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SW Report 1995/43

GEOTECHNICAL ASSESSMENT: ROLL HANDLING CONVEYOR.

Australian Newsprint Mills Limited, BOYER.

Client: ***Johnstone McGee & Gandy Pty. Ltd.***

21 135

SLOANE WELDON Pty. Ltd. REF No : 1807H

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 1
sheet 1 of 1

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 132mE434mN	**drill type**	PIONEER P160	**hole commenced**	2 - 6 -95
R.L.	Approx 39.6 metres	**drill method**	HQ Diamond drilling	**hole completed**	5 - 6 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL	metres depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
						CORE LOSS	GW	**Sandy GRAVEL:** Fine - medium gravel.	M	MD		**PAVEMENT/ FILL MATERIAL**
							GP	**Clayey GRAVEL:** Fine - medium gravel.	M	MD		
							SW	**SAND:** Fine brownish black; some fine - medium gravel; some charcoal & organic matter.	M	MD		
					1.00		CL	**Sandy CLAY:** Medium plasticity; mottled dull yellowish brown - grey yellowish brown; approx 30% medium sand; some fine - medium gravel; trace rootlets.	M	VSt	x	**300 kPa**
			4, 8, 11 N=19		1.23							
					1.68							
					2.00		SC	**Clayey SAND:** Fine - medium; yellowish brown; approx 15-20% clay.	M	VD		
			5, 8, 12 N=20		2.32							
		HQ Diamond Drilling			2.77							
					3.00	CORE LOSS						
							CI	**Sandy CLAY:** Medium plasticity; mottled dull yellowish brown - grey yellowish brown; approx 30% medium sand; some fine - medium gravel; trace rootlets.	M	VSt		
							GP	**Clayey & sandy GRAVEL:** Fine - coarse; subrounded dolerite gravel; sand & low plasticity clay fines.	M	VD		
			14/10 N>50		4.00							SPT bouncing 14 blows for 10mm of penetration.
					5.00							
					6.00							
								TERMINATED: Required depth.				

NOTE:
Minor core loss per run not indicated for **Clayey & sandy GRAVEL.** Sandy component washed away.

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SLOANE WELDON Pty. Ltd. REF NO = 18075

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 2
sheet 1 of 1

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 139mE405mN	drill type	PIONEER P160	hole commenced	29 - 5 -95
R.L.	Approx 39.3 metres	drill method	HQ Diamond drilling	hole completed	30 - 5 -95
inclination	Vertical	drill fluid	Water & Polymer	logged by	BDW/ DJS
bearing	N/A	contractor	KMR Drilling	checked by	NJH

penetration 1 2 3	water	support	notes: sample, tests	metres: RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (150 200 300 400)	structure, geology
		HQ Diamond Drill			CORE LOSS	GC	**Clayey GRAVEL:** Fine - medium angular dolerite - mudstone - siltstone; dull yellowish brown; approx. 15% medium plasticity clay; some medium - fine sand.	M	D		? FILL
					CORE LOSS	SC	**Clayey SAND:** Medium sand; dull yellowish brown; approx. 40% clay, trace fine gravel.	M	L		
				1.00		CL	**Sandy CLAY:** Low plasticity; mottled greyish brown - dull yellowish brown; approx 40% medium sand.	M	VSt	x x	**300 kPa** **> 350 kPa**
			11,29,28/120 N>50	1.52		GP	**Sandy & clayey GRAVEL:** Fine - coarse subrounded dolerite - quartzite gravel; dull yellow; some cobbles; some clay & fine - coarse sand.	M	VD		SPT - Bouncing, 28 blows for 120mm penetration.
			24,12,12/110 N>50	1.94				M	VD		SPT - Bouncing, 12 blows for 110mm penetration.
			19/20 N>50	2.55			Higher cobble/ coarse gravel content than above.	M	VD		SPT - Bouncing, 19 blows for 20mm penetration.
				2.96							
				4.00							
				5.00							
				5.37			**BOREHOLE TERMINATED AT REQUIRED DEPTH**				

NOTE:
Minor core loss per run not indicated for **Sandy GRAVEL**. Sandy component washed away.

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SLOANE WELDON Pty. Ltd. REF NO = 18076

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 3

sheet 1 of 1

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 140mE372mN	**drill type**	PIONEER P160	**hole commenced**	1 - 6 -95
R.L.	Approx 39.2 metres	**drill method**	HQ Tricone roller & HQ Diamond drilling.	**hole completed**	2 - 6 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL	metres depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
						NO SAMPLE	GC	**Clayey & Sandy GRAVEL:**	M	D		FILL
			4, 6, 9 N=15		1.02							
					1.47		SP	**Clayey & Gravelly SAND:** Fine - coarse quartz sand; brown; approx. 30% fine - medium angular - subrounded dolerite & quartzite gravel; approx. 25% low plasticity clay.	M	MD		
					2.00	NO SAMPLE						
					2.54		SP	**Clayey & gravelly SAND:** Fine - coarse quartz sand; yellowish brown approx 20% fine - coarse angular - subrounded dolerite & quartzite gravel; approx. 20% low plasticity clay.	M	VD		
			41,20/130 N>50		2.82							SPT bouncing, 20 blows for 130mm penetration
					3.00	NO SAMPLE						
		HQ Tricone Roller	20/150		4.06		GP	**Sandy & clayey GRAVEL:** Fine - coarse subrounded dolerite - quartzite gravel; dull yellowish brown; low - medium plasticity **Sandy CLAY** matrix? Dolerite cobbles to minimum 100mm dia.	M	VD		SPT bouncing, 20 blows for 150mm penetration
			N>50		4.60	NO SAMPLE						
4.64 4.77			20/40 N>50		5.00	CORE LOSS						SPT bouncing, 20 blows for 40mm penetration
		HQ Diamond Drill	21, 39/140 N>50		5.77		SP	**Gravelly & clayey SAND:** Fine - coarse subangular quartz sand; yellowish brown; approx. 30% fine - medium quartzite & dolerite gravel; approx. 15/20% low plasticity clay.	M	VD		SPT bouncing, 39 blows for 140mm penetration
					6.06	CORE LOSS						
					6.50			**BOREHOLE TERMINATED AT REQUIRED DEPTH.**				

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SLOANE WELDON Pty. Ltd. REF NO : 18077

ENGINEERING LOG -BOREHOLE

Drill Hole Number.
RC 4
sheet 1 of 1

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 143mE348mN	**drill type**	PIONEER P160	**hole commenced**	29 - 5 -95
R.L.	Approx 39.1 metres	**drill method**	HQ Tricone roller & NQ Diamond drilling.	**hole completed**	30 - 5 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetr-ometer kPa (25 50 100 200 400)	structure, geology
		HQ Tricone Roller			NO SAMPLE	GC-GP	**GRAVEL - Clayey GRAVEL**	M	MD		**FILL**
			1, 2, 3 N=5	1.00		MH	**Silty CLAY:** Medium - high plasticity; brownish black; some fine - medium quartz sand; some organic matter.	M	F	■	**50- 75 kPa**
				1.45	NO SAMPLE						
			6, 24, 25/60 N>50	2.03 / 2.39		GP	**Sandy & clayey GRAVEL:** Fine - medium angular - subrounded dolerite & quartzite gravel; approx 20% fine - medium sand; approx. 15% low plasticity, yellowish brown clay.	M	D-VD		SPT bouncing last 25 blows for 60mm of penetration
				3.00	NO SAMPLE						
			22, 30, 8/50 N>50	3.54 / 3.89			**Sandy & clayey GRAVEL:** Fine - coarse angular - subrounded dolerite & quartzite gravel; approx 30% fine - coarse sand; approx. 15% low plasticity, yellowish brown clay.	M	D-VD		SPT bouncing last 8 blows for 50mm of penetration.
		NQ Diamond Drilling		4.00	CORE LOSS						
				5.00			**Sandy GRAVEL:** Fine - coarse subrounded dolerite, basalt & quartzite gravel; approx. 30-40% sand; trace clay; some cobbles of dolerite & basalt.				
				6.00	CORE LOSS						
					CORE LOSS	SP	**Clayey SAND:** Fine - coarse quartzite sand; yellowish brown; trace fine - medium subangular - subrounded quartzite gravel; approx. 20% clay.	M	MD -D		
				7.00	CORE LOSS	GP	**Sandy GRAVEL:** Fine - coarse subrounded dolerite, basalt & quartzite gravel; approx. 30-40% sand; trace clay; some cobbles of dolerite & basalt.	M	MD -D		
				8.00 / 8.35							

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SLOANE WELDON Pty. Ltd. REF NO = 18078

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 6

sheet 1 of 1

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 151mE300mN	drill type	PIONEER P160	hole commenced	29 - 5 -95
R.L.	Approx 36.8 metres	drill method	HQ Tricone roller & NQ diamond drilling	hole completed	29 - 5 -95
inclination	Vertical	drill fluid	Water & Polymer	logged by	BDW/ DJS
bearing	N/A	contractor	KMR Drilling	checked by	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL	metres depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetr-ometer kPa (25 50 100 200 400)	structure, geology
							CW	**Sandy GRAVEL:** Pavement subcoarse - base coarse?	D	MD		FILL
						NO SAMPLE	SP	**Gravelly & clayey SAND:** Fine - coarse, quartz sand; brown; approx. 25% fine - coarse angular - subrounded dolerite & quartzite gravel; approx. 15% low plasticity clay.	M	L		FILL?
			1, 1, 1 N=2		1.00							
					1.45							No sample Push tube attempted but no sample recovered
					2.00	NO SAMPLE						
			N>50		2.42		SP-GP	**Gravelly SAND - Sandy GRAVEL:** Fine - coarse, angular quartz; approx 50% fine - medium subrounded dolerite & quartzite gravel; trace coarse gravel; brown.	M	VD		SPT bouncing 23 blows for 50mm penetration
		HQ Tricone Roller			3.00							
			N>50		3.48	NO SAMPLE			M	VD		SPT bouncing 18 blows for 40mm penetration
					4.00							
			N>50		4.46		GP	**Sandy & clayey? GRAVEL:** Fine - coarse, subrounded dolerite gravel; trace quartzite gravel; yellowish brown; subrounded dolerite cobbles to 150mm dia.	M	VD		SPT bouncing 7 blows for 15mm penetration
		NQ Diamond Drill			5.00							
					6.00							
					6.05			**BOREHOLE TERMINATED AT REQUIRED DEPTH.**				

NOTE: Minor core loss with diamond drilling is not indicated on the logs. **SANDY** component washed away by drilling fluids.

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SLOANE WELDON Pty. Ltd. REF NO : 18074

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 7
sheet 1 of 3

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 158mE274mN	**drill type**	PIONEER P160	**hole commenced**	29 - 5 -95
R.L.	Approx 36.5 metres	**drill method**	HQ D.D. Tricone roller & NQ diamond drill	**hole completed**	30 - 5 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes: sample, tests	metres: RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
				0.4	NO SAMPLE						
				0.6			?Ash & cinders: Dark grey - black washings.	M	MD		
				1.07							
			6, 7, 15 N=22	1.52		GW	**Sandy GRAVEL:** Fine - medium angular dolerite gravel; greyish yellow brown; 30% medium - coarse sand; some clay.	M	L-MD		FILL
					NO SAMPLE					x	400 kPa
				2.00							
			2, 3, 4 N=7	2.45		GW	**Silty GRAVEL:** fine - coarse subrounded - angular dolerite & quartzite gravel, brown; approx. 30% medium - coarse sand & approx. 20% silt/clay fines .	M	L		FILL ?
				2.58							
			UD 50	3.05			**Sandy CLAY:** Low - medium plasticity; brown; approx. 40% medium - coarse sand; some fine - medium subrounded - angular dolerite & quartzite gravel, trace rootlets.	M	F	x	100 kPa
					NO SAMPLE						
				4.08							
			4, 4, 5 N=9	4.53		CL	**Sandy CLAY:** Low - medium plasticity; mottled greyish yellow brown - dull yellowish brown; approx. 30-40% fine - medium sand; fine - medium subrounded - angular quartzite gravel; trace of fine, angular, coal gravel; trace rootlets.	M	F-St	x	150 kPa FILL ?
				5.00	NO SAMPLE						
				5.58							
			6, 14, 10 N=24	6.03		GP	**Sandy GRAVEL:** Fine - coarse angular - subrounded dolerite -quartzite gravel; brown; approx. 30-40% medium - coarse sand; trace clay.	M	MD	x	400 kPa
					NO SAMPLE						
				7.06							
			15, 7, 4 N=11	7.51		GP	**Sandy GRAVEL:** Fine - coarse angular - subrounded dolerite -quartzite gravel; brown; approx. 30-40% medium - coarse sand; trace clay.	M	L-MD	x	180 kPa
				8.00	NO SAMPLE						
				8.58							
			8, 8, 6 N=14	9.03		SW	**SAND:** Fine - coarse quartz sand; dull yellow.	M	MD	x	200 kPa
					NO SAMPLE						
				10.00							

HQ Tricone Roller

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SLOANE WELDON Pty. Ltd.

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 7

sheet 2 of 3

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 158mE274mN	**drill type**	PIONEER P160	**hole commenced**	29 - 5 -95
R.L.	Approx 36.5 metres	**drill method**	HQ Tricone roller & NQ Diamond drilling	**hole completed**	30 - 5 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL	metres depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetr-ometer kPa (25 50 100 200 400)	structure, geology
			16 &13/70	10.08			SP	**SAND:** Medium - coarse quartz sand; olive - yellow with some bright yellowish brown mottling; some fine - medium angular - subangular quartz gravel; trace clay.	M	MD		SPT bouncing last 13 blows for 70mm penetration
			N>50	10.30								
					11.00	NO SAMPLE						
				11.58								
			6, 7, 15 N=22				SW	**SAND:** Fine - medium sand; mottled yellowish brown - dull yellow.	M	D		
				12.03								
						NO SAMPLE						
					13.00							
			5, 4, 5 N=9				SW	**SAND:** Fine - medium sand; mottled yellowish brown to dull yellow.	M	L-MD		
				13.53								
					14.00	NO SAMPLE						
					14.56							
			3, 2, 2 N=4				SP-SW	**SAND:** Medium - coarse sand; trace fine - medium subrounded quartzite gravel; mottled yellowish brown to dull yellow.	M	L-MD		Last 2 blows of SPT penetrated 220mm
				15.08								
					16.00	NO SAMPLE						
					17.00							
			N>50	17.59								
			12, 16/80	17.82			SP-SW	**SAND:** Medium - coarse sand; some angular - subrounded fine - medium quartzite gravel.	M	MD -D		SPT bouncing last 16 blows for 80mm penetration
					18.00	NO SAMPLE						
			N>50	18.52								
	HQ Tricone Roller		25/110	18.63			GP	**Sandy GRAVEL:** Fine - medium angular - subrounded quartz gravel.	M	MD -D		SPT bouncing last 25 blows for 110mm penetration
	NQ D.D.				19.00	CORE LOSS						
					20.00							

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SLOANE WELDON Pty. Ltd.

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 7
sheet 3 of 3

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 158mE274mN	**drill type**	PIONEER P160	**hole commenced**	29 - 5 -95
R.L.	Approx 36.5 metres	**drill method**	HQ Tricone roller & NQ Diamond drilling	**hole completed**	30 - 5 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes: sample, tests	metres: RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency / density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
		NQ Diamond Drilling		20.00	CORE LOSS						
				20.85		SP	**SAND:** Fine - medium sand; greenish grey ;trace fine - coarse subangular - subrounded quartzite & quartz gravel; gravel in layers - lenses?	M	MD		
				21.00	CORE LOSS						
				22.00		SP	**SAND:** Fine - medium quartz sand;greenish grey; trace fine - coarse angular quartzite gravel.	M	MD		
				22.40							
				23.00	CORE LOSS						
				23.85		SP	**SAND:** Coarse quartz sand; greenish grey; trace fine - medium subrounded quartz & quartzite gravel.	M	MD		
				24.00			**LIGNITE:** Fibrous wood material; black;				
				25.00			? Sand with lignite layers (washings alternatively light & dark grey).				
				25.37	CORE LOSS						
				26.00							
				26.85		GP	**GRAVEL:** Fine - medium subangular quartz & quartzite gravel; trace fine cemented pyritic gravel.	M	MD		
				27.00	CORE LOSS						
				27.54			**SANDSTONE:** Fine - medium sand; dark greenish grey; moderately to slightly weathered.	M	D		
				28.00							
				28.39			**TERMINATED: Required depth.**				

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SLOANE WELDON Pty. Ltd. REF NO = 18080

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 8
sheet 1 of 3

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 165mE247mN	**drill type**	PIONEER P160	**hole commenced**	1 - 6 -95
R.L.	Approx 36.4 metres	**drill method**	HQ Tricone roller & NQ diamond drill	**hole completed**	2 - 6 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes: sample, tests	metres: RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency / density index	hand penetrometer kPa (25, 50, 100, 200, 400)	structure, geology
		AUGER SCREWING		1.00		GP	**Sandy GRAVEL:** Fine - medium angular gravel; fine - coarse angular sand; brownish black, ash.	M	L-VL		FILL
				1.7							
				2.00		GP	**Sandy & clayey GRAVEL:** Fine - coarse subrounded gravel; fine - coarse subangular sand; medium plasticity dark brown clay; subrounded dolerite cobbles & boulders.	M	L-VL		
				3.00							
		HQ Tricone Roller	8, 12, 5 N=17	3.45	NO SAMPLE						No SPT sample
				4.00		GP	**Clayey & sandy GRAVEL:** Fine - coarse subrounded dolerite gravel; brown; fine - coarse sand; low plasticity clay; subrounded dolerite cobbles.	M	MD		
			11, 8, 7 N=15	4.45		SP	**Gravelly & clayey SAND:** Fine - coarse sand; brown; approx. 30% fine - medium angular - subrounded quartzite & dolerite gravel; approx. 30% low - medium plasticity clay; trace charcoal.	M	MD		FILL?
				5.00	NO SAMPLE						
				5.50			**? Sandy CLAY:** Low - medium plasticity; brown washings.		S		
			11, 8, 7 N=15	5.95		SP	**Gravelly & silty SAND:** Fine - coarse quartz sand; approx. 15% fine - coarse subrounded dolerite & quartzite gravel; approx. 15 -20% silt; brown.	M	L		
				7.00	NO SAMPLE						
			5, 3, 3 N=6	7.45			**? Sandy CLAY:** Low - medium plasticity; brown washings.	M	L		No SPT sample
		HQ Tricone Roller		8.00							
			11, 40/140 N>50	8.29		SP	**Clayey & gravelly SAND:** Fine - coarse quartz sand; approx. 25% fine - coarse angular - subrounded dolerite & quartzite gravel; olive brown; approx 20% low plasticity clay	M	D-VD		
						GP	**Sandy & clayey GRAVEL:** Fine - coarse subrounded dolerite gravel; sand & low plasticity clay fines; dolerite cobbles.				SPT bouncing, last 40 blows for 140mm penetration.
		NQ Diamond Drilling		9.00							
				9.50	NO SAMPLE						
				10.00							

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SLOANE WELDON Pty. Ltd.

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 8

sheet 2 of 3

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 165mE247mN	**drill type**	PIONEER P160	**hole commenced**	1 - 6 -95
R.L.	Approx 36.4 metres	**drill method**	HQ Tricone roller & NQ diamond drill	**hole completed**	2 - 6 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL	metres depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
						CORE LOSS						
							SP	**SAND:** Medium - coarse; yellow brown; quartz sand; trace fine - coarse subrounded dolerite & quartz gravel; trace/ some clay.	M	MD		
						CORE LOSS						
				14.79			SP	**Gravelly SAND:** Fine - coarse quartz sand; yellowish brown; some bright yellowish brown mottling; approx. 15% fine - medium subangular - subrounded quartz gravel; trace clay.	M	MD		
			6, 10, 11 N=21	15.24								
						CORE LOSS						
		NQ D.D.	11, 15, 24 N=39	17.75			SP	**Gravelly SAND:** Fine - coarse quartz sand; yellowish brown; some bright yellowish brown mottling; approx. 15% fine - medium subangular - subrounded quartz gravel; trace clay; trace coarse angular - subrounded mudstone gravel.	M	D		
				18.20								
						CORE LOSS						

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SLOANE WELDON Pty. Ltd.

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 8

sheet 3 of 3

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 165mE247mN	**drill type**	PIONEER P160	**hole commenced**	1 - 6 -95
R.L.	Approx 36.4 metres	**drill method**	HQ Tricone roller casing advance & NQ diamond	**hole completed**	2 - 6 -95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency / density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
		NQ Diamond Drilling			CORE LOSS						
							LIGNITE: fibrous woody organic matter; black; (50mm thick).	M	MD		
					CORE LOSS	SW	**SAND:** Fine - medium quartz sand; grey; trace charcoal; trace to some clay; trace silt; weakly cemented.	M	VD		
				21.00							
				22.00		SW	**SAND:** Fine - medium quartz sand; grey; trace charcoal; trace to some clay; trace silt; weakly cemented.				
				22.12							
			2, 22, 37 N=>50			SP	**Gravelly SAND:** Fine - coarse quartz sand; light yellow; fine - medium subrounded - angular quartzite gravel.	M	VD		
				22.57							
				23.00	CORE LOSS						
							SAND: Fine - coarse quartz sand; grey; some fine - coarse; subrounded - subangular quartzite gravel	M	D-VD		
				24.00							
					CORE LOSS						
				25.00		GP	Harder drilling ? Gravels	M	D-VD		
				26.00			Cobbles or boulders of fine grained basalt /dolerite ?				
							TERMINATED: 26.00 metres; drill refusal, bit worn out in materials, assumed to be very dense gravel.				

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SLOANE WELDON Pty. Ltd. Ref No : 18081

ENGINEERING LOG -BOREHOLE

Drill Hole Number: RC 9

sheet 1 of 2

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 173mE222mN	**drill type**	PIONEER P160	**hole commenced**	5 - 6 - 95
R.L.	Approx 35.0 metres	**drill method**	HQ Diamond drill & HQ Tricone roller	**hole completed**	6 - 6 - 95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
						GP	**ASH CINDER GRAVEL.**	M	L-MD		FILL
		HQ Diamond Drill		1.00	CORE LOSS						
			3, 3, 4 N=7	1.54					L		No SPT sample
				1.99							
				2.24			**CONCRETE.**				
		HQ Tricone Roller		3.00	NO SAMPLE						
				4.06		SM-SP	**Silty & gravelly SAND:** Fine - medium sand; brown; 15-20% silt; fine - medium; angular - subrounded quartzite & charcoal gravel.	M	VL		? FILL
			1, 1, 1 N=2	4.51							
				5.00							
			1, 1 N=2	5.56		SM	**? Silty SAND / sandy SILT**		VL		Two blows for a total penetration of 450mm. **No SPT sample**
				6.01							
				7.06		SM-SP	**Silty & gravelly SAND:** Fine - medium sand; brown; fine -medium; angular - subrounded quartzite & charcoal gravel in washings. Some gravels indicated by drill rate & silt/ sand on outside of SPT split spoon sampler.		MD		**No SPT sample**
			10, 13, 10 N=23	7.51							
				8.00	NO SAMPLE						
				8.56							
			15, 12, 10 N=22	9.01					MD		**No SPT sample**
				10.00							

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SLOANE WELDON Pty. Ltd.

ENGINEERING LOG -BOREHOLE

Drill Hole Number. RC 9

sheet 2 of 2

project ANML -ROLL HANDLING CONVEYOR **location** BOYER - NEW NORFOLK

co-ordinates	Approx. 173mE222mN	**drill type**	PIONEER P160	**hole commenced**	5 - 6 - 95
R.L.	Approx. 35.0 metres	**drill method**	HQ Tricone roller	**hole completed**	6 - 6 - 95
inclination	Vertical	**drill fluid**	Water & Polymer	**logged by**	BDW/ DJS
bearing	N/A	**contractor**	KMR Drilling	**checked by**	NJH

penetration 1 2 3	water	support	notes sample, tests	metres RL	metres depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
		HQ Tricone Roller	6, 10, 15 N=25	10.06			SC	**Clayey SAND:** Fine sand; greenish grey; approx. 10-15% clay; trace fine subrounded quartzite gravel.	M	MD	x	**350 kPa**
				10.51								
				11.00		CORE LOSS						
				11.56								
			25, 25/60 N>50	11.71			GP	**Sandy GRAVEL:** Fine - medium, angular to subrounded quartzite gravel; approx. 30% fine - coarse quartz sand; trace clay; mottled yellowish orange to greenish yellow brown.	M	MD-VD		SPT bouncing last 35 blows for 120mm penetration.
				12.00								
				13.00		CORE LOSS						
				14.00								
				14.56								
			11, 12, 19 N=31	15.01			GP	**Sandy GRAVEL:** Fine - medium, angular to subrounded quartzite gravel; approx. 30% fine - coarse quartz sand; some pockets/ lenses of yellowish - grey sandy silt; trace clay; mottled yellowish orange to greenish yellow brown.	M	D		
				16.00		CORE LOSS						
				17.00								
			7, 13, 25 N=38	17.42			SC	**Clayey SAND:** Fine - medium sand; dark olive grey; approx. 10-15% clay; trace fine quartzite gravel; some carbonaceous fibrous wood fragments; some thin carbonaceous layers	M	D		
				17.81								
						CORE LOSS						
			N>50 15, 35/120	19.06			GP	**Sandy GRAVEL:** Fine - medium subangular -rounded quartzite gravel; dark greenish grey; fine - coarse sand.	M	VD		SPT bouncing last 35 blows for 120mm penetration.
				19.33				**TERMINATED AT REQUIRED DEPTH.**				
					20.00							

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SLOANE WELDON Pty. Ltd. Ref No: 18082

ENGINEERING LOG - BOREHOLE

Drill Hole Number: RC 10
sheet 1 of 1

project **ANML -ROLL HANDLING CONVEYOR** location **BOYER - NEW NORFOLK**

co-ordinates	Approx. 180mE193mN	drill type	PIONEER P160	hole commenced	24 - 5 -95
R.L.	34.0 metres	drill method	HQ Tricone roller & NQ diamond drilling	hole completed	24 - 5 -95
inclination	Vertical	drill fluid	Water & Polymer	logged by	BDW/ DJS
bearing	N/A	contractor	KMR Drilling	checked by	NJH

penetration 1 2 3	water	support	notes: sample, tests	metres: R.L / depth	graphic log	classification symbol	material: soil type:plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency density index	hand penetrometer kPa (25 50 100 200 400)	structure, geology
						SP	**ASHPALT** **SAND:** Fine - coarse subrounded quartzite & dolerite sand.	M	D		**PAVEMENT MATERIAL**
				1.00	CORE LOSS	GP	**Clayey GRAVEL:** Fine - coarse subrounded to subangular dolerite & quartzite gravel; cobbles of dolerite to 100-150mm; yellow - brown sandy clay matrix.				**FILL**
			5, 16, 29 N=45	1.42				M	VD -D	x	**220 kPa**
				1.87 2.00			Trace cobbles.				
		HQ Diamond Drill	50/140 N>50	2.95 3.09		GP	**Clayey GRAVEL:** Fine - coarse subrounded to subangular dolerite & quartzite gravel; cobbles of dolerite to 100-150mm; yellow - brown sandy clay matrix; trace dolerite boulders. **Clayey GRAVEL:** Fine - coarse subrounded to subangular dolerite & quartzite gravel; cobbles of dolerite to 100-150mm; yellow - brown sandy clay matrix.	M	VD		SPT 50 blows for 140mm of penetration
				4.00	CORE LOSS						SPT bouncing, 19 blows for 70mm penetration.
				5.00 5.35							
			13/75 N>50	5.42	CORE LOSS		**BASALT:** Fine grained dark black, minor small vesicle infillings of ?olivine.	M	VD		N>50 Bedrock joints irregular & rough, 25-60mm spacing. Iron staining along joints.
				6.00	CORE LOSS		**TERMINATED:** Required depth.				BASALT

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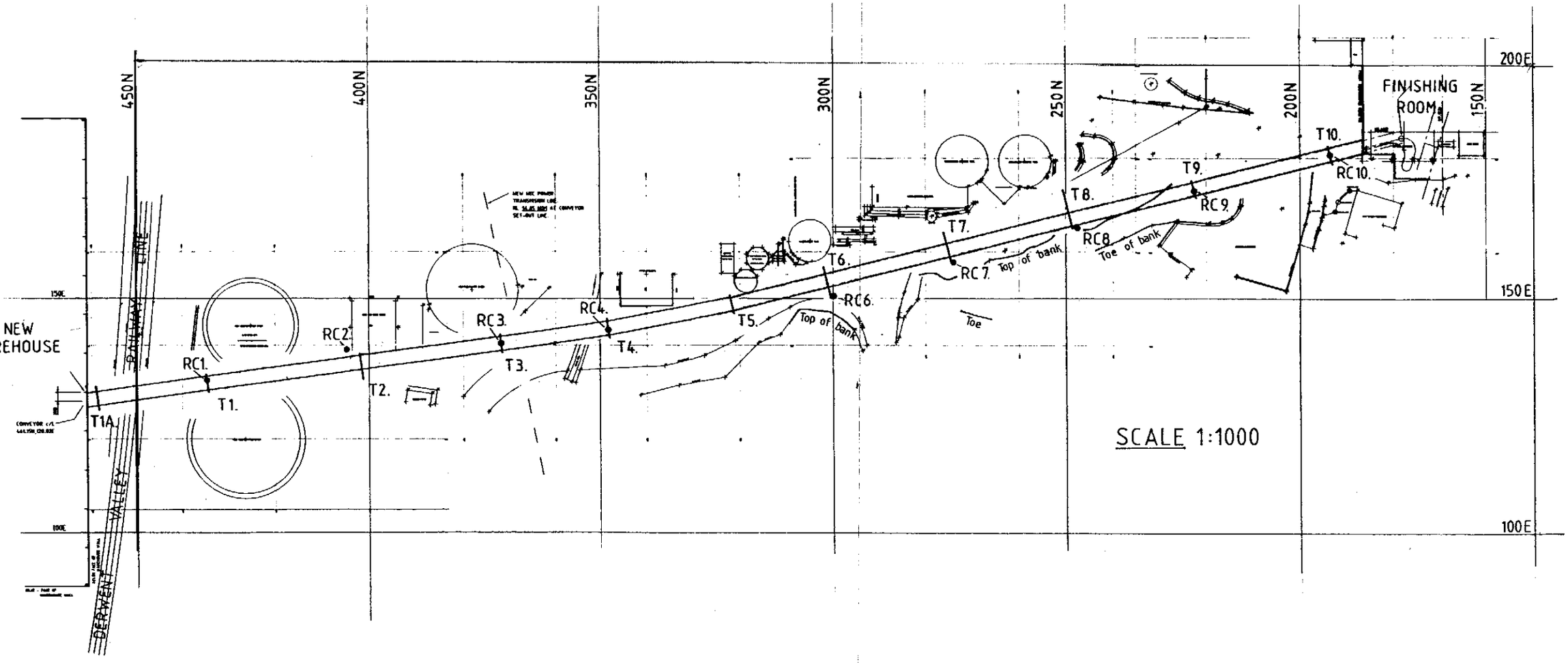

Figure 1. **SITE PLAN**
ROLL HANDLING CONVEYOR ROUTE
Australian Newsprint Mills Limited, Boyer.

Scale: 1:1,000
Client: Johnstone McGee & Gandy Pty. Ltd.
***Sloane Weldon** Pty.Ltd. Report SW1995/43* Plan No: 9546

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