>Nucula</i> sp.
	Aotea Hauturu		Aotea Sst		Contact unseen		S1		Massive-incipient seamed, slightly red calc. sst. Var. developed bedded calc. fine sst., grassed ledge 21.1-28.7 m. Massive-incipient ripply calc. sst. - sandy lst., some incipient seams.	
Ld	Orahiri Te Anga	20-60	Orahiri Limestone	eroded top			L3-L6	1, 2, 3		Well flagged 2.5-5 cm lst. C/gr. cavernously weathered, irregularly seamed lst. Rel. massive irregular incipient seams with scattered pebbles at top av. 1.9 cm, max. 7.6 cm. Rel. mass lst. with highly irregular seams.
				OrA		Weathering break				Narrow undulating incipient seams 2.5-5 cm apart, occ. bryozoan heads to 6.3 cm diameter.
				OrB		Weathering break				Highly irregular seams with common oysters, fossiliferous-hash, bryozoan heads and calc. algae. Incipient slightly irregular sandy seams with scattered oysters.
					Weathering break		L4		Incip. highly irregular seams, occ. tiny pebbles, com. scattered oysters haphaz., vertical veining. Incip.-mod. flags, 5-7.6 cm thick.	
									Mod.-well developed flags av. 10-13 cm thick with incipient. seams within; occ. scattered oysters and tiny pebbles, irregular seams at 36.6 m; 15 cm zone of scattered-common pebbles av. 0.6 cm, max. 1.8 cm, rare oysters, shark teeth at 35.4 m.	

Fossil hash, algae, bryoz.

mud
silt
sand
gravel

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Stratigraphic Column No: C 185A

Grid Reference:

NZMS 260 R17

Region: King Country/Waitomo

E: 2670300 - 2669752

Location: Awakino River Gorge, Gribbon Road

N: 6292000 - 6291997

C-185A

NZMS 1 Sheet: R17

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Author: C. Nelson
Modified: A. Tripathi

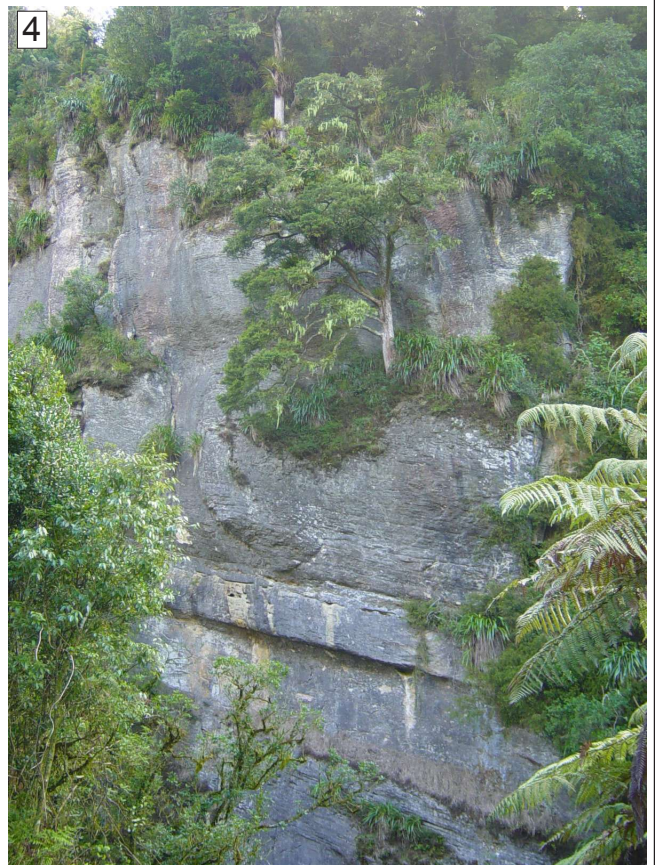
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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description
Lw	Mahoenui Gp	90	Mahoenui Gp			Scattered oysters	L6			Cross bedded limestone 0.8-1.6 m thick in flaggy limestone
	Otorohanga		Interbeds of calcareous sandstone and calc mudstone							
Ld	Orahiri	80	Orahiri Limestone		Sharp contact	Occas pecten Scattered oysters and bands	L3-L4			Relatively massive, irregular seamed limestone, occas scattered oysters
	Aotea Hauturu	70	Aotea Sandstone							Oyster band, generally disarticulated, haphazard, occas pectins
Lwh	Glen Massey Dunphail	60	Whaingaroa Siltstone		Sharp possibly a erosional contact, prominent overhang		L4			Scattered oysters, slightly irregular seamed limestone
		50								Incipient seamed slightly sandy limestone, seams 5-7 cm apart
		40					S1			Relatively massive, ripply sandy limestone
		30					L4			Bedded calc sandstone, hard bands forms continuous bands with soft interbeds
		20					L4			Slightly flaggy limestone, flags av 10-12 cm, slight cross-bedding evident
		10					S6			Massive, blue-grey slightly sandy mudstone, friitery weathering, poorly exposed
		0					S1			Basal few scattered basement pebbles, burrows, slightly glauconite and sandy

mud
silt
shale
sand
gravel

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Stratigraphic Column No: C-186

Grid Reference:

NZMS 260 R17

Region: King Country/Waitomo

E: 2668034

Location: West of Mahoenui

N: 6289485

C-186

NZMS 1 Sheet: R17

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Author: C. Nelson

Modified: A. Tripathi

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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description	
Ld	Orahiri Mangaotaki - Te Anga	0-70	Orahiri Limestone (OrA)	eroded top			L6			Mn mst. nearby.	
							L3		Mod.-well developed flaggy av. 5-7.6 cm lst., occ. scattered oysters near top.		
Ld	Aotea Hauturu	0-70	Aotea Sst (OrA)	Weathering break			L4			Incip.-mod seams, av. 5-10 cm apart.	
				Weathering break					Mass., incipient seamed, slightly ripply surface sandy lsts. with scattered oysters.		
Ld	Aotea Hauturu	0-70	Aotea Sst (OrA)	Weathering break (forms shelf)						Mass. ripply sandy lst. with occ. limonitised av. 0.3 cm scattered pebbles.	
				Weathering break					Mass., incip. seamed sandy lst., very occ. scattered lim. pebbles av. 0.95 cm, max. 2.5 cm.		
Ld	Aotea Hauturu	0-70	Aotea Sst (OrA)	Weathering break						Incip. seams - ripply surface, seams av. 10 cm apart.	
									Well flagged 2.5-5 cm lst. Massive slightly friable sandy lst., very incipient seams.		
Lwh	Glen Massey Dunphail	0-70	Whaingaroa Siltstone			Fossil debris	S1			Mass. sandy non-seamed lst. with scattered ff-debris, incipient seams dev. below to 38.7 m.	
				Contact unseen					Banded calc. f. sst., variably weathered and commonly loose sand, scattered pebbles at base.		
Lwh	Glen Massey Dunphail	0-70	Whaingaroa Siltstone				S5			Mass. bl/gr. calc. mst., frittered weathering appearance, very poor exposures.	
				Unseen interval					Mesozoic basement rocks.		

Stratigraphic Column No: C-191

Grid Reference:

NZMS 260 R17

Region: King Country/Waitomo

E: 2661620

Location: Awakino tunnel (approx.), SH3

N: 6285825

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NZMS 1 Sheet: R17

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Author: C. Nelson

Modified: A. Tripathi

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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description
e. Lwh	Elgood	0	WCM				L1	1-2		Mass. bl/gr. calc. mst., fritt. weath. app., 178.12 m omitted from column. Basal 0.9 m - sandy glauconitic lst. and/or C.M. Mesozoic basement rocks.
	Glen Massey									
i. Lwh	Dunphail	180	Whaingaroa Silt				S6	4 3		Mass. glauc. calc sst. with tiny pebbles, strongly churned at contact, large borings into mst.
	Aotea Hauturu									
Ld	Mangaotaki - TA	210	Aotea Sandstone				S1	7		Bedded. calc sst. entirely similar to above.
	Orahiri									
Lw	Otorohanga	230	Te Anga Limestone		Weathering break		L4	8 10 11 9		Mod.-well developed flags with slightly undulating surfaces, slabby app., wide seams nearer base. Scoured undul. contact with abund. pebbles to 15 cm size, av. 0.95 cm, of bored calc. sst. and greywacke liths., scour pockets, along strike the pebble band divides with one 0.9 cm above.
	Mn									
		240	Ot Lst		Contact unseen		L3			Mn calc. mst. against dip slope.
			OIA				L6	12		Pure well flagged av. 5-7.6 cm lst.
							L2			Common oysts., scatt. pebbs., highly irreg. seams, basal pebble. band of bored calc. sst., pebbles to 22.5 cm size, av. 1.3 cm (gwk.); 227.8-228.75 m of massive very irregularly weathered lst., knobby-like. Crossbedded 'ellopsoids', flaggy lst. Mass.-rippy pebbly, av. 1.9 cm, lst. Pseudoflaggy cross bedded lst. Mass. lst. with common scattered sst. pebbles to 7.6 cm, av. 1.9 cm. Mass. ripply sandy lst., fluted weathering appearance.



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Stratigraphic Column No: C 193

Grid Reference:

NZMS 260 R18

Region: Waitomo/King Country

E: 2660616

Location: Bexley Tunnel, Awakino Gorge

N: 6282653

C-193

NZMS 260 Sheet: R17

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Author: C. Nelson
Modified: A. Tripathi

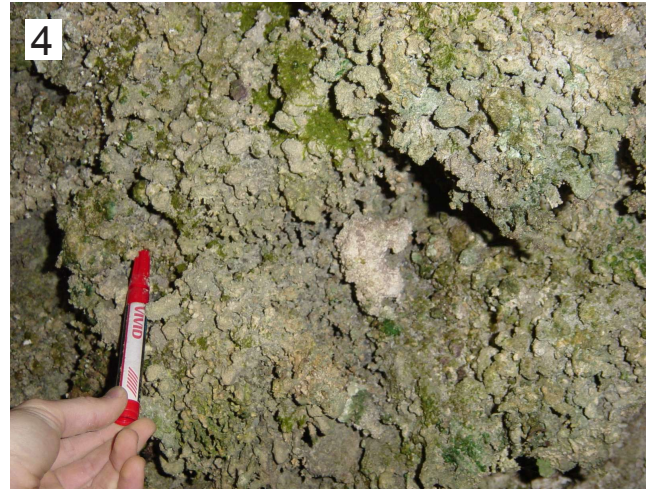
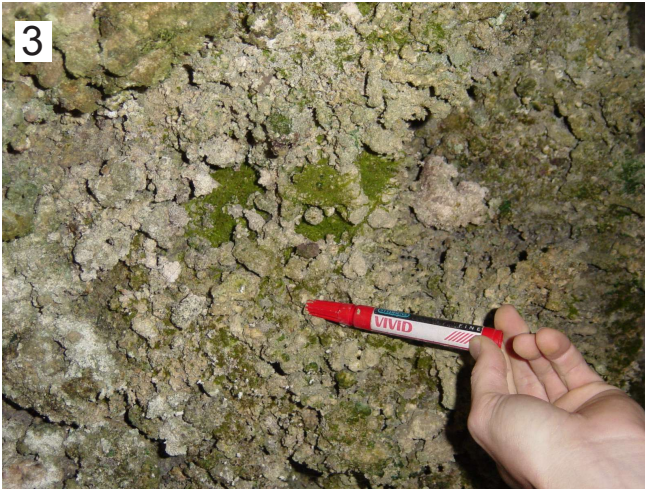
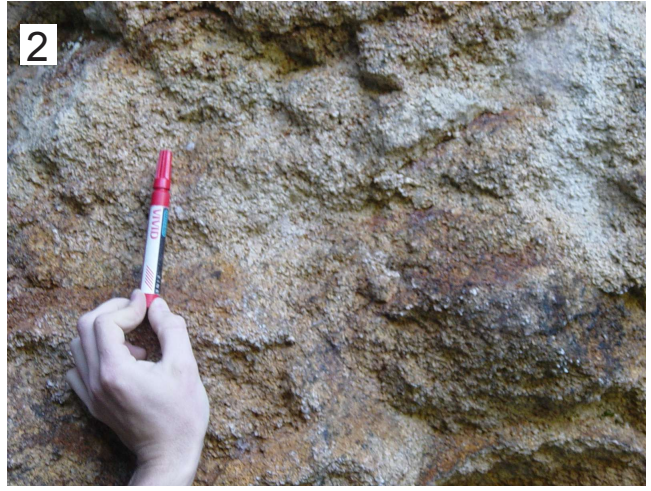
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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description	
Lwh	? Dunphail	0	Whaigara Siltstone		Irregular contact		S6		1	Blue-grey calc mudstone, frippery weathering appearance, poorly exposed, approx. 50 m thick (not shown in the column), carbonaceous material at the base.	
			Orahiri Limestone			Common bryozoan heads	L5	2-4	Massive, sandy limestone, non-seamed, bryozoan coquina, honeycombed surface weathering		
			Otorohanga Lst			Scattered oysters	L6		Massive, non-seamed, fossiliferous hash, solitary corals, scattered pebbles and oysters		
			Mahoenui Group			Richly fossiliferous			Blue-grey frippery sandy mudstone with occas calc sandstone interbeds, steep weathering profile		
Lw	Otorohanga	20	Otorohanga Lst			Calcareous algae/ rhodoliths and bivalves	L3			Pure flaggy 5-8 cm flags, seams well developed and regular	
			Mahoenui Group			Common bivalves, fossiliferous hash			Massive non-seamed to irregular seamed limestone, common bivalves and moulds, occas pebbles, sharp contact with lower calcareous sandy mudstone		
Po	Mahoenui Group	30	Mahoenui Group							Calcareous sandy mudstone, occas well rounded pebbles, steep shelving slope	
			Mahoenui Group		Sharp contact						Well flagged limestone, flags wide av. 15-20 cm, rippled relief typical of Mahoenui limestone, basal 15 cm is richly fossiliferous
			Mahoenui Group		Eroded						

mud
 lime
 silt
 sand
 gravel

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Stratigraphic Column No: C-194

Grid Reference:

NZMS 260 R18

Region: King Country/Waitomo

E: 2658967

Location: Awakau Road, southeast of Awakino

N: 6279315

C-194

NZMS 1 Sheet: R18

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Author: C. Nelson
Modified: A. Tripathi

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Stage	Strat Unit	Scale (metres)	Strat Unit (old)	Lithology	Structures	Fossils	Facies	Photo No.	WO No.	Description
Lwh	Glen Massey	0	Or Lst	Whaingaroa Sst			S6			Poorly exposed blue-grey calc. mst.
	Dunphail									Swamp; Mesozoic basement rocks within 3 m.
Ld	Or Lst	10	Or B	Whaingaroa Sst			L1			Knobbly-like non-seamed lst., var. thickn., scatt. pebbles to 13 cm size. 0.6-0.9 cm conglom., gen. pebbles >matrix, pebbles to 0.9 cm, av. 7.6 cm, subrounded.-rounded., gwk. mst. and calc. sst. pebbles., sharp undulating contact at 9.15 m.
	Mh Grp		Mh Grp	eroded top		Lithothamnium				Blue-grey calc. mst., Mn Group. Muddy sandy lst. Mass.-mod. dev. flaggy lst., flags char. wide 15-30 cm, slightly irregular seams, conspic. algal heads thro/out, scatt. pebbles. to 15 cm size thro/out, common algal encrusted, seams to 2.5 cm thick and marked by <i>Amphistegina</i> forams., nearer top seams muddy and sandy, lensoid. Undulating contact, below mass. lst. w. occ. mod. seams, blocky app., honeycomb weath., scatt. oysters and pebbles, occ. veining, irreg. base 15 cm concen. pebb. band as W. indent.
Lw	Mh Grp	20	Mh Grp	eroded top						
	Awakino Lst									

mud
clay
silt
fine sand
medium sand
coarse sand
gravel