

Project: **Bell Bay Quarry Tasmania-
Stage 1 Testing Review and Summary Report**

Client: **Delta Materials Pty Ltd**
ABN 48 136 524 671



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EXECUTIVE SUMMARY

The hard rock deposit at Bell Bay, Tasmania, is separated into three sectors of Dolerite surrounded by fault zones, which intersect and cross these sectors in distinct locations. Within the Dolerite rock sectors are areas of weathering near fault locations and elsewhere. It is the opinion of the report author that the results presented within this report indicate that where no weathering is present the Dolerite material is strong, hard and durable and expected to easily satisfy the relevant requirements of AS2758.1- Concrete Aggregates, AS2758.2- Aggregates for Sprayed Bituminous Sealing and AS2758.5- Coarse Asphalt Aggregates. *See Appendix 2 of this report- Dolerite Results.*

Where small amounts of localised weathering are present the properties of the weathered Dolerite rock appears of lesser quality but still in general compliance with the above specifications. As part of the Estimation of the Resource, some Weathered Dolerite and Dolerite is included together in these results and it is anticipated under production in a full scale crushing, screening and processing plant, the overall Dolerite quality should improve due to the removal of a percentage of the weathered material contained within this plant feed material. *See Appendix 3 of this report- Estimated Resource Results.*

Those materials within the deposit which; contain heavier degrees of weathering, are located in the fault zones or in the underlying sediments, are considered to be unsuitable for use in concrete, asphalt or sealing applications. These materials may however be important constituents in roadbase products, where Plasticity Index and or softer components may assist in the binding behaviour of insitu road pavement, etc. *See Appendix 4 of this report- All Results.*

A comparison of the properties of the Dolerite material within Bell Bay and other hard rock materials used in the wider Sydney region is also included later in this report, and confirms that Bell Bay Dolerite is a quality source with properties comparable to any of the existing hard rock deposits presently being used or planned to be used in the Sydney region.

A full range of coarse and fine aggregates are proposed to be produced from the Bell Bay Dolerite deposit, and as such a targeted production and testing program will be required, including special consideration for the production of a high quality manufactured sand, for use in concrete. Due to the shortage of natural fine sand, within the Sydney region, it may also be proposed to supply alternative fine sand(s) or a dedicated combined fine aggregate concrete sand, incorporating both the Bell Bay manufactured sand and local Tasmanian fine sand into one controlled product. For this reason other fine sand deposits are also presented later in this report comparing them to those currently being used in the Sydney region.

- *Cover Photo: View over Bell Bay Tasmania, from proposed Delta Dolerite deposit*

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INTRODUCTION

This report forms part of an ongoing investigation into the suitability of a hard rock deposit located at Bell Bay Tasmania for use in concrete, asphalt and sprayed bituminous road sealing markets. The Bell Bay deposit is located northwest of Launceston, Tasmania and 8 kilometres southeast of the town of Georgetown close to Bass Strait, Australia.

It is essentially a bowl shaped intrusive sill deposit of Dolerite which was formed from the cooling of molten magma beneath the earth's surface, resulting in a consistent hard rock source which is to be mined for the production of high quality construction material aggregates.

Within the Bell Bay deposit there are three main identified Dolerite rock mass sectors; namely the West Resource, East Resource and Central Resource separated by well defined fault zones. The stage 1 testing program which is reported here was designed to identify the likely quality of the materials within these three Dolerite sectors and predict the suitability of these materials to be processed into construction aggregates. The fault zones within the deposit area were also investigated to gain a better understanding of the interface between the Dolerite rock mass and surrounding fault materials. *See Maps- Appendix 1*

It is expected that the outcomes from this report, combined with other geological investigations will support the development of a dedicated mining plan for extraction and processing of the Bell Bay Dolerite material to allow production of quality construction aggregates from the site.

Due to the high quality of the Dolerite within the deposit it is also proposed to transport construction aggregates from this site by ship, into Sydney Harbour, for further road distribution across the greater Sydney region. For this reason several comparisons are made, in this report, to existing aggregate sources within the Sydney region which would be considered competing products to that from the Bell Bay deposit.

BACKGROUND

Delta Materials designed and undertook a comprehensive Stage 1 drilling program of the Bell Bay deposit which incorporated 21 bore holes drilled into the rock mass to prepare rock core samples for further engineering testing. Representative samples from the 21 rock cores were cut into halves longitudinally, with one half separated into composite subsamples C001 to C043 based upon the visual characteristics of each sample group, while the remaining half was retained for further reference. The composite subsamples were identified as *Dolerite, Weathered Dolerite, Fault Zone and Sediment*. The results for the 43 composite samples are presented later in this report in Appendices 2, 3, 4 and 5.

CQT Services Pty Ltd (CQT) were engaged to design, develop and oversee a targeted testing program to be conducted on the halved rock core samples extracted by Delta from the Bell Bay deposit, with a view to confirming the quality of the insitu Dolerite resource material.

The scope of this report provided by Delta Materials was:-

- To prepare a targeted stage 1 testing program of the Bell Bay deposit, to be undertaken by an independent mining and geotechnical services company, Coffey Mining.
- Coordinate and support the testing process with regular result updates and interim reporting.
- Review and analyse the geotechnical results to confirm the compliance or otherwise of the Dolerite materials with the requirements of relevant concrete, asphalt and potentially sprayed bituminous spray sealed specifications

The cores were secured from the Bell Bay deposit, logged, recorded and photographed



Figure 1- Bell Bay Deposit



Figure 2- Capped Bore Hole



Figure 3- Selection of Composite Sub-Samples



Figure 4- Core Box Identification

Each of the 21 holes was broken into 43 composite subsamples based upon a visual classification scheme as provided by Delta – See *Table 1 below*.

Half Drill Core Samples- Broken into Subsample Composites

Drill Hole	From	To	Description	Composite
BB10-1	0	36.8	fault zone	C001
	36.8	74.85	dolerite	C002
	74.85	164.3	sediment	C003
BB10-2	0	28	fault zone	C004
	28	69.4	fault zone	C005
BB10-3	0	32.6	fault zone	C006
	32.6	59.5	dolerite	C007
BB10-4	0	50.3	dolerite	C008
	50.3	125.5	dolerite	C009
BB10-5	0	27.8	weathered dolerite	C010
	27.8	74.1	dolerite	C011
BB10-6	0	29.5	weathered dolerite	C012
	29.5	91.9	dolerite	C013
BB10-7	0	20.9	weathered dolerite	C014
	20.9	47.7	dolerite	C015
BB10-8	5.2	50	fault zone	C016
	50	110.5	dolerite	C017
BB10-10	3	52.5	fault zone	C018
	52.5	119.4	dolerite	C019
BB10-11	12	59.9	fault zone	C020
	59.9	93	fault zone	C021
	93	109	dolerite	C022
BB10-12	2.7	28.8	weathered dolerite	C023
	28.8	138.8	dolerite	C024
BB10-13	1.5	94.9	dolerite	C025
	94.9	173.3	dolerite	C026
BB10-14	8.7	133.65	dolerite	C027
BB10-15	4	86.4	Weathered dolerite	C028
BB10-16	0	119.87	dolerite	C029
BB10-17	0	87.7	dolerite	C030
BB10-18	33.2	82.4	dolerite	C031
BB10-19	12.5	72.6	Weathered dolerite	C032
BB10-18	0	33.2	fault zone	C033 – Not Tested
BB10-20	0	67.2	fault zone	C034
	67.2	93.5	fault zone	C035
	93.5	117.6	dolerite	C036
BB10-4	54.65	99.5	dolerite medium	C037
	104.9	122.8	dolerite , fine	C038
BB10-12	57.9	116	dolerite, medium	C039
	123.1	138.65	dolerite, fine	C040
BB10-21	0	53.4	fault zone	C041
	53.4	87.5	fault zone	C042
	87.5	113.2	dolerite	C043

Table 1

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The cores were cut into halves longitudinally to allow half samples to be retained for further testing or investigation if required at a later date. The half cores were shipped for further testing to:

Coffey Information Pty Ltd

ABN 92 114 364 046

Warabrook, Newcastle Laboratory

19 Warabrook Boulevard

Warabrook NSW 2304

Ph +61 2 4016 2300

Fax +61 2 4016 2380



Figure 5- Dolerite Half Core Prior To Testing

The half cores were fed through a laboratory jaw crusher to obtain sample sizes and fractions required for subsequent engineering testing.



Figure 6- Coffey Laboratory Jaw Crusher



Figure 7- Crushed Dolerite Post Coffey Laboratory Jaw Crusher

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The Coffey lab crusher did not impart very good shape to the crushed rock particles, and it is believed that improvement in some of the engineering properties of the samples, namely AS1141.22- Wet Strength, Dry Strength and Wet/Dry Strength Variation, would be expected with better shaped particles from a full scale crushing and screening plant under normal production conditions. The small feed opening of the Coffey laboratory jaw crusher, pictured above, meant some particles had to be broken by hammer etc, prior to being fed into the crusher. It was also noted that the cooling joints within the Dolerite core samples may have influenced the crushed rock shape obtained. Particular attention may be required in any subsequent full scale plant to impart adequate shape to the coarse and fine aggregate particles.



Figure 8- Small Coffey Jaw Crusher Opening

The testing program designed by CQT was intended to incorporate the requirements of Australian Standards AS2758.1- Concrete Aggregates, AS2758.2- Sealing Aggregates and AS2758.5 Coarse Asphalt Aggregates, along with other relevant specifications. *See Table 2 below.*

The results of the property tests undertaken by Coffey Information are summarised in Appendices 2, 3 and 4 with all relevant NATA endorsed certificates attached in Appendix 5

Particle Size Distributions (gradings- AS1141.11) of the composite samples were undertaken as part of this stage 1 testing program, however they are a function of the laboratory jaw crusher, and may not reflect the production gradings produced from a future dedicated fixed quarry plant on the Bell Bay site.

Preliminary material testing and concrete trials were also previously conducted on surface samples of Dolerite retrieved from the Bell Bay site. Some of these results are also presented here in Appendix 2 – *'Sample A Results and Summary'* - and confirm that the Dolerite material is of a very high quality when little or no weathering is present.

CQT TEST PROGRAM – STAGE 1

Aust Standards	Test	Approx Specification Limits	Comments
AS1141.12	Materials Finer Than 75µm (%)	<4% ¹	Is obtained from grading to AS1141.11 and indicates potential deleterious fines which may affect strength or shrinkage
AS1141.14	Particle Shape 2:1 (%)	<35%	Is a function of the crushing equipment and how material is fed into it? It may also be affected by the feed rock itself with cooling joints influencing the way the rock may fracture favouring one direction over another.
AS1141.22- Wet / Dry	Wet/Dry Strength Variation (%)	<25%	Indication of potential rock durability and water sensitivity
	Wet Strength (kN)	>100kN	Indication of rock strength when saturated internally
	Dry Strength (kN)	>150kN	Indication of rock strength when oven dry.
AS1141.5 - Particle Density & Water Absorption (Fine)	Apparent Particle Density (t/m ³)	>2.5t/m ³ ²	Density of one solid m3 of rock excluding any internal voids
	Particle Density Dry (t/m3)	>2.5t/m ³ ²	Density of one solid m3 of rock in its dry state with all internal voids dry
	Particle Density SSD (t/m3)	>2.5t/m ³ ²	Density of one solid m3 of rock in its Saturated Surface Dry state with all internal voids saturated
	Water Absorption (%)	<2.5% ³	Indicator of rock quality, as softer less durable rocks tend to absorb more water in general. (Some exceptions exist - vesicular aggregates like Blast Furnace Slag etc.)
AS1141.6.1 - Particle Density & Water Absorption (Coarse)	Apparent Particle Density (t/m ³)	>2.5t/m ³ ²	Density of one solid m3 of rock excluding any internal voids
	Particle Density Dry (t/m3)	>2.5t/m ³ ²	Density of one solid m3 of rock in its dry state with all internal voids dry
	Particle Density SSD (t/m3)	>2.5t/m ³ ²	Density of one solid m3 of rock in its Saturated Surface Dry state with all internal voids saturated
	Water Absorption (%)	<2% ³	Indicator of rock quality, as softer less durable rocks tend to absorb more water in general. (Some exceptions exist – vesicular aggregates like Blast Furnace Slag etc.)
AS1141.24	Sodium Sulphate Soundness	<9% - B1,B2 <6% - C	Indicator of likely uncontrolled expansion of rock if placed in rich sulphate solution such as sea water or brine solution.
AS1141.23	LA Value	<30%	Indicator of abrasion resistance of the rock within a given size fraction
AS1012.20	Chlorides	Report >0.01%	Chlorides within the rock itself which can be liberated by acid solution- used in specification but may not be realistic in estimation of free chlorides in insitu concrete etc.
	Sulphates	Report >0.01%	Sulphates within the rock itself which can be liberated by acid solution- used in specification but may not be realistic in estimation of free sulphates that may contribute to expansion
AS1141.40, .41. 42	Polished Agg Friction Value	Specified >44 Preferred > 48	Indication of the propensity of the rock to become smooth (polish) by the application of an abrasive load.

Table 2

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- Note: 1. <4% was selected as AS1141.13- material <2 μ m specifies that if the %material<75 μ m is less than 1% for coarse and less than 4% for Fine aggregates no further testing is required. I.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an "all in" coarse and fine material the 4% limit on <75 μ m is selected here.
2. The >2.5 t/m³ limit was selected as competitive aggregate products in the Sydney market would generally exceed this figure. The minimum requirement of >2.1 t/m³ applies in relevant specification to define lightweight aggregates, (at <2.1t/m³).
3. The water absorption limits were selected to best reflect the preferred maximums for aggregates supplied into the Sydney market.

RESULTS DISCUSSION

The Bell Bay Dolerite results, within this report, were obtained from the testing of samples of the Stage 1 drilling program conducted by Delta. Weathering was identified within different locations of the Dolerite rock deposit and the subsequent Stage 2 drilling program is proposed to further identify the location and extent of this weathering such that the quantity of sound Dolerite can be more accurately determined. The use of predominantly angled bore holes in Stage 2 drilling is expected to provide a better means of establishing the location and extent of weathering within the Dolerite rock mass. Appendix 1 of this report contains a map of the proposed Stage 2 drilling program and the intersection of the proposed holes with the existing Dolerite rock masses and proposed fault and weathered zones.

As can be seen by the test results in Appendices 2, 3 and 4 of this report along with the Hard Rock Comparison in Table 3 below, the Bell Bay Dolerite rock mass appears to have comparable source properties to the major hard rock deposits which are currently being used or planned to be used in the greater Sydney region.

The Bell Bay Dolerite Material – (West, Central and East Resources) appears to be:

- Hard and strong, (Av Wet Strength ~276kN),
- Dense and Fine grained (Coarse P.Density (SSD) ~2.88t/m³ and W.Abs ~0.88%),
- With sound crushed fines (Fine- P.Density (SSD) ~2.79t/m³ and W.Abs ~2.34%),
- Durable (Wet/Dry Varn ~12.5%, LA~13% and Sodium Sulphates < 3%),
- Good resistance to polishing (PAFV ~49 Av),
- Low Acid Soluble Chloride (Reported <0.01%) with Sulphate (Reported ~0.08%) and
- Low percentages of crushed fines (Av <75 μ m~2%)

The Bell Bay Estimated Resource Material- (Dolerite & Weathered Dolerite from West, Central and East Resources) appears to be:

- Hard and strong, (Av Wet Strength ~266kN),
- Dense and Fine grained (Coarse P.Density (SSD) ~2.87t/m³ and W.Abs ~1.13%),
- With sound crushed fines (Fine- P.Density (SSD) ~2.79t/m³ and W.Abs ~2.59%),
- Durable (Wet/Dry Varn ~15%, LA~14% and Sodium Sulphates ~4%),
- Good resistance to polishing (PAFV ~49 Av),
- Low Acid Soluble Chloride (Reported <0.01%) with Sulphate (Reported ~0.08%) and
- Low percentages of crushed fines (Av <75 μ m~2.5%)

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The Bell Bay Total Combined Material- (All Results)- appears to be unsuitable for concrete despite some good results:

- Hard and strong on average, (Av Wet Strength ~221kN),
- Moderate Density / Water Absorptive (Coarse P.Density (SSD) ~2.74t/m³ and W.Abs ~2.28%),
- Poor Crushed Fines (Fine- P.Density (SSD) ~2.66t/m³ and W.Abs ~4.32%),
- Durability Questionable (Wet/Dry Varn ~20%, LA~17% and Sodium Sulphates ~12%),
- Polishing (unknown- expected to be poor in durability),
- Low Acid Soluble Chloride (Reported <0.01%) with Sulphate (Reported ~0.07%) and
- Moderate percentages of crushed fines (Av <75µm~3.8%).

Some of the material within this group, principally from the Fault Zone, would not be suitable for use in concrete asphalt or sealing applications.

Note: The conclusions drawn from this data are based upon the results and information available at the time of writing this report and may change as further results become available in subsequent stages of investigation.

Bell Bay Dolerite vs. Other deposits

When comparing the Bell Bay Dolerite material with other deposits, currently in use or planned for future use in the Sydney market, only typical source properties are considered here, as the effects of quarry crushing, screening, blending, washing and related handling processes on final aggregate properties cannot be easily predicted.

The major aggregate hard rock deposits which are currently being used in the Sydney region are from the:

- *Central Coast- New South Wales- Basalts- (~1hr by road North of Sydney)*
- *Illawarra Region- New South Wales- Latites-(~1.5hr by road South of Sydney)*

Future hard rock deposits are believed to be coming into Sydney either by rail or road from the:

- *Marulan Region- New South Wales- Ignimbrites/Rhyolites/Tuff (~2hr by road Sth of Sydney)*

It should be noted from the comparisons drawn below between the Bell Bay **Dolerite Material** and current or future Sydney sources – (see table 3)- Bell Bay Dolerite appears to be:

- Of similar rock strength: Av Wet Strength ~270kN vs. 255-380kN,
- Comparable C. P.Density: (SSD) ~2.8T/m³ & W.Abs ~0.88% vs. 2.7-2.95t/m³ & 0.7-1%,
- Comparable F. P.Density: (SSD) ~2.79T/m³ & W.Abs ~2.34% vs. 2.65-2.9t/m³ & 2-2.2%,
- Comparable Durability: Wet/Dry ~12.5% vs. 5-18%, LA~13% vs.11-17% & Sodium Sulphates< 3% versus 0.5 to 1%- well below 6% specification),
- Good resistance to polishing: PAFV ~49 Av vs. 43-51,
- Low Acid Soluble Chloride: Reported <0.01% vs. 0.01-0.15%
- Sulphate levels comparable or lower: Reported ~0.08% vs. 0.005%-0.2%

It would appear from the comparisons made that the Bell Bay Dolerite was very similar to those aggregates currently being used or proposed to be used in the Sydney region in the future.

Hard Rock Deposit Comparative Assessment- Bell Bay Dolerite

Hard Rock Deposits used in the Sydney Concrete and Asphalt markets					Proposed new deposit for use in Sydney market	Comments/ Specification
Property	Aust Std	NSW Basalts	Sth Coast Latites- NSW	Ignimbrite Tuff / Rhyolites- NSW	Dolerite	
		Central Coast NSW	Illawarra Region NSW	Marulan NSW	Bell Bay- TAS	
Wet Strength	AS1141.22	350kN	280kN	255kN	270kN	>100kN- All OK
Dry Strength		370kN	320kN	280kN	300kN	Not Specified
Wet/Dry Var		5%	18%	9%	<10%	<25%- All OK
PAFV	AS1141.40, .41, .42	43	51	50	49	Min 44 Limit- C. Coast basalt can be an issue here.
LA Abrasion	AS1141.23	11%	14%	17%	14%	<30%- All OK
Sodium Sulphate Soundness	AS1141.24	0.50%	0.60%	1%	<6%	<6% - If this exceeds 6% may be expansive issues in concrete?
Chlorides	AS1012.20	<0.15%	<0.15%	<0.01%	<0.01%	<0.15 - Central Coast Basalts- Sometimes High
Sulphates		<0.2	<0.2	0.005	<0.08%	<0.08% is considered by the report author to be within accepted range.
Particle Density (SSD)	AS1141.5- Fine	2.90 t/m3	2.65 t/m3	2.65 t/m3	2.79 t/m3	>2.1- All OK >2.5- Preferred- All OK
Water Absorption		2.20%	2.00%	2%	2.34%	<2.5%- All OK
Particle Density (SSD)	AS1141.6.1 - Coarse	2.95 t/m3	2.70 t/m3	2.70 t/m3	2.88 t/m3	>2.1- All OK >2.5- Preferred- All OK
Water Absorption		0.70%	1.20%	1%	0.88%	<2%- All OK

Table 3

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In addition, as the Particle Density of the Bell Bay Dolerite is high at 2.8 to 2.9t/m³, it would follow that low drying shrinkage properties would be expected (to AS1012.13), when used in concrete, similar to those obtained when using the Central Coast Basalts. This would make the Bell Bay Dolerite a very important and highly sought after aggregate for use in Sydney for highly valued infrastructure projects where shrinkage is specified as a critical design requirement for short or long term concrete performance. Preliminary testing also provided in this report, see Appendix 2, confirm that an AS1012.13 concrete drying shrinkage test conducted on the Bell Bay Dolerite achieved a 56 day drying shrinkage result of 490 μ s at 56 days, in trial mix, which is comparable to that of the Central Coast Basalt deposits and approximately 100 to 150 μ s lower than comparable Rhyolite, Rhyodacite or Latite deposits from the Marulan, Newcastle or Illawarra regions surrounding Sydney.

With suitable extraction, crushing, screening and processing it is expected that adequate removal of the potentially water absorptive materials within the Bell Bay Dolerite rock, would be possible prior to the production of high quality aggregates. A rigorous technical support and testing program will ensure this remained the case into the future.

A Total Sand Solution

The Sand Summary Comparative Assessment Table 4 below suggests that the North eastern Tasmania and South Australian sands appear to also be comparable to those already in the Sydney market. It is expected therefore that either of these sands could be combined with the Bell Bay Dolerite, in a well designed concrete or asphalt mix to provide high performing products to the Sydney market or beyond. Either as a blended single concrete sand or post blended at a clients batch plant, with a Bell Bay Dolerite manufactured sand, it would appear that a total aggregate solution may be possible with further work.

The percentage replacement of Bell Bay manufactured sand for natural fine sand will depend on the physical properties of both and the concretes or asphalts for which they are to be used. It may be then that the properties of a combined sand product may allow a market advantage to Delta customers by reducing the handling to a single sand allowing a potentially customised sand solution to be obtained. Further testing will be required to develop this concept further, along with the design and manufacture of a premium manufactured sand product(s).

Sand Comparative Assessment- TAS and S.A. Fine Sands

Sieve (mm)	Sands used in Sydney Concrete and Asphalt market					Proposed New Sands for Sydney Market		Comments on Northeastern Tasmania sand	Comments on South Australian sand
	Dredged / Washed			Ripped Sandstone		-	-		
	Rocla	Rocla	Macka s	Clarence	Somersb y	N.East. TAS sand	S.Aust sand		
	Kurnell	R Terrace	Salt Ash	Fine	Fine	Fine	Fine		
4.75	100	100	100	100	100	100	99	Grading similar to typical fine dune sands used in Sydney basin	Grading similar to typical fine dune sands used in Sydney basin
2.36	100	100	100	98	99	100	94		
1.18	100	100	100	92	94	100	82		
0.600	97	97	100	72	82	93	64		
0.300	52	55	49	31	32	27	38		
0.150	1	1	0	9	6	1	12		
0.075	0	0	0	4	1	0	4		
Clay & Silt (%)	0	0	0	8	8	Not Tested	Not Tested	Not tested but 0% passing 75µm fraction so little or no clay and silt expected	Not tested but 3 to 4% passing 75µm fraction so some clay and or silt may be expected. Note PI tests done indicate non-plastic suggesting little or no clay present.
Mat <75µm (%)	0	0	0	0	1.2	0%	3%	No fines in < 75µm fraction - low water demand expected in concrete	Some fines in < 75µm fraction may affect water demand in concrete
Organic Impurities (Pass/Fail)	Pass	Pass/ Fail	Pass	Pass	Pass	Pass	Not Tested	No issue with potential staining	Not expected to be an issue as sand appears visually clean
Particle Density (T/m3)	2.5 - 2.6	2.5 - 2.6	2.5 - 2.6	2.53	2.45	2.58	2.61	Particle Density Typical	Particle Density Typical
Water Absorption (%)	0.5%	0.6	0.6	1.2%	1.1	0.60%	0.60%	Water Absorption Typical	Water Absorption Typical

Table 4

CONCLUSIONS AND RECOMMENDATIONS

When considering the overall Bell Bay deposit, including all results from The West, Central and East Resources, in general the Dolerite source appears to comprise of; dense rock of very high quality in places, some lightly weathered material in others and some heavily weathered and faulted material which is underlain by poor sedimentary layers. Providing the variable rock quality across and within the deposit is considered and managed, within a targeted quarry mining plan, it is expected that significant quantities of high quality aggregates could be manufactured on the site.

Based upon the information provided, it is believed by the report author that the Bell Bay Dolerite has the potential to be a significant resource for use in the Sydney market, with source quality properties comparable to the existing hard rock deposits in use, or those proposed for the future.

After the establishment of a dedicated crushing screening and processing plant it is expected that a full range of construction aggregates and roadbases can be produced at Bell Bay with the potential to provide, via marine delivery, high quality aggregate product(s) into the Sydney market and beyond. Additional testing and verification would be required however to progress this further.

It is anticipated, after the completion of the proposed second stage drilling and test program, a better understanding of the spacial extent and variability of the quality and quantity of the Bell Bay Dolerite resource will be obtained, leading to a clear plan for future processing requirements to produce high quality aggregate products.

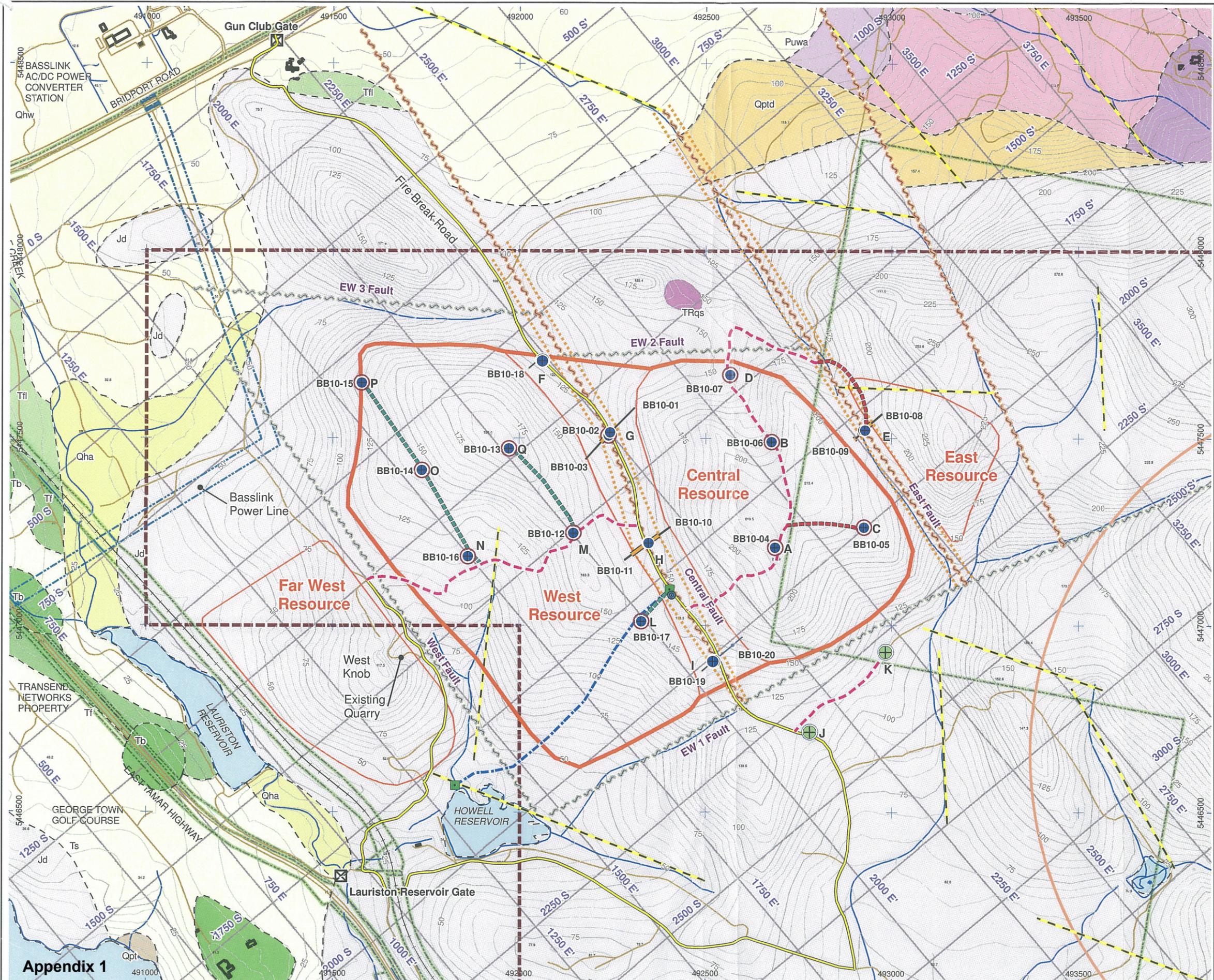
Yours Faithfully



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20 September 2010

AB May 25/10



Legend

Proposed Exploration Facilities/Upgrades

- Clean Up Existing Road / Track
- Major Upgrade to Existing Road / Track
- New Road Track
- New Road/Track Proposed April 2010
- Proposed Waterline
- Combined Resource Area Outline
- Resource Area Outline
- Proposed Water Pump
- Proposed Drill Water Tank
- Borehole Drilled
- Borehole Proposed
- Fault or Breccia Zone from Drill Hole
- Angled Drill Hole - Surface Projection

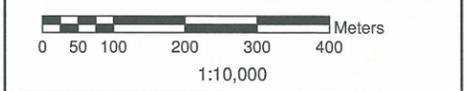
Environmental and Existing Features

- Active Wedge Tailed Eagle Nest
- Inactive Wedge Tailed Eagle Nest
- Wedge Tailed Eagle Nest - 1 Km Buffer
- Delta Exploration Licence
- Bass Link Power Line Right of Way
- Crown Land
- Ground Contour - 25 m
- Ground Contour - 5 m
- Stream, Creek
- Rio Tinto Alcan Aluminum Smelter
- Railway
- Road
- Structure or Building

Geology

- Contact - Inferred
- Contact - Known
- Fault Known
- Fault Known - zone defined by drilling
- Fault Possible
- Linaments
- Section Line - Rotated to 230-50 az

Coordinate System:
 GDA 1994 MGA Zone 55
 Projection: Transverse Mercator
 Datum: D_GDA_1994



Approved By: AB Prepared By: PW
 Project No.: 120 Date Revised: May 25, 2010
 File Name: 120-10v-17-01-Plan-10k-A3-Base-100525.mxd



Project: **Bell Bay**
 Location: Bell Bay, Tasmania, Australia

Title: **Geology and Drilling**

Report: For Discussion Purposes Figure No.: **1** Rev: **100525**

Date Plotted: May 25, 2010 File Location: M:\GIS_Maps\2010\CMPL-DeltaMaterials\120-10v-17-Drilling-May2010\120-10v-17-01-Plan-10k-A3-Base-100525.mxd

Date Plotted: May 23, 2010 File Location: M:\GIS_Maps\2010\DMPL-DeltaMaterials\120-BellBayQuarry\120-10v-17-Drilling-May2010\120-10v-17-01-Plan-10k-A3-Base-100523.mxd



Legend

Proposed Exploration Facilities/Upgrades

- Clean Up Existing Road / Track
- Major Upgrade to Existing Road / Track
- New Road Track
- New Road/Track Proposed April 2010
- Proposed Waterline
- Combined Resource Area Outline
- Resource Area Outline
- Proposed Water Pump
- Proposed Drill Water Tank
- Borehole Drilled
- Borehole Proposed
- Fault or Breccia Zone from Drill Hole
- Angled Drill Hole - Proposed
- Angled Drill Hole - Surface Projection

Environmental and Existing Features

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- Inactive Wedge Tailed Eagle Nest
- Wedge Tailed Eagle Nest - 1 Km Buffer
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- Bass Link Power Line Right of Way
- Crown Land
- Stream, Creek
- Rio Tinto Alcan Aluminum Smelter
- Railway
- Road
- Structure or Building

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- Contact - Known
- Fault Known
- Fault Known - zone defined by drilling
- Fault Possible
- Linaments
- Section Line - Rotated to 230-50 az

Coordinate System:
GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: D_GDA_1994

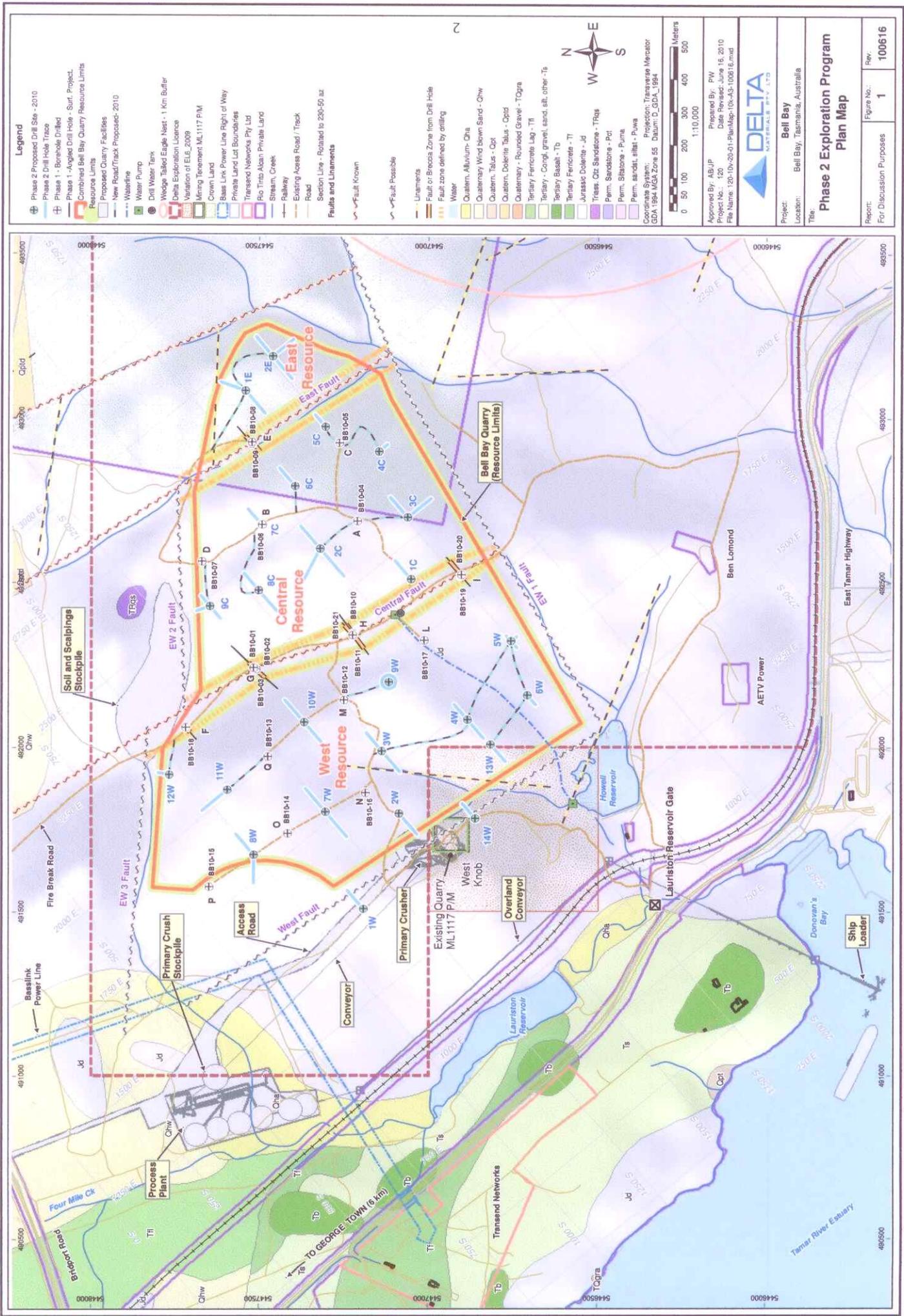
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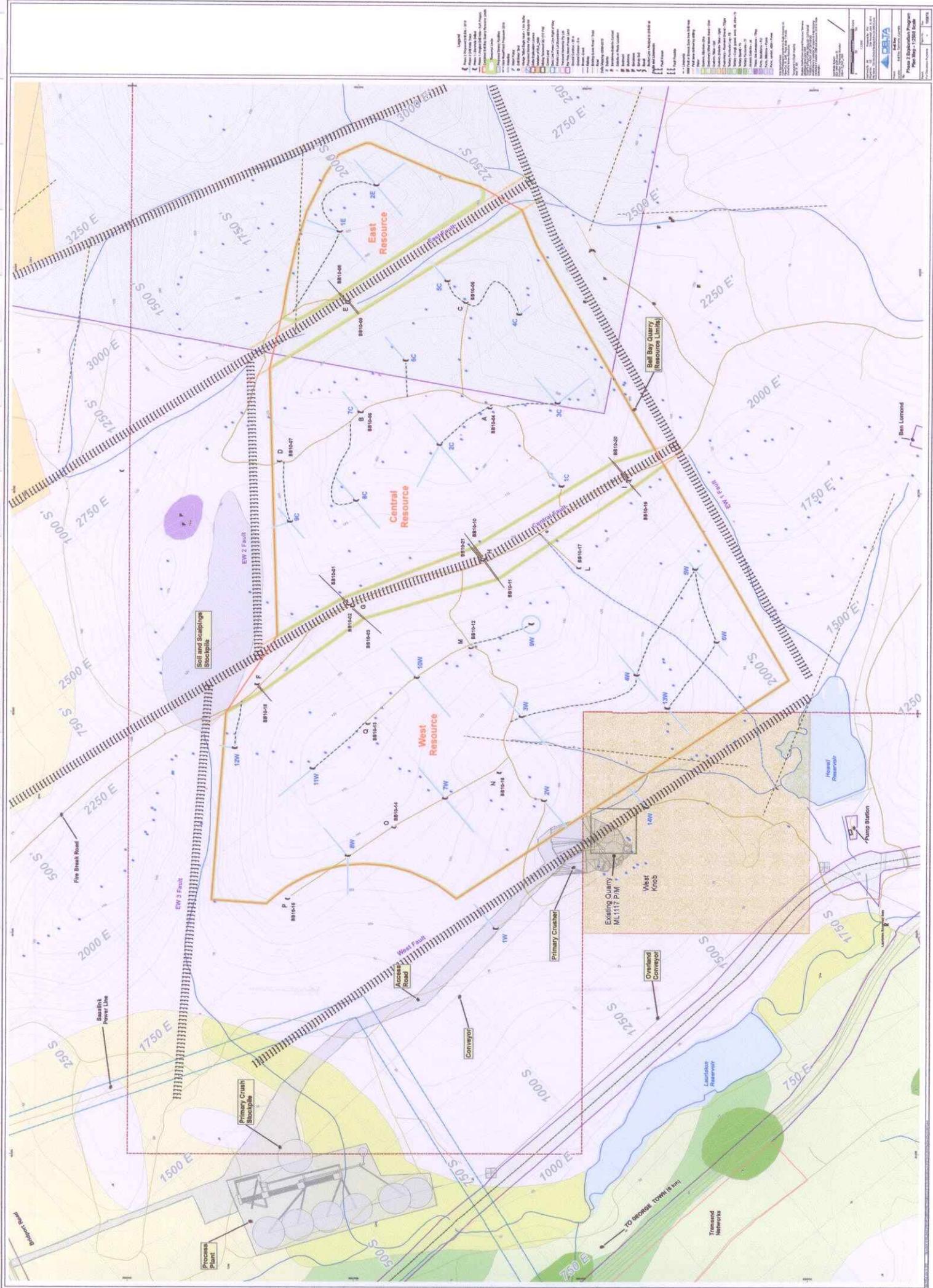
Project: Bell Bay	
Location: Bell Bay, Tasmania, Australia	
Title: Orthophoto and Drilling	

Report: For Discussion Purposes	Figure No.: 4b	Rev: 100523
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Appendix 1



Appendix 1

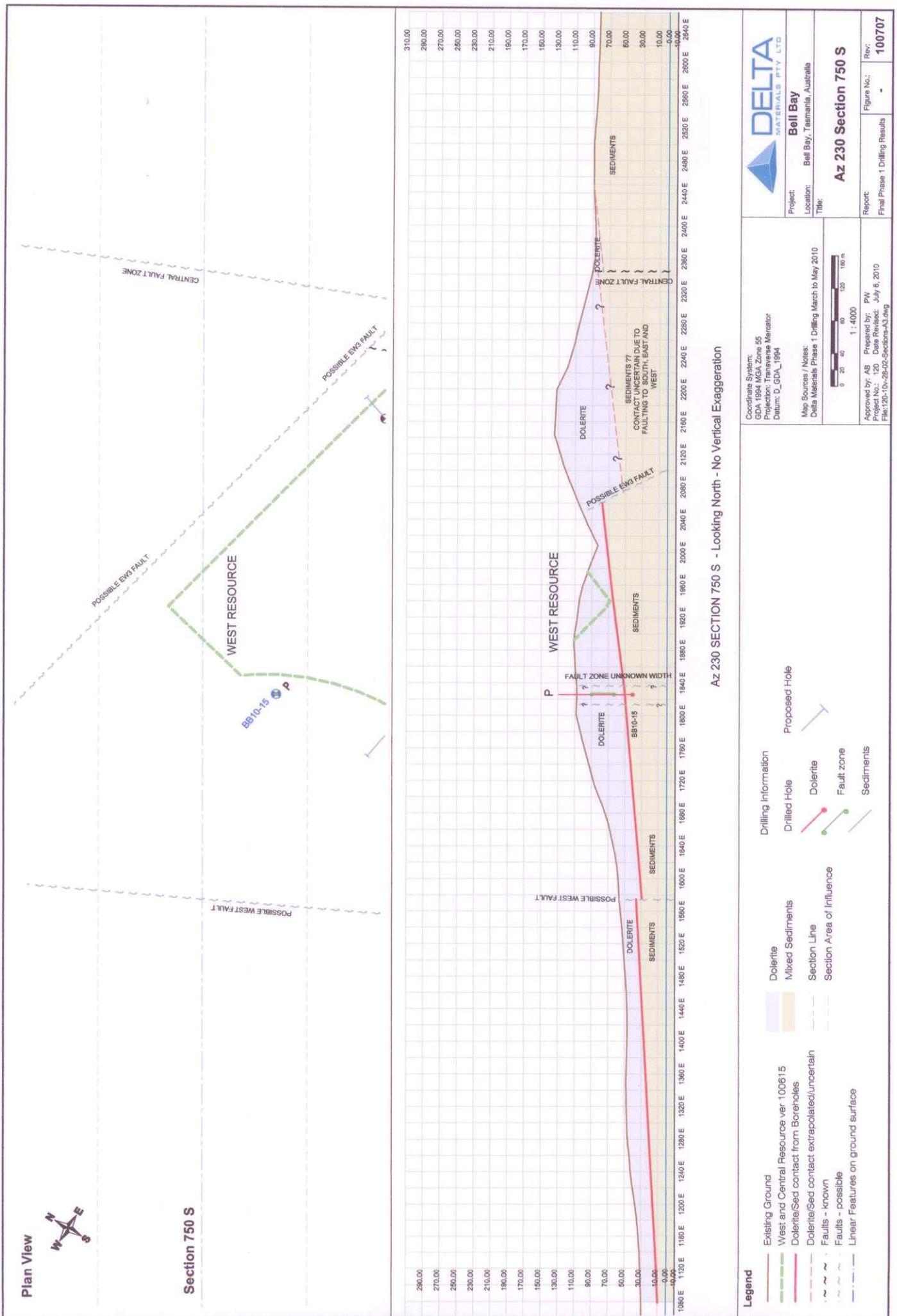


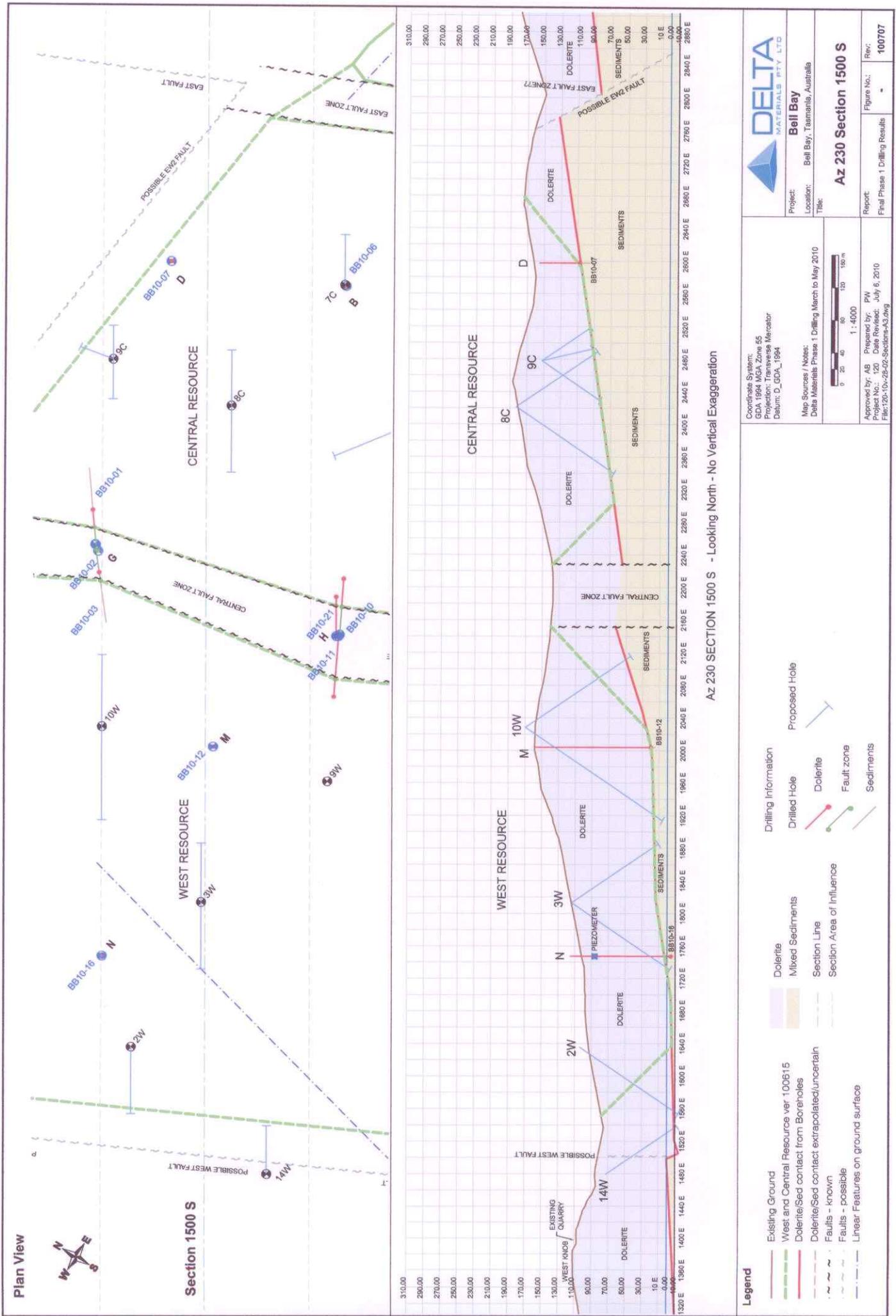
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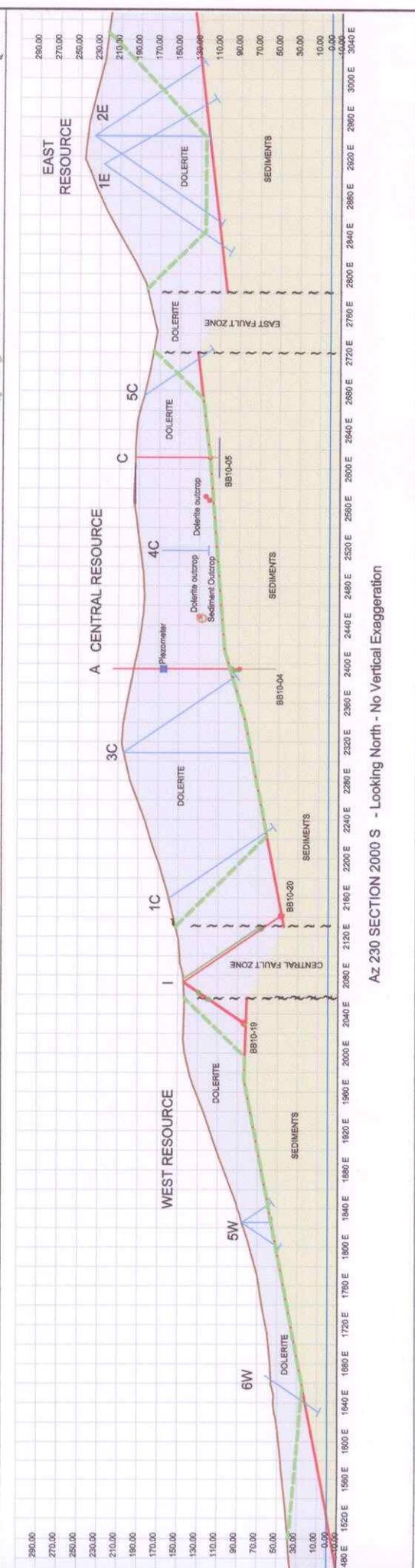
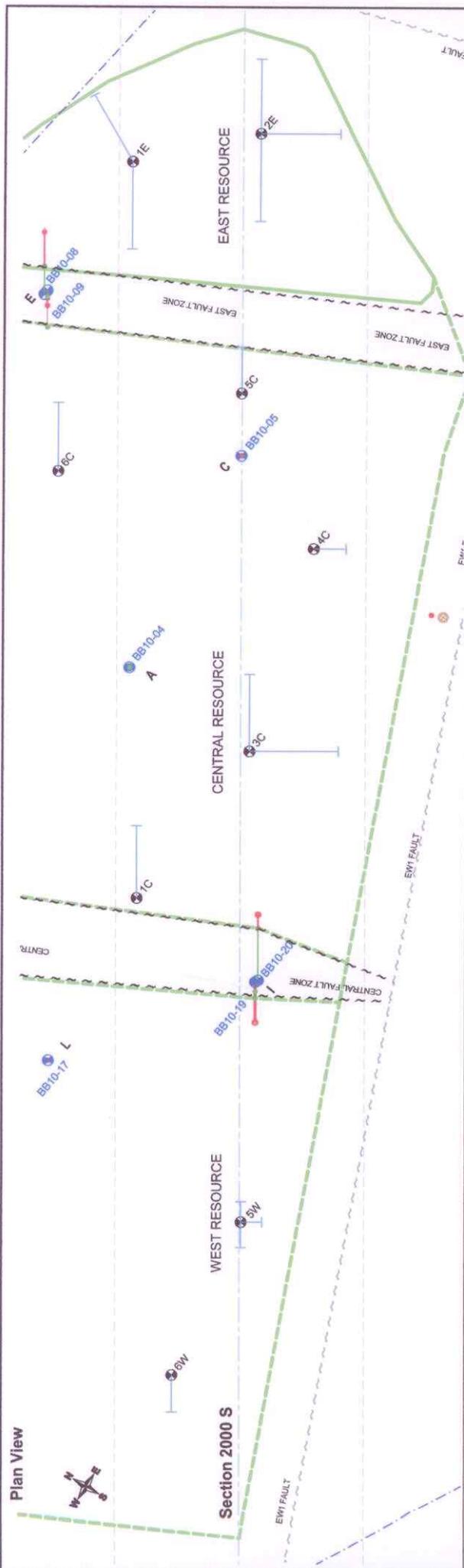
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- 99. Resource Limits
- 100. Resource Limits

Appendix 1

Appendix 1







Legend

- Existing Ground
- West and Central Resource ver 100615
- Dolerite/Sed contact from Boreholes
- Dolerite/Sed contact extrapolated/uncertain
- Faults - known
- Faults - possible
- Linear Features on ground surface
- Dolerite
- Mixed Sediments
- Section Line
- Section Area of Influence
- Drilling Information
- Drilled Hole
- Proposed Hole
- Dolerite
- Fault zone
- Sediments

DELTA MATERIALS PTY LTD

Bell Bay

Project: Bell Bay, Tasmania, Australia
Location: Bell Bay, Tasmania, Australia
Title: Az 230 Section 2000 S

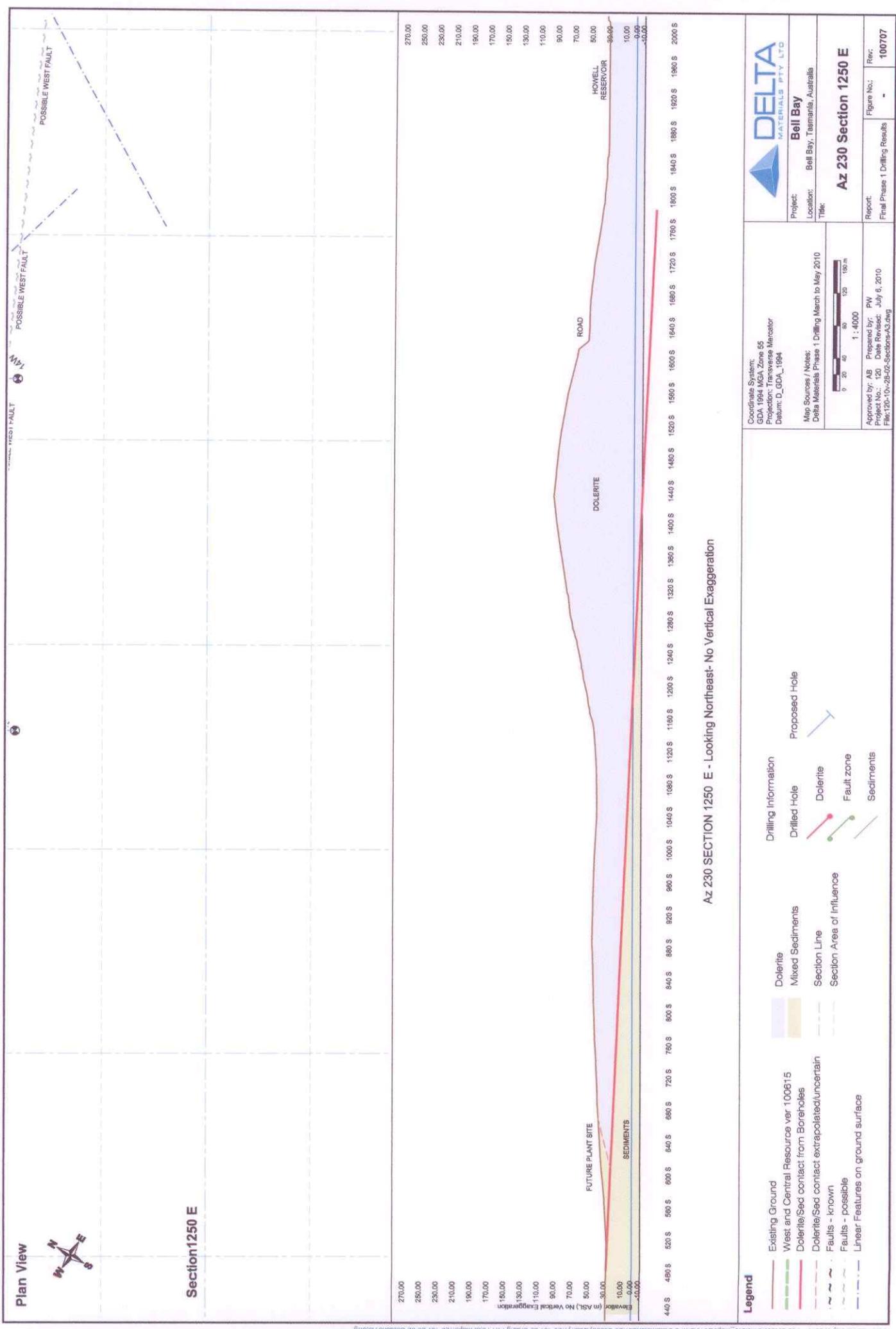
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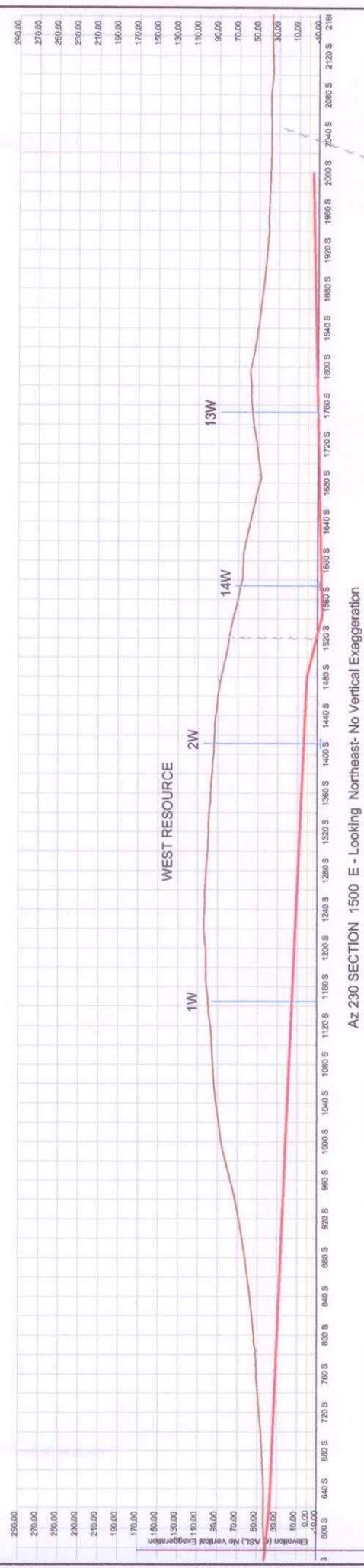
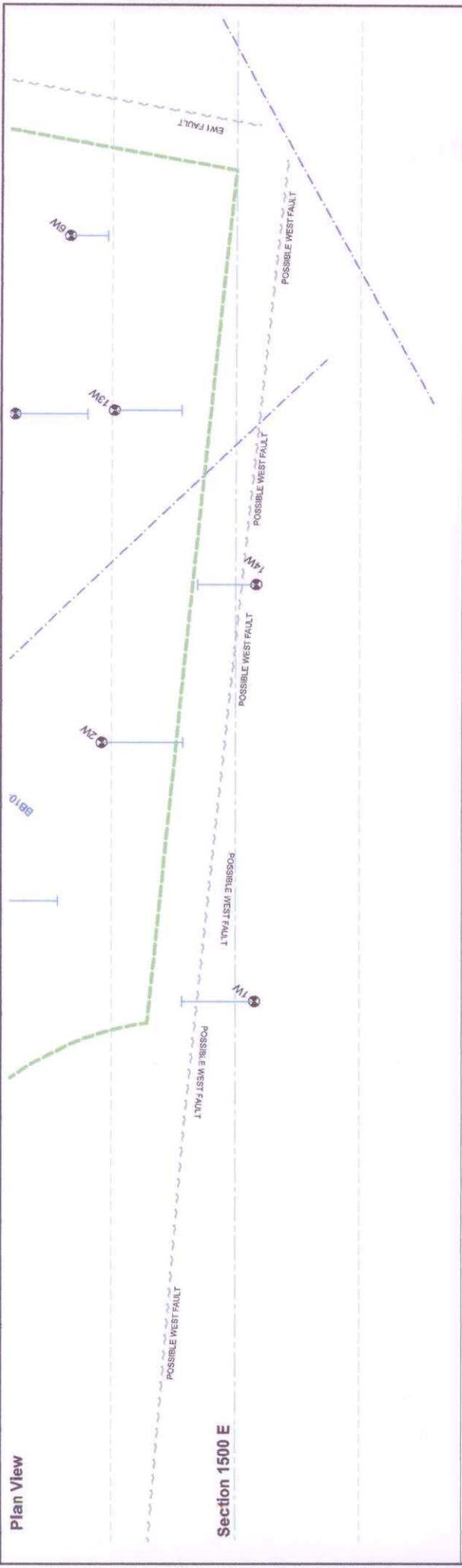
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Scale: 1:4000

Approved by: AB Prepared by: PW
Project No: 120 Date Rec'd: July 6, 2010
File: 120-10v-28-02-Sections-A3.dwg

Report: Final Phase 1 Drilling Results
Figure No: -
Rev: 100610





Coordinate System
GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: D_GDA_1994

Map Source(s) / Notes:
Delta Materials Phase 1 Drilling March to May 2010

Scale:
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Approved by: AB **Prepared by:** PW
Project No.: 120 **Date Revised:** July 6, 2010
File: 120-10-28-02-Sections-A3.dwg

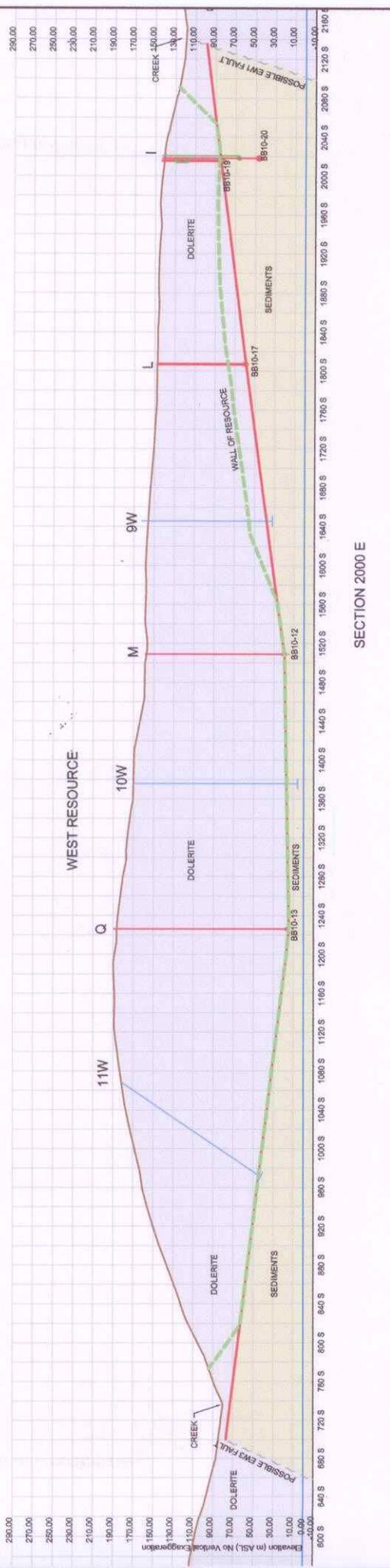
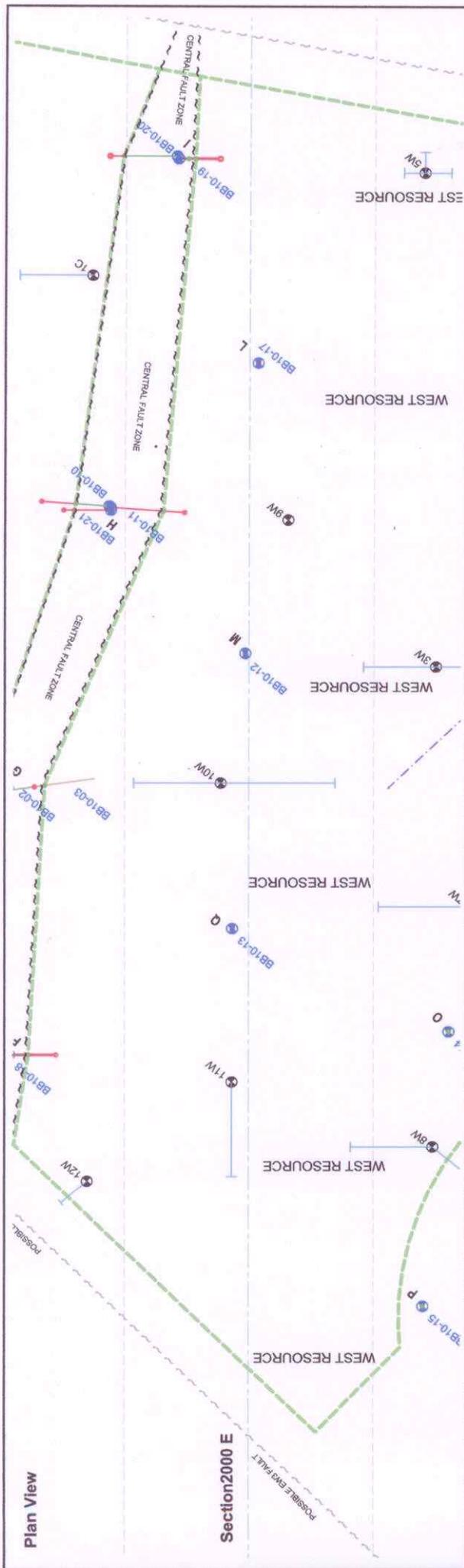
Project: Bell Bay
Location: Bell Bay, Tasmania, Australia
TBR:

Report: Az 230 Section 1500 E
Final Phase 1 Drilling Results

Figure No.: -
Rev: 100707

Legend

- Existing Ground
- West and Central Resource ver. 100615
- Dolerite/Sed contact from Boreholes
- Dolerite/Sed contact extrapolated/uncertain
- Faults - known
- Faults - possible
- Linear Features on ground surface
- Dolerite
- Mixed Sediments
- Section Line
- Section Area of Influence
- Drilled Hole
- Proposed Hole
- Dolerite
- Fault zone
- Sediments



Legend

- Existing Ground
- West and Central Resource ver 100615
- Dolerite/Sed contact from Boreholes
- Dolerite/Sed contact extrapolated/uncertain
- Faults - known
- Faults - possible
- Linear Features on ground surface
- Dolerite
- Mixed Sediments
- Section Line
- Section Area of Influence

Drilling Information

- Drilled hole
- Proposed Hole
- Dolerite
- Fault zone
- Sediments

Coordinate System:
 GDA 1984 MGA Zone 55
 Projection: Transverse Mercator
 Datum: GDA_1984

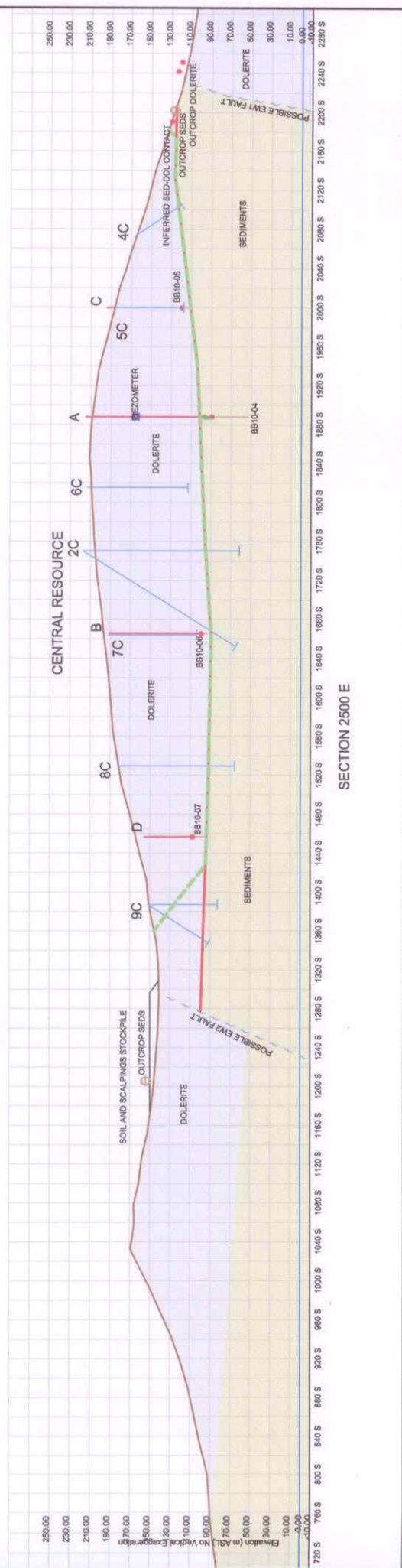
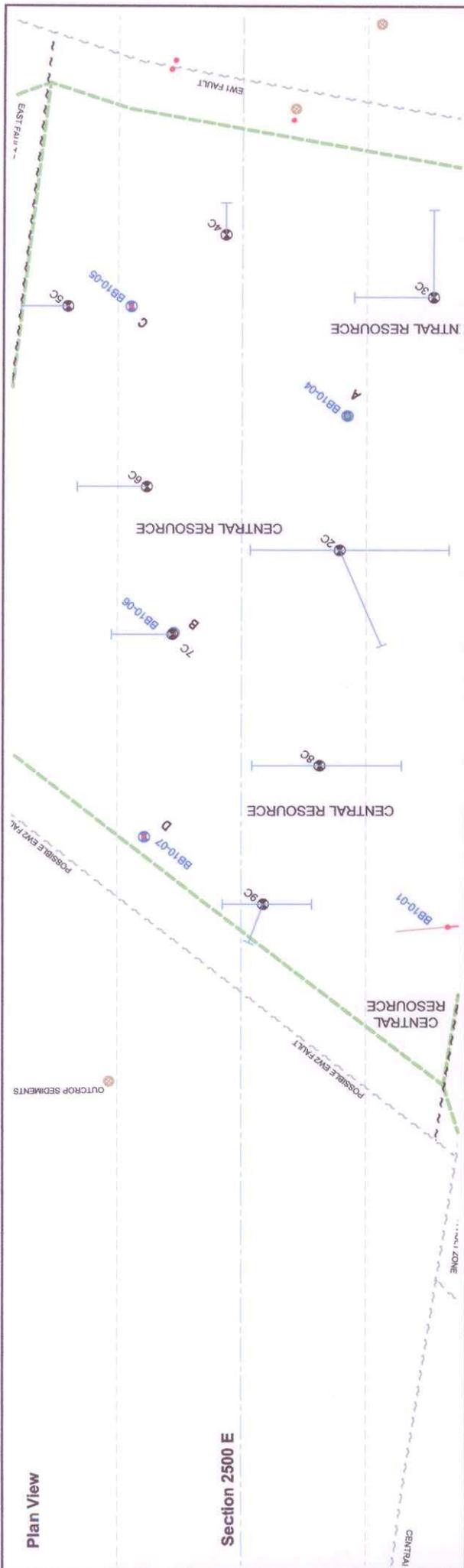
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 Delta Materials Phase 1 Drilling March to May 2010

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Project: Bell Bay
Location: Bell Bay, Tasmania, Australia
Title: Az 230 Section 2000 E

Approved by: AB **Prepared by:** PW
Project No.: 120 **Date Revised:** July 6, 2010
File: 120-10v28-02-Sections-A3.dwg

Report: Final Phase 1 Drilling Results
Figure No.: 100707
Rev: -



Legend

- Existing Ground
- West and Central Resource ver 100615
- Dolerite/Sed contact from Boreholes
- Dolerite/Sed contact extrapolated/uncertain
- Faults - known
- Faults - possible
- Linear Features on ground surface
- Dolerite
- Mixed Sediments
- Section Line
- Section Area of Influence

Drilling Information

- Drilled Hole
- Proposed Hole
- Dolerite
- Fault zone
- Sediments

SECTION 2500 E

Coordinate System:
GDA 1984 MGA Zone 55
Projection: Transverse Mercator
Datum: D_GDA_1984

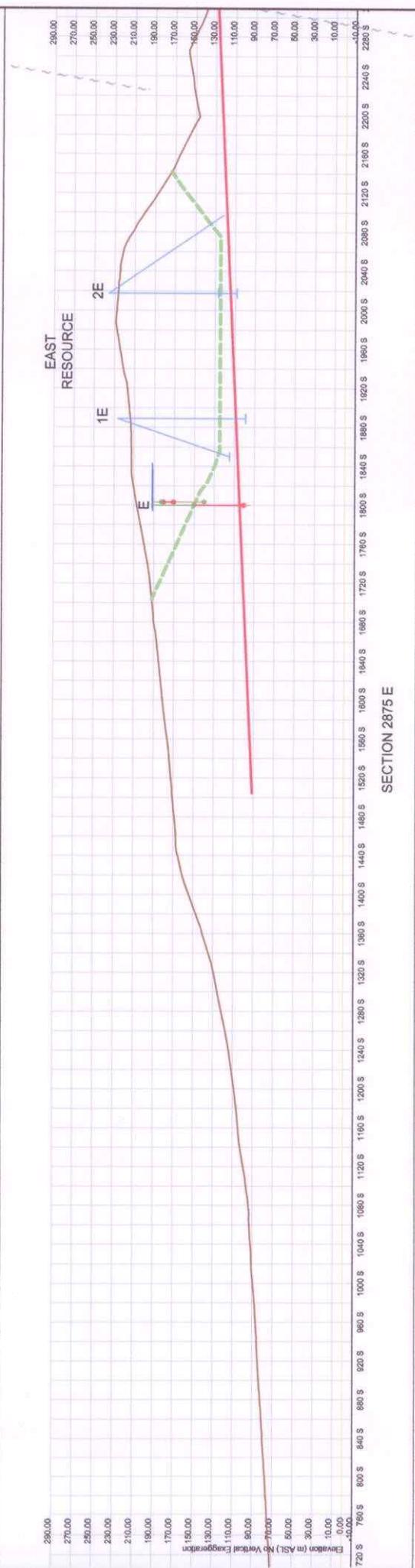
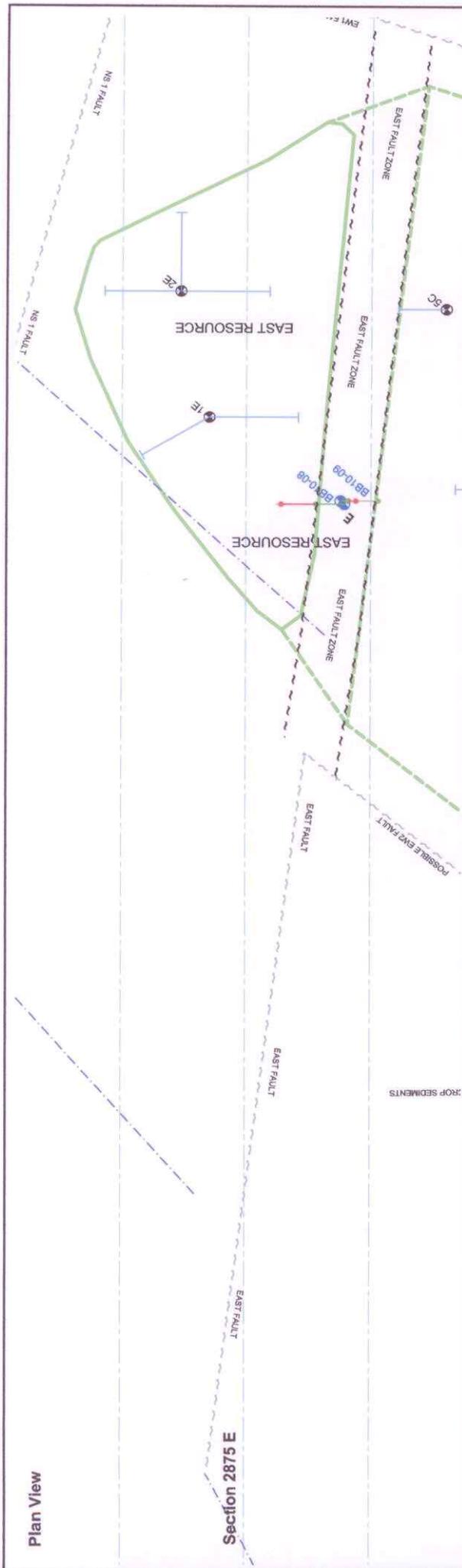
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Delta Materials Phase 1 Drilling March to May, 2010

Approved by: AB Prepared by: PW
Project No.: 120 Date Reviset: July 6, 2010
File: 120-10v-28-02-Sections-A3.dwg

DELTA
MATERIALS PTY LTD

Project: **Bell Bay**
Location: Bell Bay, Tasmania, Australia
Title: **Az 230 Section 2500 E**

Report: Final Phase 1 Drilling Results
Figure No.: 100707
Rev: -



Legend

- Existing Ground
- West and Central Resource ver 100615
- Dolerite/Sed contact from Boreholes
- Dolerite/Sed contact extrapolated/uncertain
- Faults - known
- Faults - possible
- Linear Features on ground surface
- Dolerite
- Mixed Sediments
- Section Line
- Section Area of Influence
- Drilling Information
- Drilled Hole
- Proposed Hole
- Dolerite
- Fault zone
- Sediments

DELTA MATERIALS PTY LTD

Project: Bell Bay
 Location: Bell Bay, Tasmania, Australia
 Title: Az 230 Section 2875 E

Coordinate System:
 GDA 1984 MGA Zone 55
 Projection: Transverse Mercator
 Datum: D_GDA_1984

Map Sources / Notes:
 Delta Materials Phase 1 Drilling March to May 2010

Scale: 1:4000
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Approved by: AB Prepared by: PW
 Project No.: 120 Date Review: July 6, 2010
 File: 120-10v-28-02-Sections-A3.dwg

Report: Final Phase 1 Drilling Results
 Figure No.: -
 Rev: 100707

Bell Bay Dolerite Results Summary- Dolerite Results



Material Description		Initial testing										Extra Testing																					
Source Location		AS1141.12 (Obtained from AS1141.11)		AS1141.14		AS1141.22- Wet / Dry				AS1141.5 - Particle Density & Water Absorption (Fine)		AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24		AS1141.23		AS1012.20		AS1141.40, .41, .42											
Drill Hole	From	To	Length	Description	Australian Standards	Specification Limits	Mat Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	<25%	>100kN	>150kN	Apparent Particle Density (t/m ³)	>2.5t/m ³	Particle Density Dry (t/m ³)	>2.5t/m ³	Particle Density SSD (t/m ³)	<2.5%	Water Absorption (%)	Apparent Particle Density (t/m ³)	>2.5t/m ³	Particle Density Dry (t/m ³)	>2.5t/m ³	Particle Density SSD (t/m ³)	<2%	Sodium Sulphate Soundness	LA Value	Chlorides	Reported ² > 0.01%	Reported ² > 0.01%	Polished Aggregate Friction Value (PAFV)		
BB10-1	36.8	74.85	38.05	dolerite (Central Resource)	C002		2.8	40	29	262	368	368	2.89	2.64	2.73	2.73	3.20	3.20	2.90	2.90	2.81	2.84	2.84	2.84	1.1	4.9	15	<0.001	<0.001	0.041	-		
BB10-3	32.6	59.5	26.9	dolerite (West Resource)	C007		4.8	21	16	283	338	338	2.81	2.40	2.54	2.54	6.10	6.10	2.90	2.90	2.76	2.82	2.82	2.82	1.5	8.9	15	<0.001	<0.001	0.046	-		
BB10-4	0	50.3	50.3	dolerite (Central Resource)	C008		2.0	40	16	257	307	307	2.70	2.75	2.84	2.84	1.90	1.90	2.97	2.97	2.92	2.92	2.92	2.92	0.8	4.1	14	<0.001	<0.001	0.090	-		
BB10-5	50.3	125.5	75.2	dolerite (Central Resource)	C009		1.1	33	12	270	305	305	2.78	2.82	2.90	2.90	1.50	1.50	2.99	2.99	2.95	2.95	2.95	2.95	0.5	3.1	13	<0.001	<0.001	0.097	-		
BB10-6	29.5	74.1	44.6	dolerite (Central Resource)	C011		2.7	18	18	267	326	326	3.08	3.15	3.32	3.32	2.40	2.40	2.95	2.95	2.91	2.91	2.91	2.91	0.7	1.4	14	<0.001	<0.001	0.084	-		
BB10-7	20.9	47.7	26.8	dolerite (Central Resource)	C013		2.2	13	7	273	276	276	2.28	2.24	2.26	2.26	0.90	0.90	2.95	2.95	2.9	2.9	2.9	2.9	0.6	0.7	14	<0.001	<0.001	0.083	-		
BB10-8	50	110.5	60.5	dolerite (East Resource)	C015		2.2	21	22	219	281	281	2.62	2.08	2.29	2.29	1.60	1.60	2.87	2.87	2.79	2.82	2.77	2.82	0.9	1.2	11	0.002	0.002	0.063	-		
BB10-10	52.5	119.4	66.9	dolerite (Central Resource)	C017		2.7	27	20	279	350	350	2.91	2.74	2.80	2.80	1.70	1.70	2.83	2.83	2.74	2.77	2.80	2.80	1.1	2.3	11	<0.001	<0.001	0.066	-		
BB10-11	93	109	16	dolerite (West Resource)	C022		3.0	33	18	328	398	398	2.80	2.85	2.94	2.94	1.90	1.90	2.92	2.92	2.83	2.86	2.86	2.86	1.0	1.6	16	0.001	0.001	0.074	-		
BB10-12	28.8	138.8	110	dolerite (West Resource)	C024		2.6	24	10	309	343	343	2.93	2.77	2.82	2.82	1.90	1.90	2.97	2.97	2.90	2.93	2.93	2.93	0.8	2.3	13	0.002	0.002	0.081	-		
BB10-13	1.5	94.9	93.4	dolerite (West Resource)	C025		0.9	26	9	286	314	314	2.98	2.85	2.89	2.89	1.60	1.60	2.99	2.99	2.94	2.96	2.96	2.96	0.5	1.1	14	0.004	0.004	0.082	-		
BB10-14	8.7	133.65	124.95	dolerite (West Resource)	C026		0.4	27	8	289	271	289	2.95	2.82	2.88	2.88	1.30	1.30	2.83	2.83	2.78	2.80	2.80	2.80	0.6	1.5	14	0.002	0.002	0.078	-		
BB10-16	0	119.87	119.87	dolerite (West Resource)	C027		1.7	28	8	275	315	315	2.92	2.74	2.80	2.80	2.20	2.20	3.00	3.00	2.92	2.95	2.95	2.95	0.8	3.4	14	0.002	0.002	0.073	-		
BB10-17	0	87.7	87.7	dolerite (West Resource)	C029		2.1	27	17	275	333	333	2.94	2.80	2.85	2.85	1.70	1.70	2.95	2.95	2.86	2.86	2.86	2.86	0.8	1.6	11	0.003	0.003	0.088	-		
BB10-18	33.2	94.7	61.5	dolerite (West Resource)	C030		1.5	20	11	264	318	318	2.87	2.63	2.67	2.67	1.40	1.40	2.93	2.93	2.84	2.87	2.87	2.87	0.1	1.5	13	0.003	0.003	0.086	-		
BB10-20	87.6	112.8	25.2	dolerite (Central Resource)	C034		3.2	29	6	273	293	293	2.88	2.68	2.73	2.73	1.40	1.40	2.96	2.96	2.86	2.86	2.86	2.86	0.1	1.5	13	0.003	0.003	0.086	-		
BB10-21	87.6	112.8	25.2	dolerite (Central Resource)	C034		3.2	29	6	273	293	293	2.88	2.68	2.73	2.73	1.40	1.40	2.96	2.96	2.86	2.86	2.86	2.86	0.1	1.5	13	0.003	0.003	0.086	-		
BB10-21	87.6	112.8	25.2	medium grained (Central Resource)	C037		1.6	16	0	284	285	285	2.92	2.72	2.79	2.79	2.50	2.50	2.84	2.84	2.80	2.81	2.81	2.81	0.9	2.8	12	<0.01	<0.01	0.083	-		
BB10-4	104.9	122.8	17.9	fine grained (West Resource)	C039		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47		
BB10-12	57.9	116	58.1	medium grained (West Resource)	C039		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47		
	123.1	138.65	15.55	fine grained (West Resource)	C040		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50		
							4.80	40.00	29.00	328.00	398.00	398.00	3.08	3.15	3.32	3.32	9.90	9.90	3.00	3.00	2.95	2.96	2.96	2.96	2.80	12.80	16.00	0.01	0.10	0.10	50		
							0.40	13.00	0.00	219.00	255.00	255.00	2.28	2.08	2.26	2.26	0.90	0.90	2.83	2.83	2.68	2.76	2.76	2.76	0.50	0.70	11.00	0.00	0.04	0.04	47		
							2.21	26.32	13.16	273.21	316.42	316.42	2.84	2.70	2.78	2.78	2.62	2.62	2.92	2.92	2.83	2.86	2.86	2.86	0.97	3.26	13.42	0.00	0.08	0.08	49		
							1.95	26.03	12.62	276.93	316.64	316.64	2.86	2.72	2.79	2.79	2.34	2.34	2.93	2.93	2.86	2.88	2.88	2.88	0.88	2.67	13.21	0.00	0.08	0.08			
							0.98	7.07	7.19	24.35	33.90	33.90	0.17	0.24	0.23	0.23	2.16	2.16	0.06	0.06	0.08	0.07	0.07	0.54	3.02	1.43	0.00	0.02	0.02				
Note:			1																														
			2																														
			3																														

AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete

AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m³ of concrete containing this aggregate

AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.

Material Testing

Sample ID			Extra Testing																		Comments
Aust Standards			AS1141.12 (Obtained from AS1141.11)	AS1141.14	AS1141.22- Wet / Dry			AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24	AS1141.23	AS1012.20		AS1141.40, .41, .42	
Specification Limits			<4% ³	<35%	<25%	>100kN	>150kN	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2.5%	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2%	<9%	<30%	Reported ¹ > 0.01%	Reported ² > 0.01%	>44 min >48 preferred	
Location:	W/O & Lot #	Lab. Sample No. MAT:WARA10S	Materials Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	Wet Strength (kN)	Dry Strength (kN)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Chlorides	Sulphates	Polished Agg Friction Value	
C002		04367	2.8	40	28.8	262	368	2.89	2.64	2.73	3.20	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	-	
C007		04372	4.8	21	16.0	283	338	2.81	2.40	2.54	6.10	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	-	
C008	WARA10W 02095 - Lot 2	05273	2.0	40	16.0	257	307	2.70	2.75	2.84	1.90	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	-	
C009		05274	1.1	33	12.0	270	305	2.78	2.82	2.90	1.50	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	-	
C011		05276	2.7	18	18.0	267	326	3.08	3.15	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	-	
C013		05278	2.2	13	1.0	273	276	2.28	2.24	2.26	0.90	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	-	
C015		05925	2.8	26	7.0	237	255	2.73	2.77	2.85	1.60	2.87	2.79	2.82	0.9	1.2	11	0.002	0.063	-	
C017		05927	2.2	21	22.0	219	281	2.62	2.08	2.29	9.90	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	-	
C019		05929	2.7	27	20.0	279	350	2.91	2.74	2.80	2.10	2.88	2.75	2.80	1.6	4.6	13	<0.001	0.074	-	
C022		05932	3.0	33	18.0	328	398	2.80	2.85	2.94	1.70	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	-	
C024		06926	2.6	24	10.0	309	343	2.93	2.77	2.82	1.90	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	-	
C025		06927	0.9	26	9.0	286	314	2.98	2.84	2.89	1.60	2.99	2.94	2.96	0.5	1	14	0.004	0.082	-	
C026	06928	0.4	27	9.0	271	299	2.96	2.85	2.89	1.30	2.83	2.78	2.80	0.6	1.5	14	0.002	0.078	-		
C027	06929	1.7	28	8.0	289	315	2.92	2.74	2.80	2.20	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	-		
C029	07726	2.1	27	17.0	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	0.8	1.6	11	0.003	0.098	-		
C030	07727	1.5	20	11.0	284	318	2.95	2.83	2.87	1.40	2.93	2.84	2.87	1.1	1.5	13	0.003	0.086	-		
C031	07728	1.6	29	9.0	275	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	0.8	1.4	13	0.005	0.097	-		
C036	07733	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083	-		
C037	07734	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	
C038	07735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	
C039	07736	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	
C040	07737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	
C043	07740	1.6	18	2	280	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	0.5	3.7	15	<0.001	0.100	-		
		Arithmetic Max	4.80	40.00	28.80	328.00	398.00	3.08	3.15	3.32	9.90	3.00	2.95	2.96	2.80	12.80	16.00	0.01	0.10	50	
		Arithmetic Min	0.40	13.00	1.00	219.00	255.00	2.28	2.08	2.26	0.90	2.83	2.68	2.76	0.50	0.70	11.00	0.00	0.04	47	
		Arithmetic Average	2.21	26.32	13.25	273.00	316.42	2.84	2.70	2.78	2.62	2.92	2.83	2.86	0.97	3.26	13.42	0.00	0.08	49	

Note:	1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete
	2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m3 of concrete containing this aggregate
	3	AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.

Material Testing

Material Description		Extra Testing																									
Source Location		Sample ID		AS1141.12 (Obtained from AS1141.11)		AS1141.14		AS1141.5 - Particle Density & Water Absorption (Fine)		AS1141.24		AS1141.23		AS1012.20		AS1141.40, .41, .42											
Drill Hole	From	To	Length	Description	Location:	W/O Lot #	Lab Sample No. MAT-WAR00675AA	Materials Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	>100kN	>150kN	AS1141.5 - Particle Density (t/m ³)	Water Absorption (%)	Particle Density SSD (t/m ³)	Apparent Particle Density (t/m ³)	Particle Dry Density (t/m ³)	Particle Density SSD (t/m ³)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Reported ¹ > 0.01%	Reported ² > 0.01%	Chlorides	Sulphates	Polished Agg Friction Value (PAFV)	
BB10-1	36.8	74.85	38.05	dolerite	C002		04367	2.8	40	28	262	368	2.89	3.20	2.73	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	<0.001	0.046	-	
BB10-3	32.6	59.5	26.9	dolerite	C007		04372	4.8	21	16	283	338	2.81	6.10	2.54	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	<0.001	0.090	-	
	0	50.3	50.3	dolerite	C008		05273	2.0	40	16	257	307	2.70	1.90	2.84	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	<0.001	0.090	-	
BB10-4	50.3	125.5	75.2	dolerite	C009		05274	1.1	33	12	270	305	2.78	1.50	2.90	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	<0.001	0.097	-	
BB10-5	27.8	74.1	46.3	dolerite	C011		05276	2.7	18	18	267	326	3.08	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	<0.001	0.084	-	
BB10-6	20.5	91.9	62.4	dolerite	C013		05278	2.2	13	1	237	276	2.28	0.90	2.26	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	<0.001	0.093	-	
BB10-7	20.9	47.7	26.8	dolerite	C015		05295	2.5	26	7	237	265	2.73	1.60	2.73	2.92	2.79	2.82	0.9	2.87	11	0.002	0.063	0.002	0.063	-	
BB10-8	50	110.5	60.5	dolerite	C017		05297	2.3	21	22	219	281	2.62	9.90	2.29	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	<0.001	0.066	-	
BB10-10	52.5	119.4	66.9	dolerite	C019		05299	2.7	27	22	279	350	2.91	2.10	2.88	2.92	2.75	2.80	1.6	4.6	13	<0.001	0.074	<0.001	0.074	-	
BB10-11	93	109	16	dolerite	C022		05303	3.0	33	18	328	398	2.90	2.94	2.94	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	0.001	0.079	-	
BB10-12	28.8	138.8	110	dolerite	C024		05306	2.8	24	10	309	343	2.93	1.90	2.82	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	0.002	0.061	-	
BB10-13	115	84.9	32.4	dolerite	C026		05307	0.9	26	9	286	314	2.98	2.89	2.89	2.94	2.94	2.96	0.5	2.3	14	0.004	0.082	0.004	0.082	-	
BB10-14	84.9	173.3	78.4	dolerite	C028		05308	0.9	27	9	271	299	2.96	1.80	2.89	2.99	2.94	2.96	0.6	1.5	14	0.002	0.078	0.002	0.078	-	
BB10-14	84.9	173.3	78.4	dolerite	C029		05309	0.9	27	9	271	299	2.96	1.80	2.89	2.99	2.94	2.96	0.6	1.5	14	0.002	0.078	0.002	0.078	-	
BB10-16	0	133.65	133.65	dolerite	C030		05310	1.1	28	8	269	315	2.92	2.20	2.80	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	0.002	0.073	-	
BB10-17	0	133.67	133.67	dolerite	C031		05311	1.1	27	17	276	333	2.94	2.85	2.85	2.99	2.92	2.95	0.8	1.6	11	0.003	0.068	0.003	0.068	-	
BB10-18	33.2	87.7	54.5	dolerite	C032		05312	1.6	20	11	264	318	2.95	1.40	2.83	2.96	2.88	2.90	0.8	1.4	13	0.003	0.069	0.003	0.069	-	
BB10-20	35.5	177.6	142.1	dolerite	C036		05316	1.6	20	9	275	318	2.95	2.82	2.82	2.94	2.87	2.87	0.8	1.4	13	0.003	0.069	0.003	0.069	-	
BB10-21	81.5	113.2	31.7	dolerite	C038		05318	3.2	23	18	243	288	2.88	4.60	2.64	2.90	2.68	2.76	2.8	3.8	12	<0.001	0.063	<0.001	0.063	-	
BB10-21	84.69	89.5	44.65	medium grained	C037		05317	1.6	18	0	284	285	2.92	2.79	2.79	2.84	2.80	2.81	0.3	3.7	15	<0.001	0.100	<0.001	0.100	47	
BB10-4	104.9	122.8	16.9	fine grained	C039		05319	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	
BB10-12	37.9	116	78.1	medium grained	C038		05318	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	
BB10-12	123.1	138.65	15.55	fine grained	C040		05320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	
							Max	4.80	40.00	29.00	325.00	395.00	3.08	3.32	3.32	3.00	2.95	2.96	2.80	12.80	16.00	0.01	0.10	0.10	0.10	50	
							Min	0.40	15.00	0.00	219.00	259.00	2.28	0.80	2.26	2.83	2.88	2.76	0.90	0.70	11.00	0.00	0.04	0.00	0.04	47	
							Arithmetic Avg	2.21	26.32	13.16	273.21	316.42	2.84	2.78	2.82	2.92	2.83	2.86	0.97	3.26	13.42	0.00	0.06	0.00	0.06	49	
							Length Weighted Avg Note that excludes C037 to C040	1.95	28.03	12.52	275.93	316.64	2.86	2.72	2.79	2.93	2.86	2.88	0.88	2.67	13.21	0.00	0.00	0.00	0.00	0.00	
							Length Weighted Standard Deviation	0.98	7.07	7.19	24.35	33.90	0.17	0.24	0.23	0.06	0.08	0.07	0.54	3.02	1.43	0.00	0.00	0.00	0.02	0.02	
							Note:																				
							1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete																			
							2	AS2756.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m ³ of concrete containing this aggregate																			
							3	AS1141.13 - material <2µm specifies that if the % _{material} <75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.																			

Client: C.Q.T Services Pty Ltd

Project: 120 **Source:** Bell Bay TAS

GEOTECHNICAL INVESTIGATIONS
Job.No. INFOWARA00675AA

Note: Bell Bay Dolerite - Dolerite Test Results

Material Testing

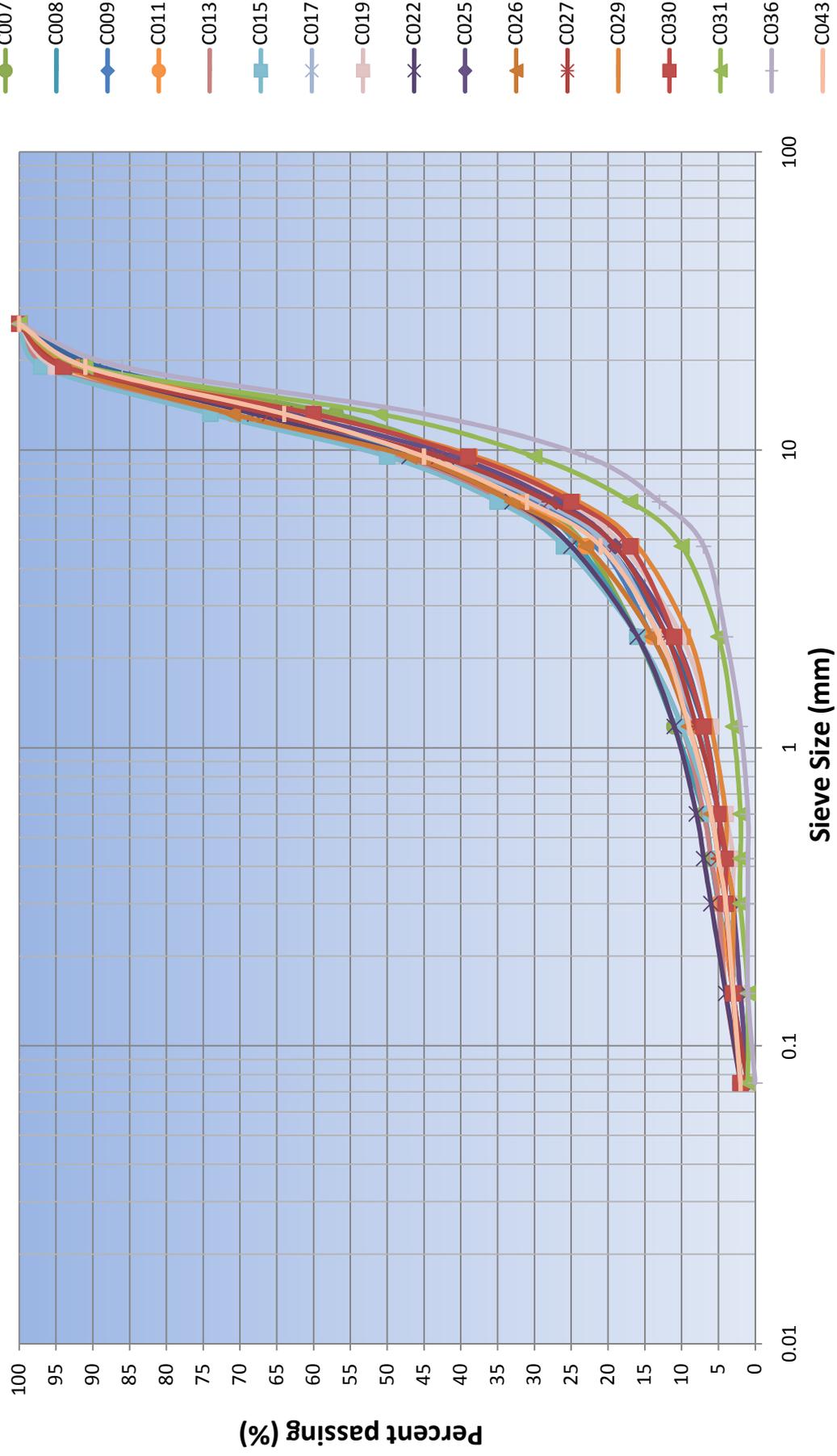
Particle Size Distribution (Grading) - Composite Samples Post Coffey Lab Crusher

AS1141.11 - Sieve Size (mm)

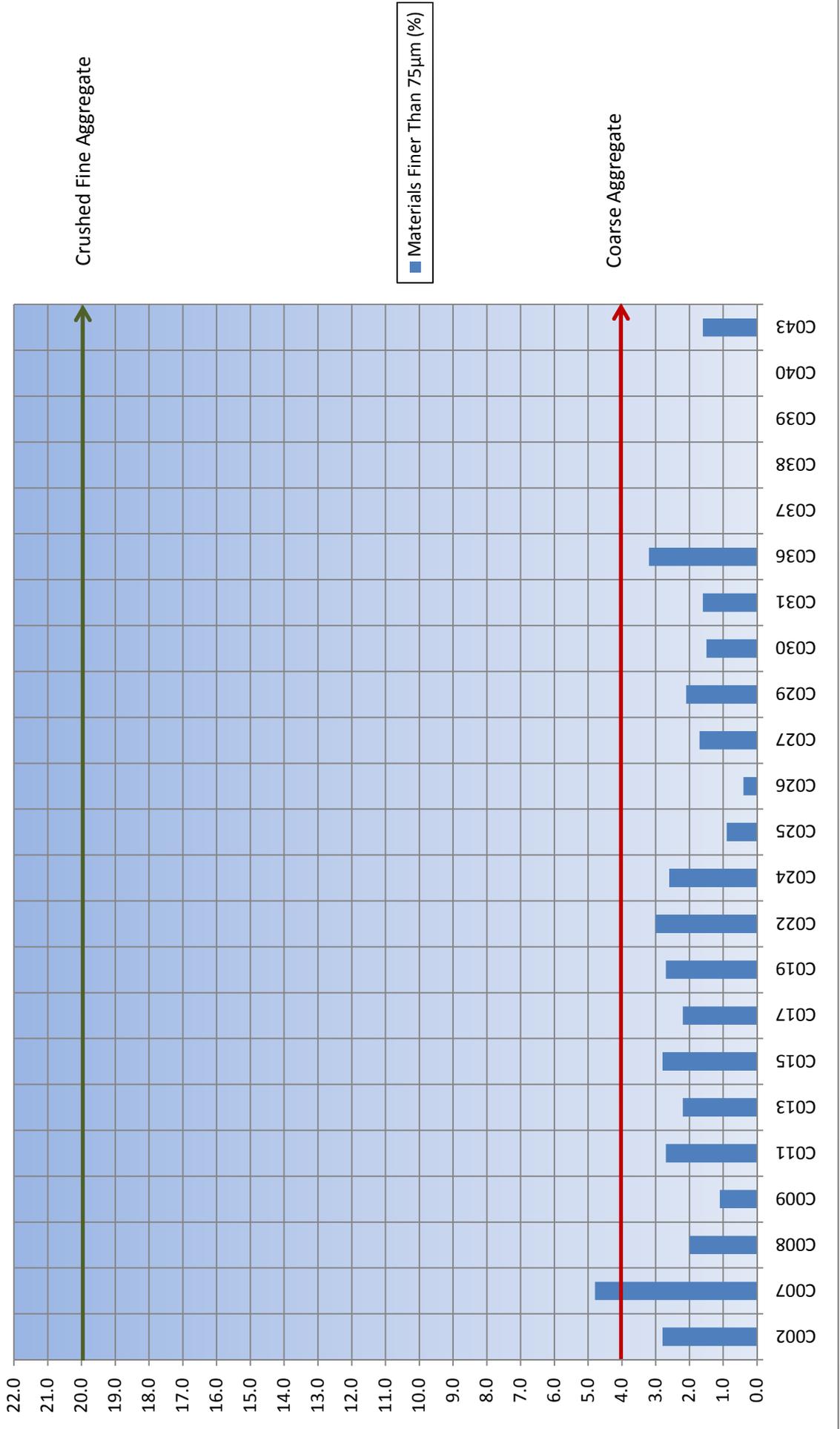
Coffey Ref		Composite #	AS1141.11 - Sieve Size (mm)												
Lot #	Lab. Sample No. MAT:WARA10S	Location:	26.5	19.0	13.2	9.5	6.7	4.75	2.36	1.18	0.600	0.425	0.300	0.150	0.075
	04367	C002	100	89	59	40	28	20	12	7	5	4	4	2	1
	04372	C007	100	91	57	40	30	23	16	11	7	6	5	3	2
	05273	C008	100	92	66	45	31	24	16	11	7	6	5	3	2
	05274	C009	100	92	68	46	30	21	14	8	5	5	4	3	1
	05276	C011	100	94	71	47	32	23	14	9	6	5	5	3	2
	05278	C013	100	96	73	49	34	25	16	10	7	6	5	4	2
	05925	C015	100	97	74	50	35	26	16	10	6	5	4	3	2
	05927	C017	100	94	65	44	29	20	13	8	5	4	4	2	1
	05929	C019	100	95	67	41	26	18	10	6	4	3	3	2	1
	05932	C022	100	93	68	47	33	25	16	11	8	7	6	4	2
	06927	C025	100	93	63	41	27	19	11	7	5	4	3	2	1
	06928	C026	100	94	71	47	33	23	14	9	6	5	4	3	2
	06929	C027	100	93	66	43	28	19	12	8	5	5	4	3	1
	07726	C029	100	92	60	38	24	16	9	6	4	4	3	3	2
	07727	C030	100	94	60	39	25	17	11	7	5	4	4	3	2
	07728	C031	100	91	51	30	17	10	5	3	2	2	2	1	1
	07733	C036	100	86	45	23	13	7	4	2	1	1	1	1	0
	07740	C043	100	91	64	45	31	21	13	9	6	5	4	3	2

Arithmetic Max	100.00	97.00	74.00	50.00	35.00	26.00	16.00	11.00	8.00	7.00	6.00	4.00	2.00
Arithmetic Min	100.00	86.00	45.00	23.00	13.00	7.00	4.00	2.00	1.00	1.00	1.00	1.00	0.00
Arithmetic Av	100.00	92.63	63.74	41.79	27.95	19.68	12.21	7.79	5.16	4.47	3.84	2.63	1.47

Project 120 -Bell Bay - Dolerite - Grading Summary (% Passing)- Dolerite Results



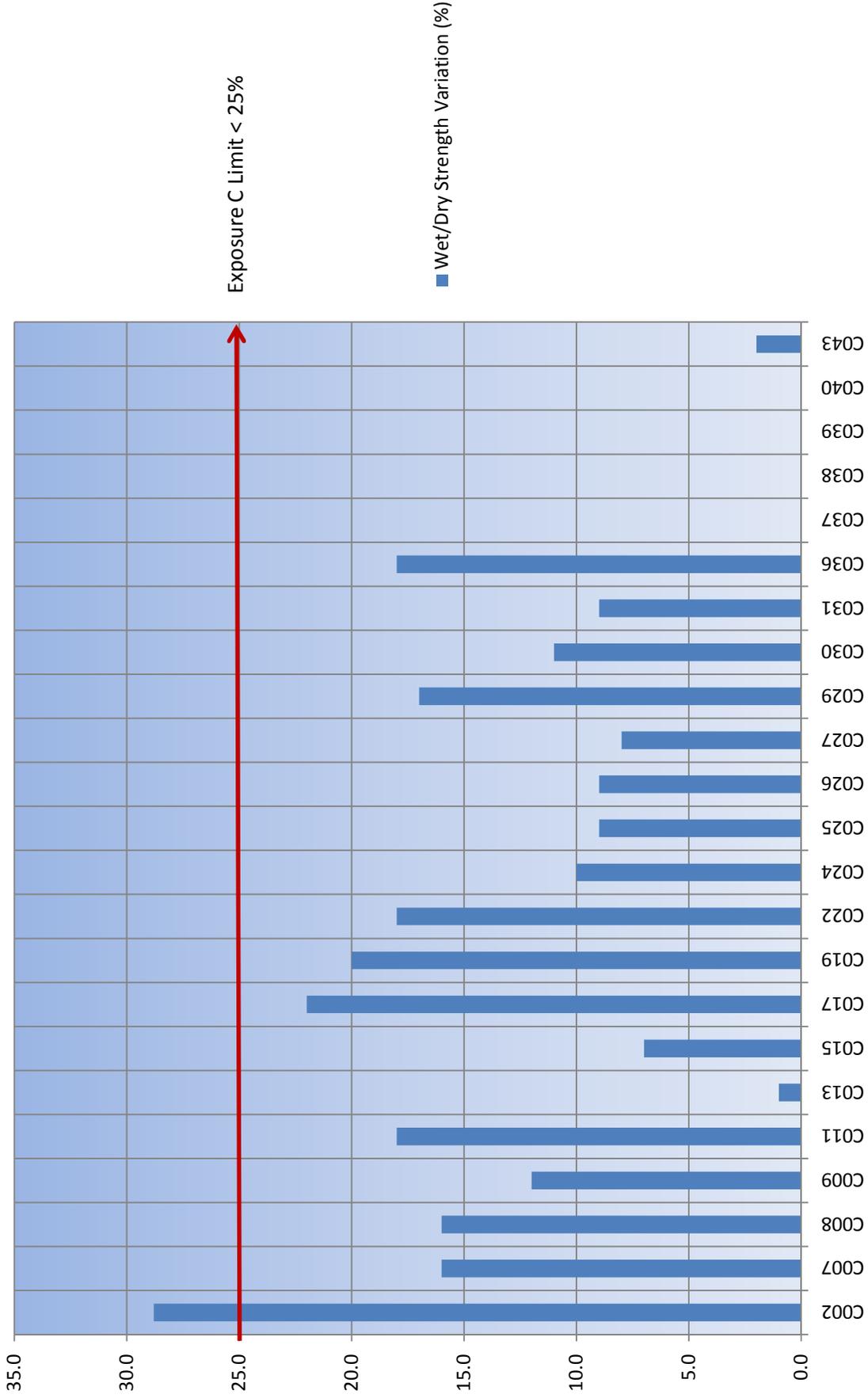
Project 120 - Bell Bay - Dolerite Materials Finer Than 75µm (%) - Dolerite Results



Project 120 - Bell Bay - Dolerite
Wet Strength (kN) & Dry Strength (kN)- Dolerite Results

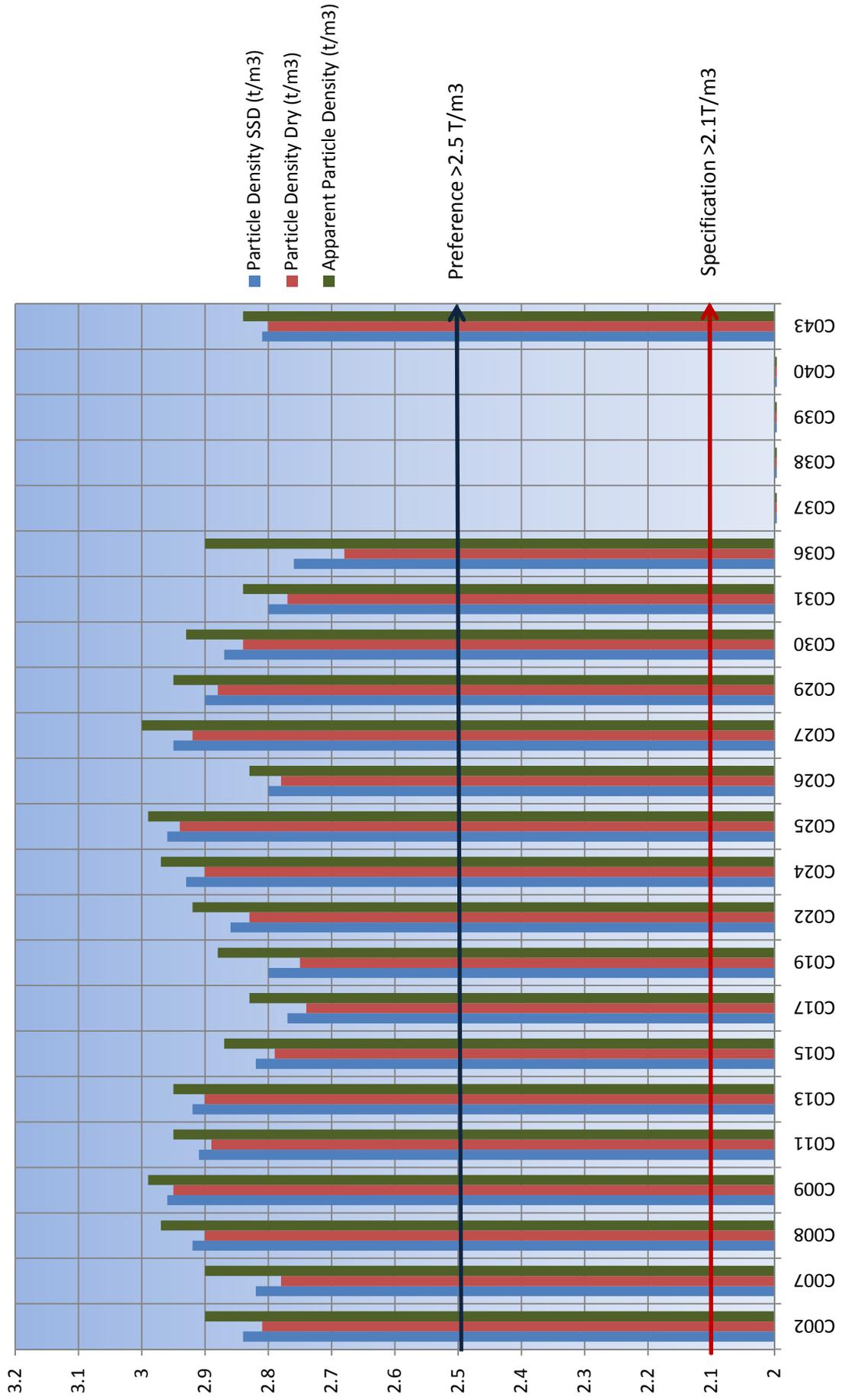


Project 120 - Bell Bay - Dolerite
Wet/Dry Strength Variation (%) - Dolerite Results



Project 120 - Bell Bay - Dolerite

Particle Density Coarse (T/m³)- Dolerite Results



Project 120 -Bell Bay - Dolerite
Water Absorption Coarse (%) - Dolerite Results



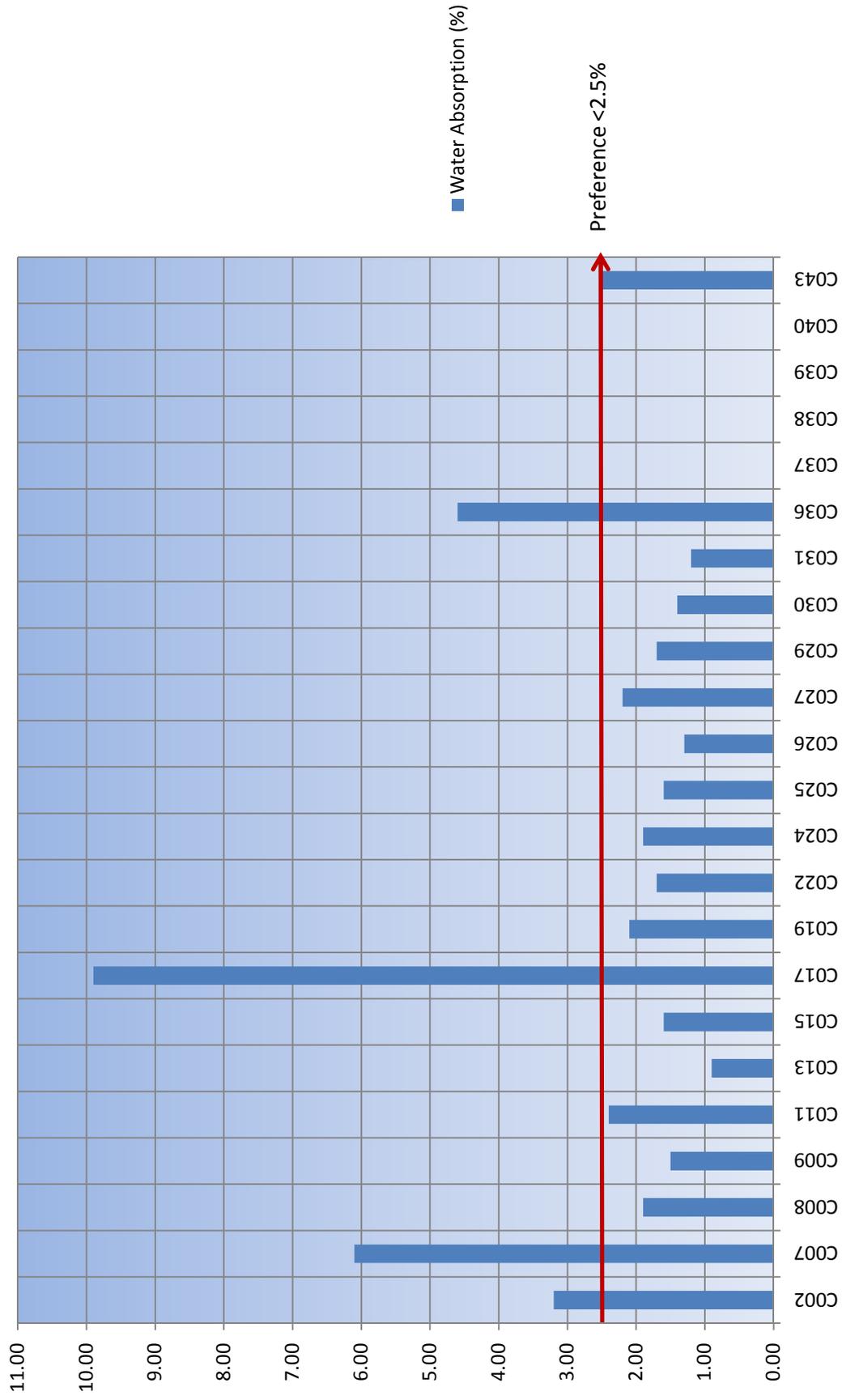
Project 120 -Bell Bay - Dolerite

Particle Density Fine (T/m3)- Dolerite Results

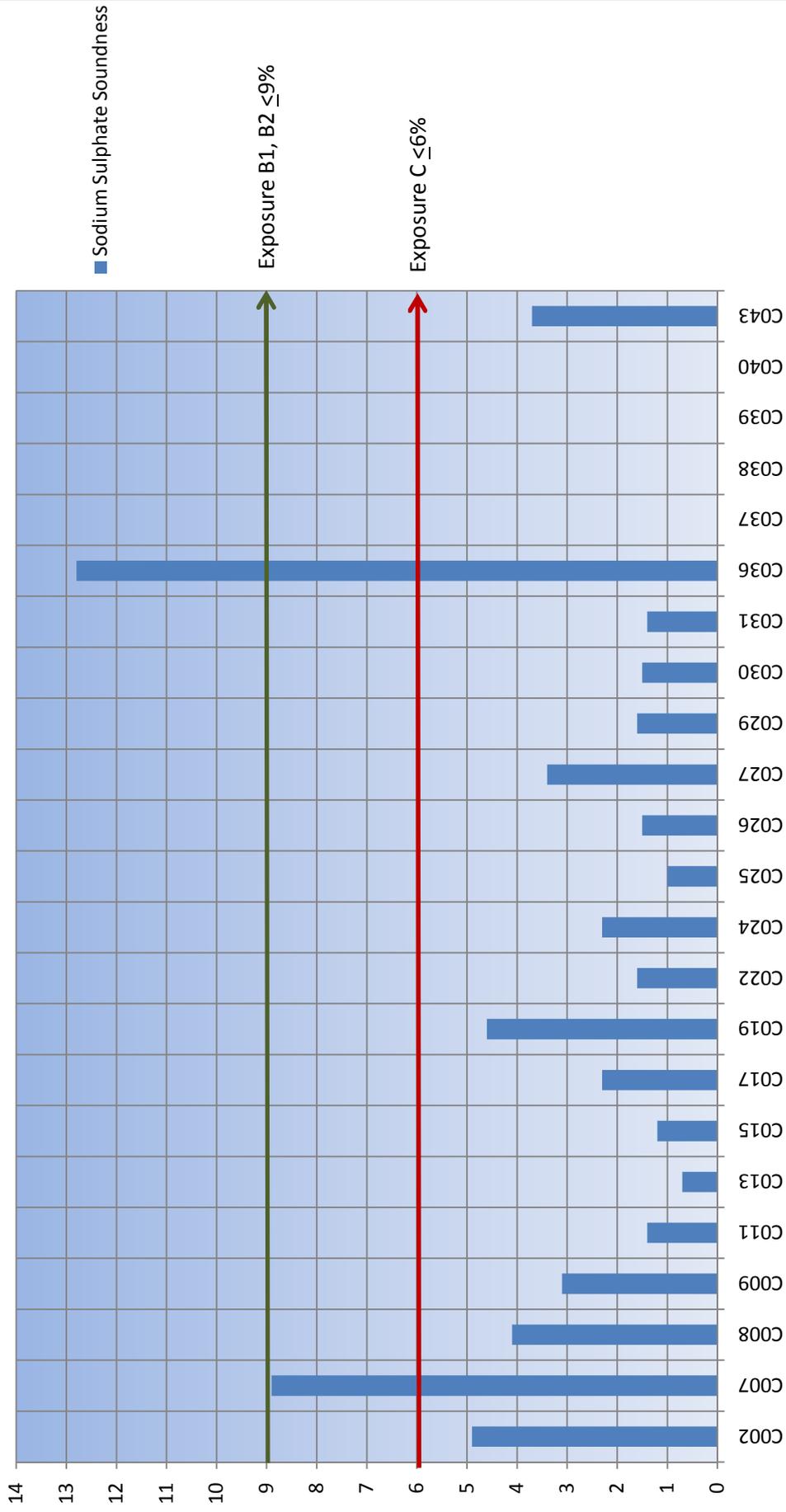


Project 120 - Bell Bay - Dolerite

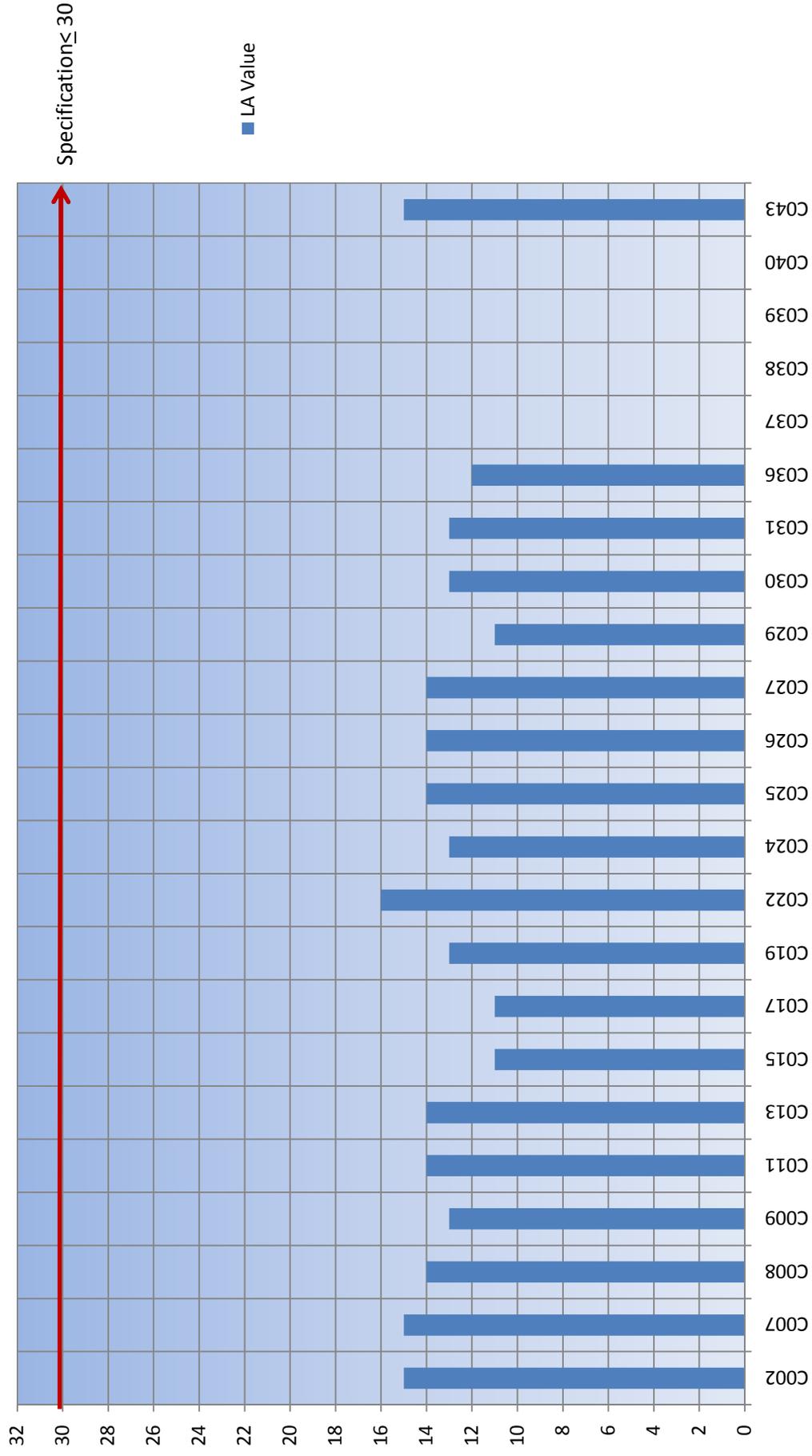
Water Absorption Fine (%) - Dolerite Results



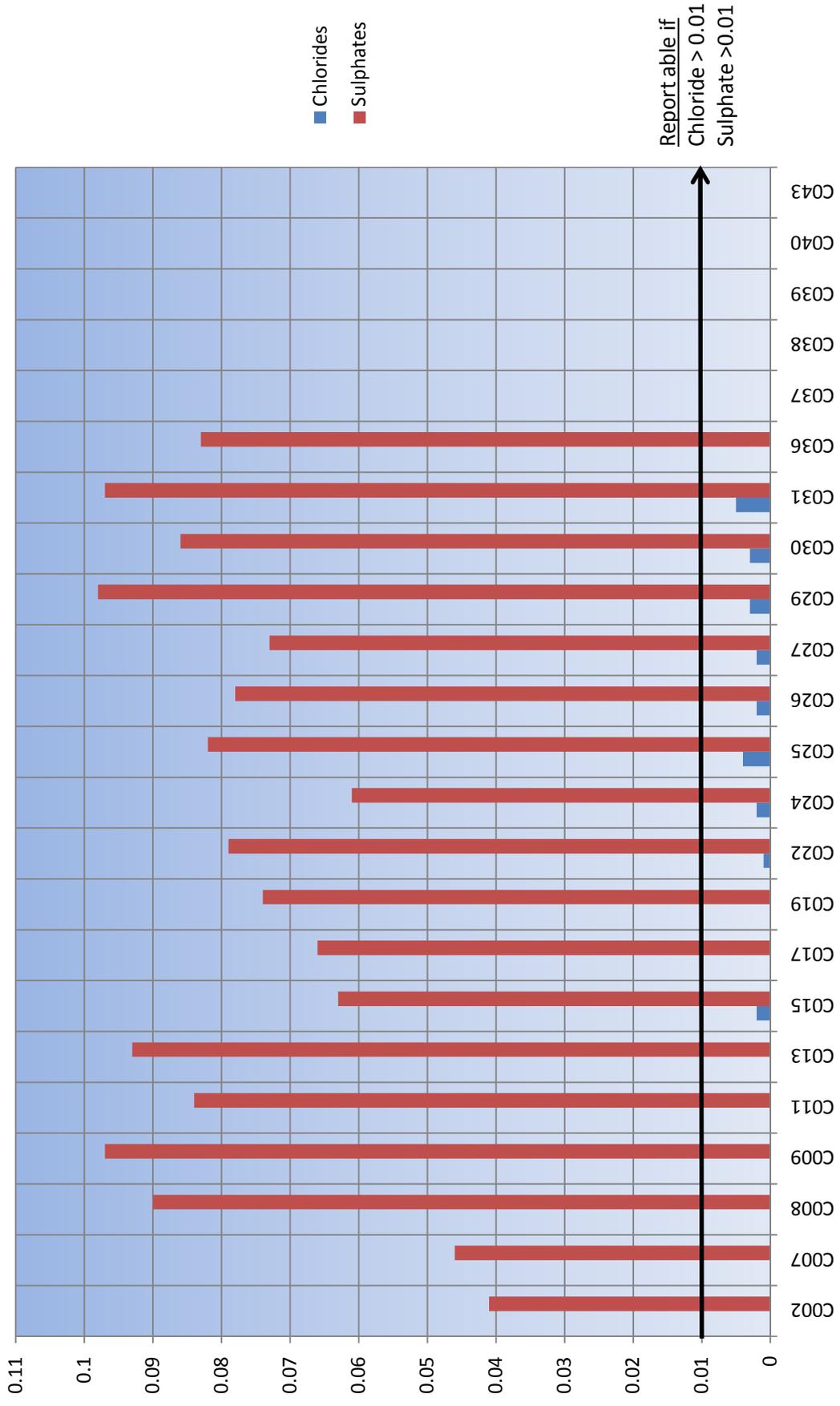
Project 120 - Bell Bay - Dolerite Sodium Sulphate Soundness (%) - Dolerite Results



Project 120 - Bell Bay - Dolerite
LA Value (%) - Dolerite Results



Project 120 - Bell Bay - Dolerite Chlorides & Sulphates (%) - Dolerite Results



C.Q.T Services Pty Ltd- Testing Review- 30.10.09-Sample A- Dolerite, Bell Bay, TAS

Date Tested	Test	Test Method	Results	AS2758.1 Spec / Others	Comments
Jul-09	Crush Rock Spalls to -20mm /+4.75mm and -4.75mm	Testrite Crusher	-	-	Crushed and sieved to a -19mm + 13.2mm = 20mm aggregate, a -13.2 + 9.5mm= 10mm aggregate and -4.75mm sand.
1.7.09	Washed Grading -20mm + 4.75mm-AS1141.11 and	Sieve	Sand	Gradings are nominated by supplier based on previous 3 to 6 months results.	20mm minus material sieved into -19.0 + 9.5 = 20mm and a -9.5 + 4.75mm = 10mm Manufactured sand was a -4.75mm material and appeared to be a suitably graded for use in concrete.
1.7.09	Washed Grading on -4.75mm to As1141.11	37.5	100		
		26.5	95		
		19	92		
		13.2	51		
		9.5	31		
		6.7	24		
		4.75	20		
		2.36	12		
		1.18	8		
		0.6	6		
		0.3	4		
		0.15	3		
		0.075	2		
17.7.09	Wet/Dry Strength -19.0mm + 9.5mm	AS1141.22	Wet Strength Dry Strength	≥100kN	Good Rock Strength
				-	
			Wet / Dry	≤ 25%	Low variation indicating not water sensitive
17.7.09	Particle Shape- 2:1 and 3:1	AS1141.14	2:1 3:1	-	P Shape OK given crushing done on laboratory jaw crusher.
17.7.09	LA Abrasion- K Grading	AS1141.23	K Grading	≤10%	Abrasion resistance good
20.7.09	Sodium Sulphate +19mm	AS1141.24	+19mm Fraction	≤30%	very stable rock in sulphate rich environment
28.7.09	Particle Density & water Absorption- Coarse Agg	AS1141.6.1	P Density (SSD) Water Absorption	Normal Weight <3.2T/m3 and ≥ 2.1T/m3 In Works Specification, ≤2% in Coarse Agg OK as guide, except slag ≤6% OK	Density similar to the Central Coast basalts ~2.95T/m3, heavier than river deposits ~2.6T/m3 Very Low indicating fine grained rock.
28.7.09	Particle Density & water Absorption- Fine Agg	AS1141.5	P Density (SSD) Water Absorption	Normal Weight <3.2T/m3 and ≥ 2.1T/m3 In Works Specification, ≤2% in Coarse Agg OK as guide, except slag ≤6% OK	Density similar to the Central Coast basalts ~2.95T/m3, heavier than river deposits ~2.6T/m3 Very Low for fine aggregate indicating fine grained rock.
14.8.09	Secondary mineral Content	AS1141.26	Smectite Clay	Detect Secondary Minerals in Igneous Rocks	Smectite clays may be very expansive but concrete trial mix indicates that they have not affected water demand, so must be bound within the aggregates.

C.Q.T Services Pty Ltd- Testing Review- 30.10.09-Sample A- Dolerite, Bell Bay, TAS

Date Tested	Test	Test Method	Results		AS2758.1 Spec / Others	Comments
			Dolerite	Hard, Strong, Durable, Potentially innocuous to ASR. Suitable as concrete aggregate.		
14.8.09	Petrographic Examination	ASTM C295			Confirm Suitability as concrete aggregate. Identify any potentially Alkali Silica Reactive minerals.	Aggregate appears sound and suitable for use in concrete and non reactive to ASR. Some smectite clay noted
15.9.09	Alkali Reactivity	RTA T363	Accelerated Mortar Bar Test	0.01	<0.15 for Fine Aggregate	Non Reactive- expected for Basic (Mafic) rock, low in quartz/silica
16.10.09	PAFV 14mm	AS1141.41, 41	Horz bed + Pendulum Friction	49	≥48	Suitable for use as sealing aggregate in general applications
4.8.09	Plasticity Index	AS1289.3.1.1	Liquid Limit	Unobtainable	RTA Spec <20 OK	Little or no clay present in sample
		AS1289.3.2.1	Plastic Limit	Unobtainable	RTA Spec <20 OK	Little or no clay present in sample
4.8.09	Linear Shrinkage	AS1289.3.3.1	Plasticity Index	NonPlastic	Non Plastic (RTA Spec- manufactured sands)	Little or no clay present in sample
		AS1289.3.4.1	Linear Shrinkage	0	0= Confirms clay content negligible	Little or no clay present in sample
16.10.09	Resistance to Stripping	AS1141.50	C170 as received C170 as received + Precoated SAMI	9% stripped 0% Stripped	RTA < 10% Stripped OK RTA < 10% Stripped OK	Suitable for use as sealing aggregate and should be OK in asphalt. Precoating not required as <10% stripped The 20mm, 10mm and man sand aggregates were used in conjunction with Kurnell fine dune sand to make a S32 MPa Concrete.
17.7.09	Concrete Trial Mix Report	AS1012.2	See Trial Mix Report			Comp Strength at 28 days = 44.5MPa with W/C ratio = 0.47
17.7.09	Compressive Strength report	AS1012.9	See Trial Mix Report			56 day shrinkage = 490µs sample < 600µs is very good
18.9.09	Drying Shrinkage report	AS1012.13	See Trial Mix Report		Various specifications	Very low result from concrete trial , very good
17.8.09	Acid Soluble Chloride and Sulphate report	AS1012.20	Chloride Sulphate	0.08kg/m3 0.96%	AS1379 <0.8kg/m3 Chloride Cl AS1379 <5% by wt of cement binder	Very low in sulphates
27.7.09	Flow Cone and Voids test.	NZ53111	Flow Time Voids	No Flow as 5% of sample > 4.75mm in size. No Flow , No Voids determination	Is a shape indicator not a compliance measure Is a shape indicator not a compliance measure	Sample did not flow as 5% particles > 4.75mm. Water demand in trial mix was suitable which indicates the particle shape of the fine aggregates must also be adequate.
<p>Conclusion:</p> <p>Based upon the testing undertaken, the Dolerite material appears well suited for the manufacture of concrete aggregates. Further investigation may be required as to how this material will be won and processed to produce aggregates of consistently suitable quality. Rock appeared sound</p>						

LABORATORY TRIAL MIX - REPORT CONCRETE (A.S.1012.2)



This document is issued in accordance with NATA's accreditation requirements. Laboratory Accreditation No. 844

CLIENT: Coffey Mining.

PROJECT: A.

DATE OF MIXING: 17.07.2009.

JOB No. 78370		VOL. OF BATCH:0.020m ³			MIX IDENTIFICATION: A1			
					MIX DESC.			
Material	Size	Description &/or Source	Nom. SSD kg/m ³	Trial Mass SSD kg	SSD M/C %	Act. M/C %	Adjusted Kg	Actual Adjusted SSD kg/m ³
Cement	GP SL	Blue Circle Berrima	270	5.40			5.40	270
Flyash	Fine Grade	Eraring	100	2.00			2.00	100
Coarse Agg.		-19.0 +13.2	510	10.20	0.8	0.3	10.15	510
		-13.2 +9.5	240	4.80	0.8	0.3	4.78	240
		-9.5 +4.75	250	5.00	0.8	0.3	4.98	250
Fine Agg.	Man. Sand		300	6.00	1.8	0.7	5.93	300
	Fine Sand	Kurnell	515	10.30	1.1	5.8	10.78	515
Admixtures	WRDA	Pozz 300 Ri	1110 ml	22.2 ml			22.2 ml	1111 ml
Water		Mains	174 Lt	3.48			3.16	174 Lt

TYPE OF MIXER: ...Bennett Lab. Pan.....

MIXER INV. No: ...1467.....

TIME OF COMMENCEMENT OF MIXING:

NAME OF TESTING OPERATORS: P. Sheen.

MIX ROOM TEMP. 23°C

CONCRETE TEMP. 16°C

1.00pm

NAME: P. SHEEN

APPROVED SIGNATORY:

Date:

20.07.2009.

THIS REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL.



Testrite ABN 92114364046

4 Rothwell Ave. (P.O. Box 329)
 Concord West NSW 2138
 Phone: 02 9736 3922 Fax: 02 9743 5860

Concrete Test Report

Report No: **CON:78367**
 Issue No: 1

<p>Client: Coffey Mining Coffey Business Centre 2 Merville St HOBART TAS 7000 Australia</p> <p>Project: Project - A</p> <p>Supplier: Laboratory Trial Mix</p>	<p>This document is issued in accordance with NATA's accreditation requirements</p>  <p>NATA Accredited Laboratory Number: 844</p> <p>Approved Signatory: John Hewling</p> <p>Date of Issue: 14.09.09</p> <p>THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL</p>
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COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

Details of Sampled Concrete Concrete Specimens and Results

Date & Time Ex Plant Load / Prog. Load	Truck No Time Sampled BatchNo	Plant Name Docket No Product Code	Grade(MPa) Agg(mm) Slump(mm) Compa	Meas Slump (mm)	Specimen Ident.	Dimensions (mm) Ave Diameter Height	Initial Curing (hrs)	Std Curing (days)	Type of Cap	Date of Test	Age (days)	Strength (MPa)	Mark	Fail Mode	Location & Remarks
17.07.09 13:00	13:10	Laboratory	32	100	V	7836711 100.5 199	23	2	S	20.07.09	3	18.5	N	N	Trial Mix - A1.
						7836712 101.0 199		6	S	24.07.09	7	32.0	N	N	
						7836713 100.8 198		27	S	14.08.09	28	44.0	N	N	
						7836714 100.3 198		27	S	14.08.09	28	45.0	N	N	
						7836715 100.7 197		55	S	11.09.09	56	53.0	N	N	

NOTE

Mass Per Unit Volume 2530 kg/m3.

The following AS 1012 Standard Test Methods apply To the above results
 Mass Per Unit Volume of Fresh Concrete: Method 5

<p>Notes</p> <ol style="list-style-type: none"> 1 Sampling in accordance with AS 1012 1 2 Slump Test in accordance with AS 1012 3.1 3 Compaction by Internal Vibration 4 Initial Curing in accordance with AS 1012 B.1 Clause 5.2.2 5 Standard Curing in accordance with AS 1012 B.1 Clause 9.3(a) 6 Capping R - Rubber S - Sulphur 7 Compressive Strength in accordance with AS 1012 9 8 Moisture Condition SSD (unless otherwise stated - AS 1012 12.1 <p>The concrete was not sampled by this laboratory. Data reported on initial curing, consistence and age at test is not covered by this laboratory therefore notes 1-4 may not apply.</p>	<p>Remarks</p> <p>Mark: N = Standard moist curing</p>
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ROADS AND TRAFFIC AUTHORITY NSW



File: S001822 Part 1

Materials Technology Section

Unit H, 75 St. Hilliers Rd, Auburn, NSW. 2144.

Drying Shrinkage Record No: 599

(Ph. 8745-6040. Fax. 8745-6093)

MEASURING LABORATORY TEST REPORT

Project: Coffey Mining
 Reference Order No: 04913
 Docket No: N/A
 Client: Testrite Laboratories
 Address PO Box 329, Concord West, NSW. 2138

Project No: S001822

Sampling Method: Refer to note

Date of Receipt: 22/07/2009

Concrete Supplied By: T/M

SAMPLE DETAILS

Mix Type: Trial Mix – A1

Damage to specimens: No damage

Date Moulded: 17/07/2009

Date of Initial Measurement: 24/07/2009

Client Sample Identification: 78368

AS1012.13. Determination of the Drying Shrinkage of concrete samples prepared in the field or in the laboratory. (except Clauses 7.1, 7.2, 7.3)

Shrinkage (microstrains)

Date Due for Measurement	Air Drying Time (Days)	78368/1	78368/2	78368/3	Average
31/07/2009	7	180	190	160	180
7/08/2009	14	280	290	260	280
14/08/2009	21	380	380	340	370
21/08/2009	28	400	400	370	390
18/09/2009	56	490	500	480	490

Note: The above results represent the actual specimens tested. Testing was done in accordance with AS1012.13, 7.4 Drying and Measurement of Specimens, only. Clauses 7.1, 7.2 and 7.3 Sampling, moulding and initial curing was carried out by the client.



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TECHNICAL COMPETENCE

Accreditation No: 259

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A. Liu

Approved Signatory

Report Date 26/10/2009

TEST REPORT: Hardened Cement Concrete
Sulphate & Chloride Ion Content,
AS.1012.20.

CLIENT: Coffey Mining (Hobart)

DATE: 17.08.2009.

PROJECT: A1. Concrete Laboratory Trial Mix.
Job Nos. 78367 to 78370.

* for Chemical Analysis see attached Watertest Report Job No.WU 0754.

RESULTS:

Job No.	Mix Ident.	Date Cast.	Cl ⁻ % by Dry Mass of Concrete.	SO ₃ % by Dry Mass of Concrete	Cl ⁻ Kg/m ³	SO ₃ % To Cement (See Note 1)
78369A	A1	17/07/09	0.003	0.15	0.08	0.96

Notes:

1) Cement taken as total cementitious (i.e. Cement + Flyash).

Signed:



P.W. Sheen.

Date:

17.08.2009

Note: Bell Bay Dolerite - Estimated Resource Test Results

Material Testing

Sample ID			Extra Testing																	Comments
Aust Standards		AS1141.12 (Obtained from AS1141.11)	AS1141.14	AS1141.22- Wet / Dry			AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24	AS1141.23	AS1012.20		AS1141.40, .41, .42	
Specification Limits			<4% ³	<35%	<25%	>100kN	>150kN	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2.5%	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2%	<9%	<30%	Reported ¹ > 0.01%	Reported ² > 0.01%	
Location:	W/O & Lot #	Lab.Sample No. MAT:WARA10S	Materials Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	Wet Strength (kN)	Dry Strength (kN)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Chlorides	Sulphates	Polished Agg Friction Value
C002		04367	2.8	40	28.8	262	368	2.89	2.64	2.73	3.20	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	-
C007		04372	4.8	21	16.0	283	338	2.81	2.40	2.54	6.10	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	-
C008		05273	2.0	40	16.0	257	307	2.70	2.75	2.84	1.90	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	-
C009		05274	1.1	33	12.0	270	305	2.78	2.82	2.90	1.50	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	-
C010		05275	6.8	12	87.0	10	77	2.29	2.53	3.00	10.30	2.61	2.25	2.39	6.2	36.8	38	0.016	0.033	-
C011		05276	2.7	18	18.0	267	326	3.08	3.15	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	-
C012		05277	3.0	29	23.0	220	284	2.90	2.67	2.75	3.00	2.95	2.85	2.88	1.1	5.5	12	<0.001	0.080	-
C013		05278	2.2	13	1.0	273	276	2.28	2.24	2.26	0.90	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	-
C014		05924	3.0	33	19.0	239	294	2.84	2.87	2.93	1.10	2.81	2.7	2.74	1.5	3.4	13	0.029	0.100	-
C015		05925	2.8	26	7.0	237	255	2.73	2.77	2.85	1.60	2.87	2.79	2.82	0.9	1.2	11	0.002	0.063	-
C017		05927	2.2	21	22.0	219	281	2.62	2.08	2.29	9.90	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	-
C019		05929	2.7	27	20.0	279	350	2.91	2.74	2.80	2.10	2.88	2.75	2.80	1.6	4.6	13	<0.001	0.074	-
C022		05932	3.0	33	18.0	328	398	2.80	2.85	2.94	1.70	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	-
C023		06925	0.7	27	26.0	270	201	2.87	2.75	2.67	4.10	2.93	2.84	2.87	1.1	15.6	16	0.003	0.056	-
C024		06926	2.6	24	10.0	309	343	2.93	2.77	2.82	1.90	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	-
C025		06927	0.9	26	9.0	286	314	2.98	2.84	2.89	1.60	2.99	2.94	2.96	0.5	1	14	0.004	0.082	-
C026		06928	0.4	27	9.0	271	299	2.96	2.85	2.89	1.30	2.83	2.78	2.80	0.6	1.5	14	0.002	0.078	-
C027		06929	1.7	28	8.0	289	315	2.92	2.74	2.80	2.20	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	-
C028		06930	4.4	19	16.0	237	283	2.89	2.71	2.78	2.30	2.96	2.81	2.86	1.9	10.8	15	0.002	0.075	-
C029		07726	2.1	27	17.0	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	0.8	1.6	11	0.003	0.098	-
C030		07727	1.5	20	11.0	284	318	2.95	2.83	2.87	1.40	2.93	2.84	2.87	1.1	1.5	13	0.003	0.086	-
C031		07728	1.6	29	9.0	275	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	0.8	1.4	13	0.005	0.097	-
C032		07729	3.1	21	18.0	255	312	2.79	2.51	2.61	4.00	2.96	2.75	2.82	2.6	2.8	15	0.003	0.084	-
C036		07733	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083	-
C037		07734	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
C038		07735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
C039		07736	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
C040		07737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
C043		07740	1.6	18	2	280	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	0.5	3.7	15	<0.001	0.100	-
		Arithmetic Max	6.80	40.00	87.00	328.00	398.00	3.08	3.15	3.32	10.30	3.00	2.95	2.96	6.20	36.80	38.00	0.03	0.10	50.00
		Arithmetic Min	0.40	12.00	1.00	10.00	77.00	2.28	2.08	2.26	0.90	2.61	2.25	2.39	0.50	0.70	11.00	0.00	0.03	47.00
		Arithmetic Average	2.52	25.64	17.63	256.72	298.52	2.82	2.69	2.78	2.98	2.91	2.80	2.84	1.32	5.48	14.56	0.01	0.08	48.50

Note:	1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete
	2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m3 of concrete containing this aggregate
	3	AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.

TABLE 11: Bell Bay Quarry Project - Summary of Dolerite & Weathered Dolerite Results from the West, Central and East Resources (modified by CQT 8.9.2010)

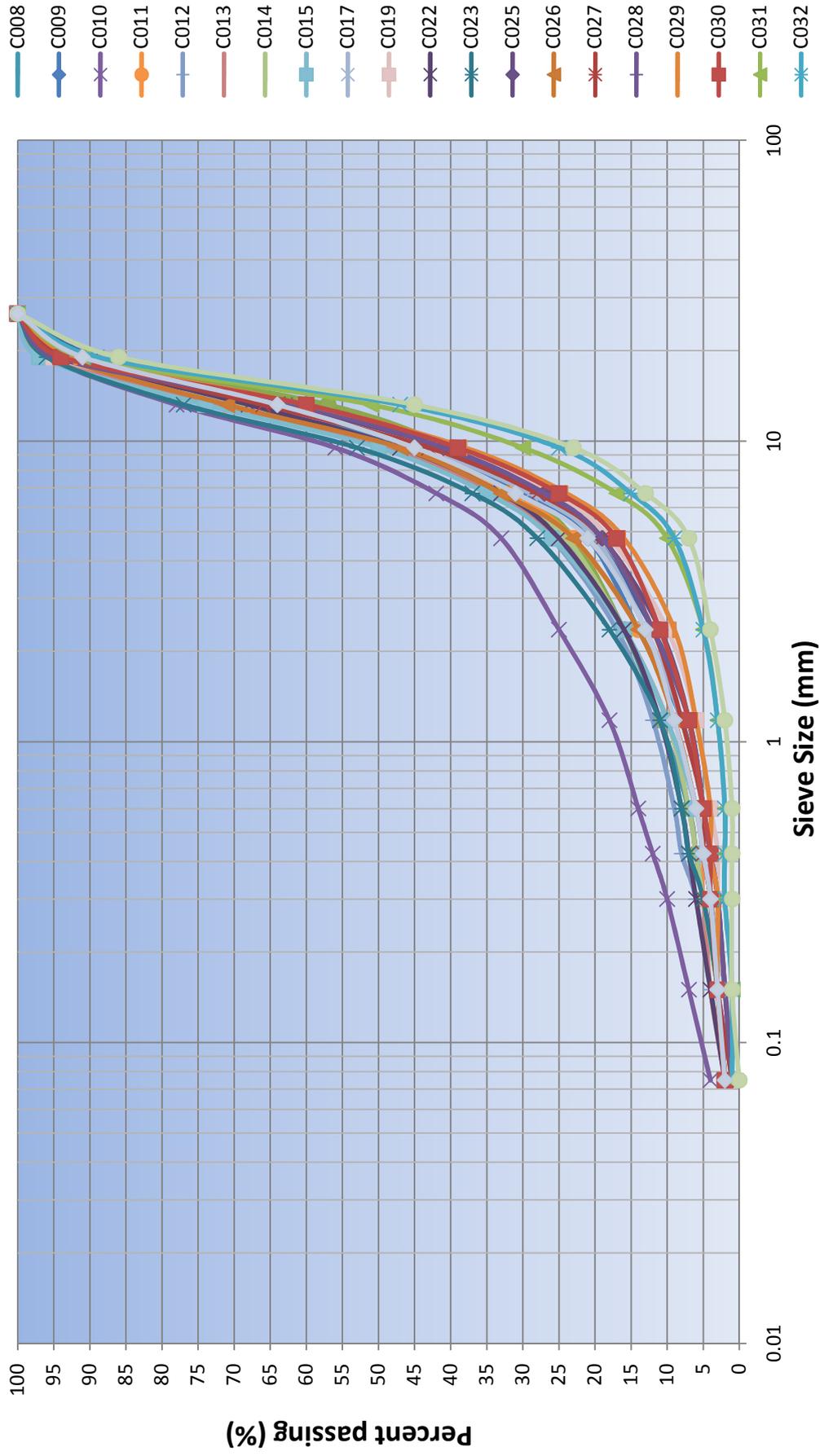
Material Description		Source Location		Material Testing Extra Testing														Comments																	
Drill Hole	From	To	Length	Description	Location:	W/O & Lot #	Lab Sample No. MAT:WABAKUS	Materials Finer Than 75µm (%)	AS1141.12 (Obtained from AS1141.11)	AS1141.14				AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.23	AS1012.20	AS1141.40, .41, .42											
								<4% ³	<35%	<25%	>100KN	>150KN	>2.5T/m3	>2.5T/m3	>2.5T/m3	>2.5T/m3	>2.5T/m3	>2.5T/m3	>2.5T/m3	>2.5T/m3	Particle Density (t/m3)	Water Absorption (%)	Particle Density (t/m3)	Water Absorption (%)	LA Value	Chlorides	Reported ¹ >0.01%	Reported ² >0.01%	Polished Agg Friction Value						
BB10-1	36.8	74.85	38.05	dolerite (Central Resource)	C002		04387	2.8	40	29	262	368	2.89	2.64	2.73	2.80	2.81	2.84	1.1	4.9	-0.001	0.041	15	-0.001	0.041	-	-	-	-	-	-				
BB10-3	32.6	59.5	26.9	dolerite (West Resource)	C007		04372	4.8	21	16	283	338	2.81	2.40	2.54	2.90	2.78	2.82	1.5	8.9	-0.001	0.046	15	-0.001	0.046	-	-	-	-	-	-				
BB10-4	0	50.3	50.3	dolerite (Central Resource)	C008		05273	2.0	40	16	257	307	2.70	2.84	2.84	2.97	2.90	2.92	0.8	4.1	14	-0.001	0.060	15	-0.001	0.060	-	-	-	-	-	-			
BB10-5	0	27.8	27.8	weathered dolerite (Central Res.)	C009		05274	1.1	33	12	270	305	2.78	2.82	2.90	2.99	2.95	2.96	0.5	3.1	13	-0.001	0.097	15	-0.001	0.097	-	-	-	-	-	-			
BB10-5	27.8	74.1	46.3	dolerite (Central Resource)	C011		05276	6.8	12	67	10	77	229	2.53	3.00	2.61	2.25	2.39	6.2	36.8	38	0.033	0.033	14	-0.001	0.084	-	-	-	-	-	-			
BB10-6	0	29.5	29.5	weathered dolerite (Central Res.)	C012		05277	3.0	29	23	220	294	2.90	2.87	2.75	2.95	2.85	2.88	1.1	5.5	12	-0.001	0.080	14	-0.001	0.080	-	-	-	-	-	-	-		
BB10-6	29.5	91.8	62.3	dolerite (Central Resource)	C013		05278	3.2	13	19	273	278	2.83	2.84	2.83	2.85	2.9	2.92	0.6	0.7	14	-0.001	0.093	14	-0.001	0.093	-	-	-	-	-	-	-		
BB10-6	91.8	26.8	26.8	weathered dolerite (Central Res.)	C014		05279	2.8	31	19	237	255	2.74	2.85	2.77	2.85	2.79	2.82	0.9	1.2	11	-0.001	0.083	14	-0.001	0.083	-	-	-	-	-	-	-		
BB10-7	20.9	47.7	26.8	dolerite (Central Resource)	C015		05281	2.2	21	22	219	281	2.62	2.08	2.39	2.83	2.74	2.77	1.1	2.3	11	-0.001	0.068	11	-0.001	0.068	-	-	-	-	-	-	-	-	
BB10-8	50	110.5	60.5	dolerite (East Resource)	C019		05929	2.7	27	20	279	350	2.91	2.74	2.74	2.88	2.75	2.80	1.6	4.6	13	-0.001	0.074	13	-0.001	0.074	-	-	-	-	-	-	-	-	
BB10-10	52.5	119.4	66.9	dolerite (West Resource)	C022		05932	3.0	33	18	328	398	2.80	2.85	2.94	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	16	0.001	0.079	-	-	-	-	-	-	-		
BB10-12	2.7	28.8	26.1	weathered dolerite (West Res.)	C023		06925	0.7	27	26	270	200	2.87	2.75	2.67	2.83	2.84	2.87	1.1	15.6	16	0.003	0.056	16	0.003	0.056	-	-	-	-	-	-	-		
BB10-12	28.8	138.8	110	dolerite (West Resource)	C024		06926	2.6	24	10	309	343	2.93	2.77	2.82	2.97	2.90	2.83	0.8	2.3	13	0.002	0.061	13	0.002	0.061	-	-	-	-	-	-	-	-	
BB10-13	1.5	94.9	93.4	dolerite (West Resource)	C025		06928	0.9	26	9	286	314	2.98	2.84	2.89	2.99	2.94	2.86	0.5	1.5	14	0.004	0.062	14	0.004	0.062	-	-	-	-	-	-	-	-	
BB10-14	8.7	133.65	124.95	dolerite (West Resource)	C027		06929	1.7	28	8	289	315	2.92	2.74	2.80	3.00	2.92	2.85	0.8	3.4	14	0.002	0.073	14	0.002	0.073	-	-	-	-	-	-	-	-	
BB10-14	133.65	19.87	113.78	weathered dolerite (West Res.)	C028		06930	1.4	27	9	271	299	2.96	2.85	2.89	2.98	2.94	2.87	0.6	1.5	14	0.002	0.078	14	0.002	0.078	-	-	-	-	-	-	-	-	
BB10-16	0	19.87	19.87	weathered dolerite (West Res.)	C029		07726	2.1	19	19	274	333	2.94	2.80	2.86	2.96	2.91	2.86	0.8	0.8	13	0.002	0.068	13	0.002	0.068	-	-	-	-	-	-	-	-	
BB10-17	0	87.7	87.7	dolerite (West Resource)	C030		07727	1.5	20	11	284	318	2.96	2.83	2.87	2.94	2.88	2.87	1.1	1.5	13	0.003	0.068	13	0.003	0.068	-	-	-	-	-	-	-	-	-
BB10-18	33.2	82.4	49.2	dolerite (West Resource)	C031		07728	1.6	29	9	275	303	2.88	2.82	2.82	2.94	2.77	2.80	1.4	1.3	0.005	0.097	14	0.005	0.097	-	-	-	-	-	-	-	-	-	
BB10-19	12.5	72.6	60.1	weathered dolerite (West Res.)	C032		07729	3.1	21	18	255	312	2.79	2.51	2.61	2.96	2.75	2.82	2.6	2.8	15	0.003	0.084	15	0.003	0.084	-	-	-	-	-	-	-	-	
BB10-20	83.5	117.6	34.1	dolerite (Central Resource)	C036		07733	3.2	29	18	243	298	2.86	2.53	2.64	2.90	2.68	2.76	2.8	12.8	12	-0.001	0.083	12	-0.001	0.083	-	-	-	-	-	-	-	-	
BB10-21	87.5	113.2	25.7	dolerite (Central Resource)	C043		07740	1.6	18	0	284	285	2.82	2.72	2.79	2.84	2.80	2.81	0.5	3.7	15	-0.001	0.100	15	-0.001	0.100	-	-	-	-	-	-	-	-	
BB10-4	104.9	54.65	99.5	medium grained (Central Resource)	C037		07734	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
BB10-12	57.9	116	58.1	medium grained (West Resource)	C038		07735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
BB10-12	123.1	138.65	15.55	fine grained (West Resource)	C040		07736	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				Arithmetic Max			07737	6.90	46.00	87.00	293.00	308.00	3.08	3.15	3.32	3.00	2.95	2.96	6.20	38.80	38.00	0.03	0.10	50	0.03	0.10	-	-	-	-	-	-	-		
				Arithmetic Min			07738	0.40	13.00	0.00	10.00	27.00	2.38	2.08	2.36	2.61	2.25	2.89	0.50	0.10	11.00	0.00	0.03	0.03	40	0.03	0.03	-	-	-	-	-	-	-	
				Arithmetic Avg			07739	2.62	25.64	17.56	256.88	248.48	2.82	2.69	2.78	2.81	2.80	2.84	1.32	5.48	14.56	0.01	0.08	49	0.01	0.08	-	-	-	-	-	-	-	-	
				Length Weighted Avg - Note excludes C037 to C040			07740	2.25	26.32	14.96	266.84	306.71	2.85	2.71	2.79	2.83	2.83	2.87	1.13	4.12	13.89	0.00	0.08	50	0.00	0.08	-	-	-	-	-	-	-	-	
				Length Weighted Standard Deviation			07741	1.37	7.15	16.11	57.35	59.93	0.19	0.22	0.21	0.08	0.14	0.11	1.18	7.59	5.09	0.01	0.02	47	0.01	0.02	-	-	-	-	-	-	-	-	

Material Testing

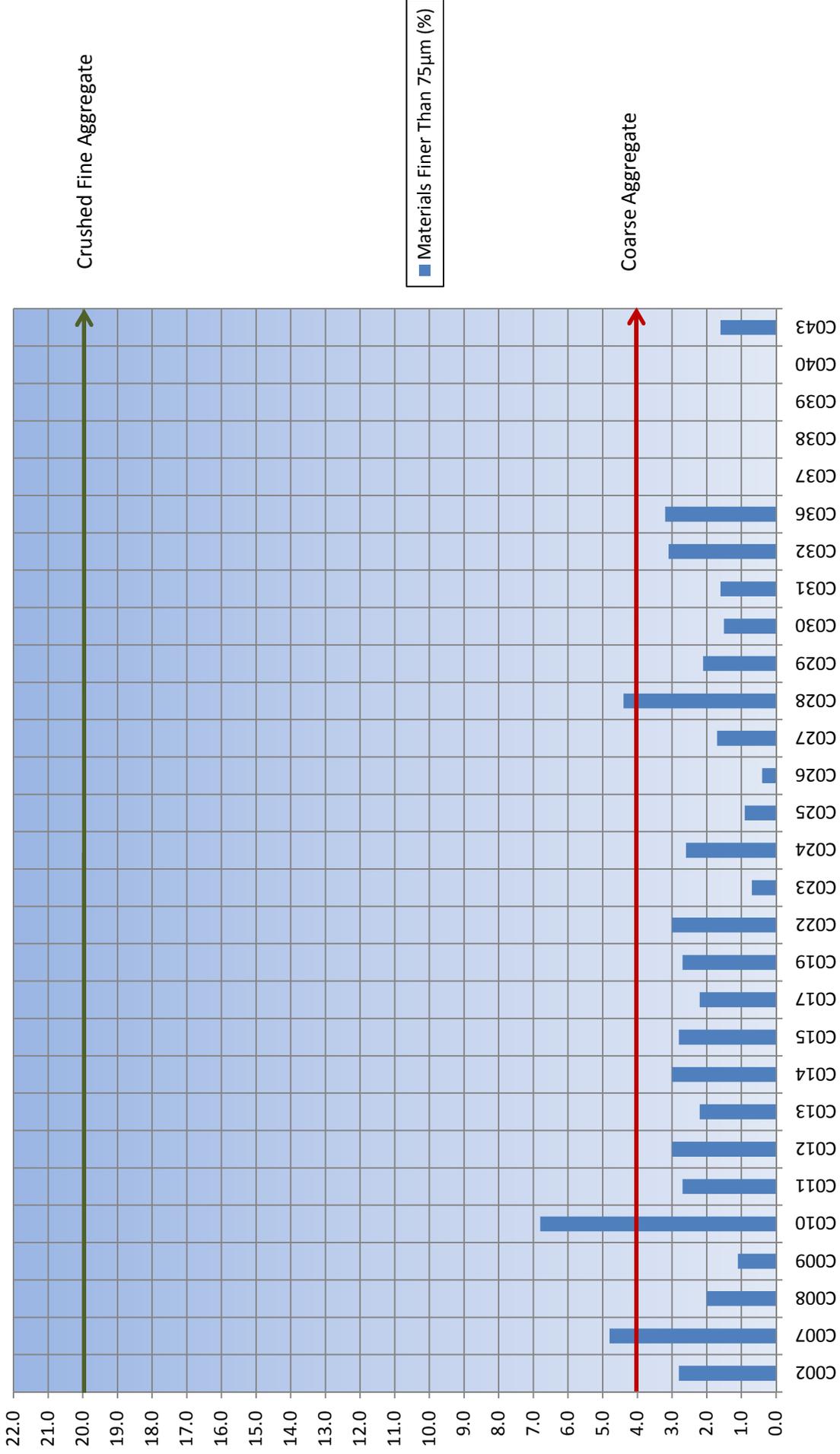
Particle Size Distribution (Grading) - Composite Samples Post Coffey Lab Crusher

Coffey Ref		Composite #	AS1141.11 - Sieve Size (mm)												
Lot #	Lab.Sample No. MAT:WARA10S	Location:	26.5	19.0	13.2	9.5	6.7	4.75	2.36	1.18	0.600	0.425	0.300	0.150	0.075
	04367	C002	100	89	59	40	28	20	12	7	5	4	4	2	1
	04372	C007	100	91	57	40	30	23	16	11	7	6	5	3	2
	05273	C008	100	92	66	45	31	24	16	11	7	6	5	3	2
	05274	C009	100	92	68	46	30	21	14	8	5	5	4	3	1
	05275	C010	100	96	78	56	42	33	25	18	14	12	10	7	4
	05276	C011	100	94	71	47	32	23	14	9	6	5	5	3	2
	05277	C012	100	91	70	48	34	26	17	12	9	8	6	4	2
	05278	C013	100	96	73	49	34	25	16	10	7	6	5	4	2
	05924	C014	100	94	70	47	33	24	16	10	7	6	5	3	2
	05925	C015	100	97	74	50	35	26	16	10	6	5	4	3	2
	05927	C017	100	94	65	44	29	20	13	8	5	4	4	2	1
	05929	C019	100	95	67	41	26	18	10	6	4	3	3	2	1
	05932	C022	100	93	68	47	33	25	16	11	8	7	6	4	2
	06925	C023	100	96	77	53	37	28	18	11	8	7	5	3	2
	06927	C025	100	93	63	41	27	19	11	7	5	4	3	2	1
	06928	C026	100	94	71	47	33	23	14	9	6	5	4	3	2
	06929	C027	100	93	66	43	28	19	12	8	5	5	4	3	1
	06930	C028	100	95	62	41	27	19	12	7	5	4	3	2	1
	07726	C029	100	92	60	38	24	16	9	6	4	4	3	3	2
	07727	C030	100	94	60	39	25	17	11	7	5	4	4	3	2
	07728	C031	100	91	51	30	17	10	5	3	2	2	2	1	1
	07729	C032	100	89	47	25	15	9	5	3	2	2	2	1	1
	07733	C036	100	86	45	23	13	7	4	2	1	1	1	1	0
	07740	C043	100	91	64	45	31	21	13	9	6	5	4	3	2
		Arithmetic Max	100	97	78	56	42	33	25	18	14	12	10	7	4
		Arithmetic Min	100	86	45	23	13	7	4	2	1	1	1	1	0
		Arithmetic Av	100	93	65	43	29	21	13	8	6	5	4	3	2

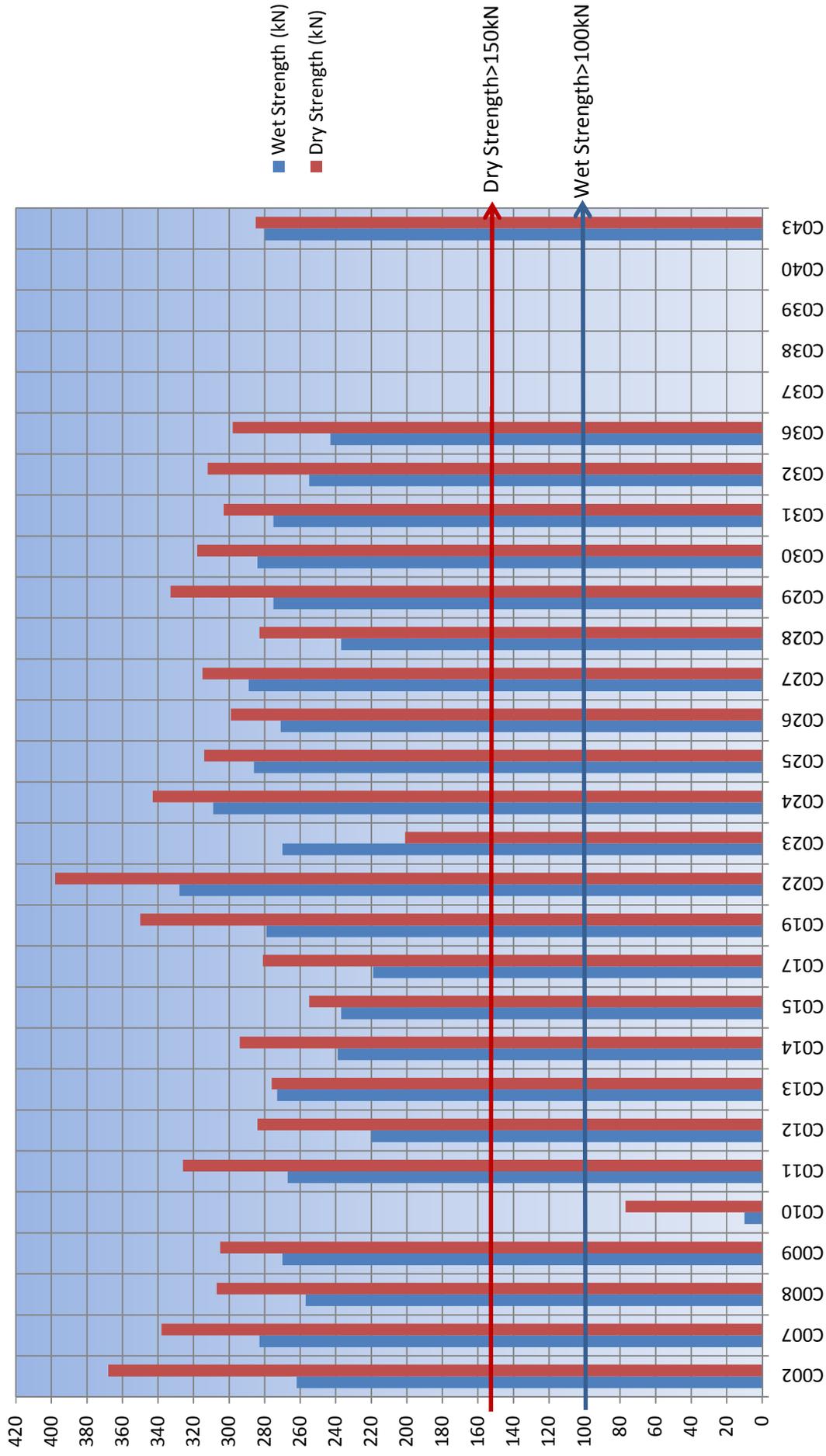
**Project 120 -Bell Bay - Dolerite -
Grading Summary (% Passing)- Estimated Resource Results**



Project 120 - Bell Bay - Dolerite
Materials Finer Than 75µm (%) - Estimated Resource Results



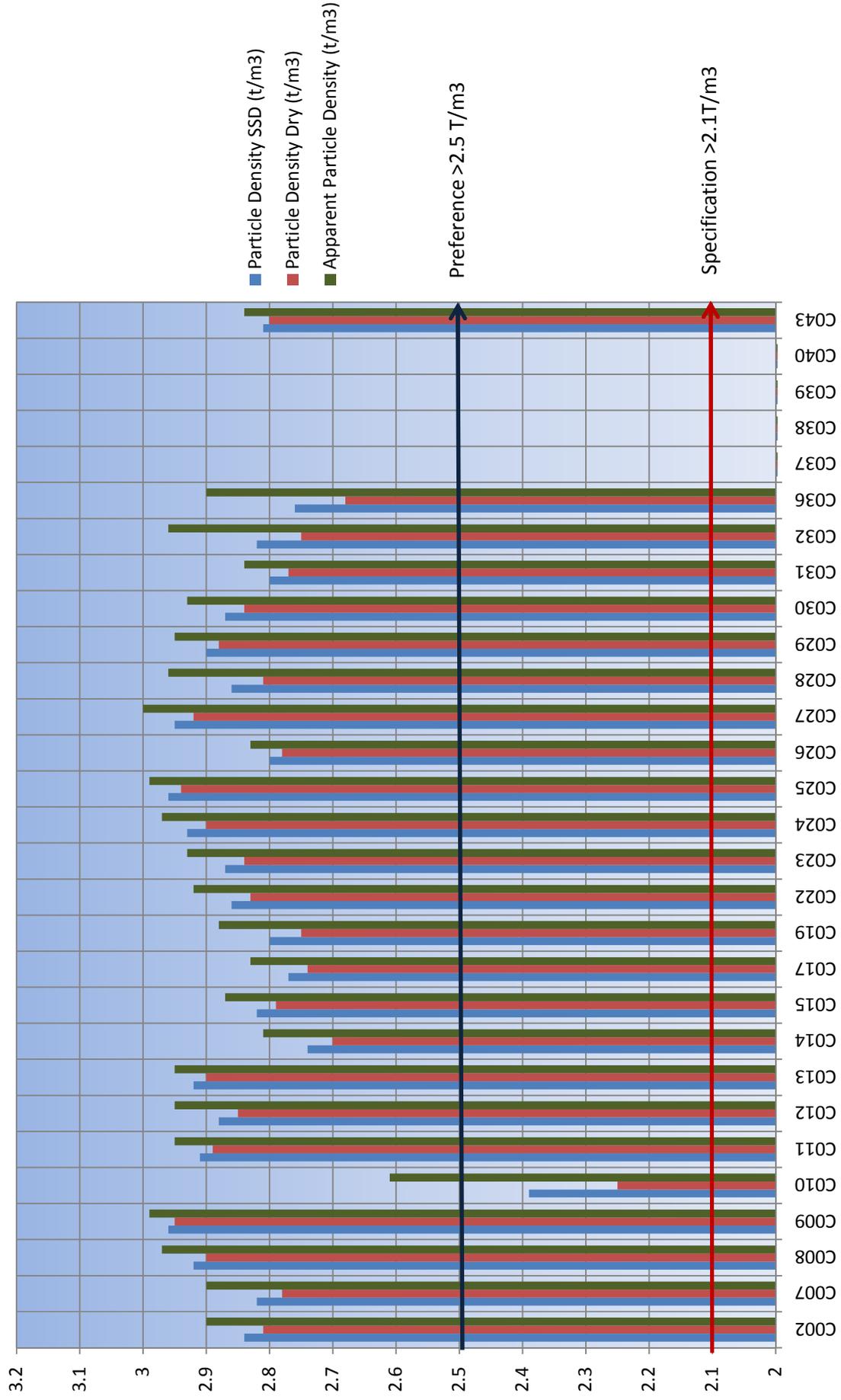
Project 120 - Bell Bay - Dolerite Wet Strength (kN) & Dry Strength (kN)- Estimated Resource Results



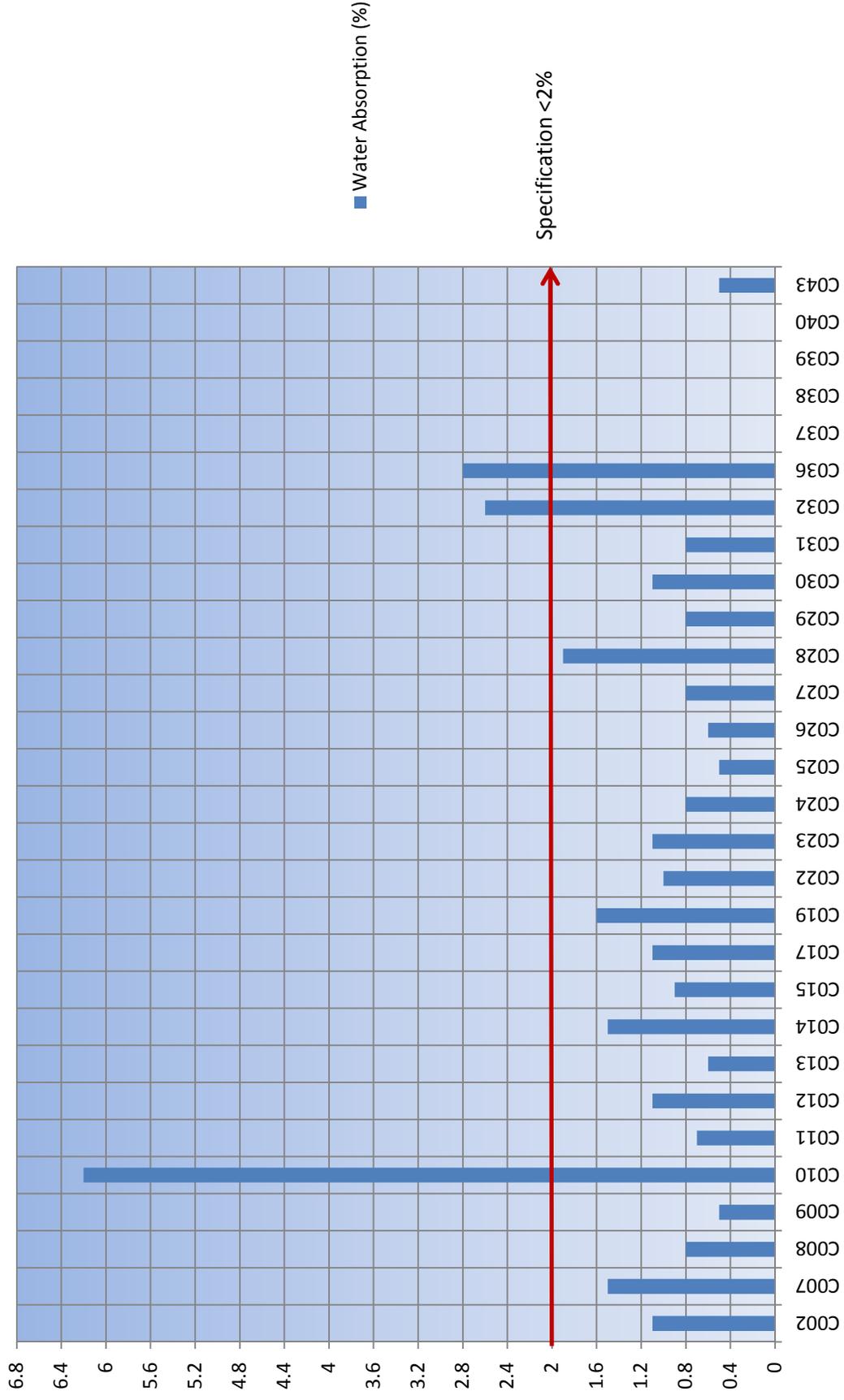
Project 120 - Bell Bay - Dolerite
Wet/Dry Strength Variation (%) - Estimated Resource Results



Project 120 - Bell Bay - Dolerite Particle Density Coarse (T/m³)- Estimated Resource Results

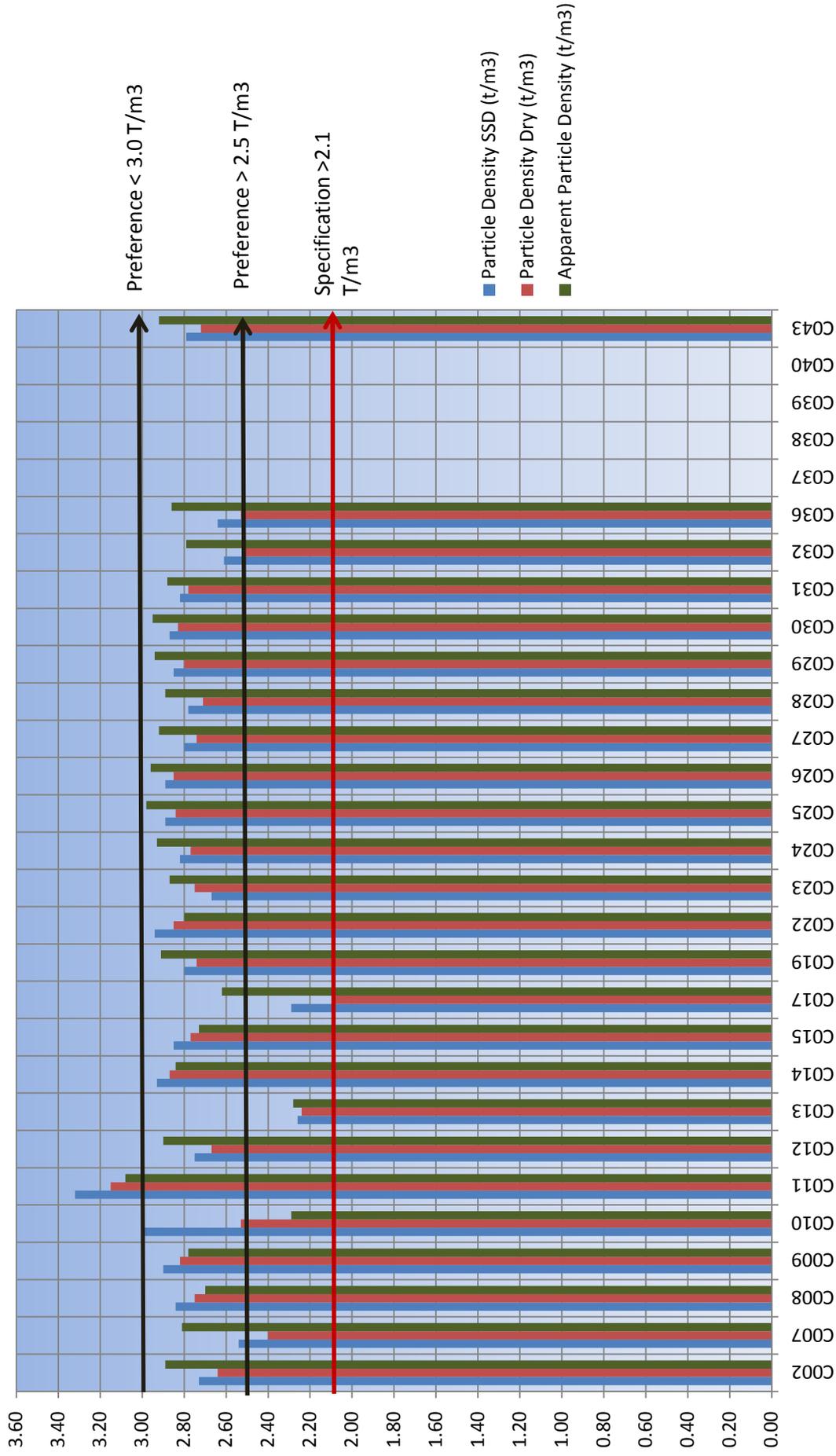


Project 120 -Bell Bay - Dolerite
Water Absorption Coarse (%) - Estimated Resource Results



Project 120 -Bell Bay - Dolerite

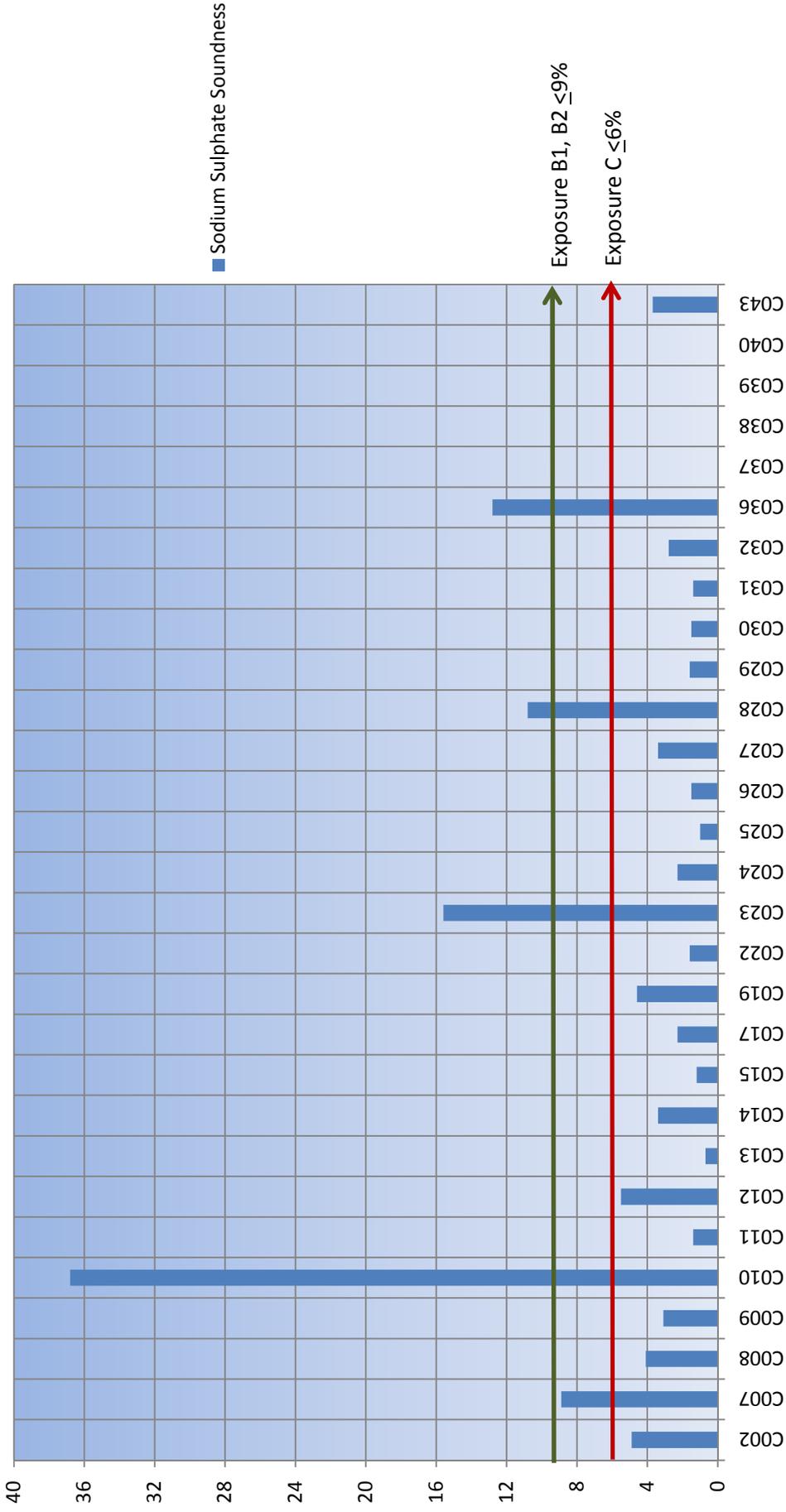
Particle Density Fine (T/m³)- Estimated Resource Results



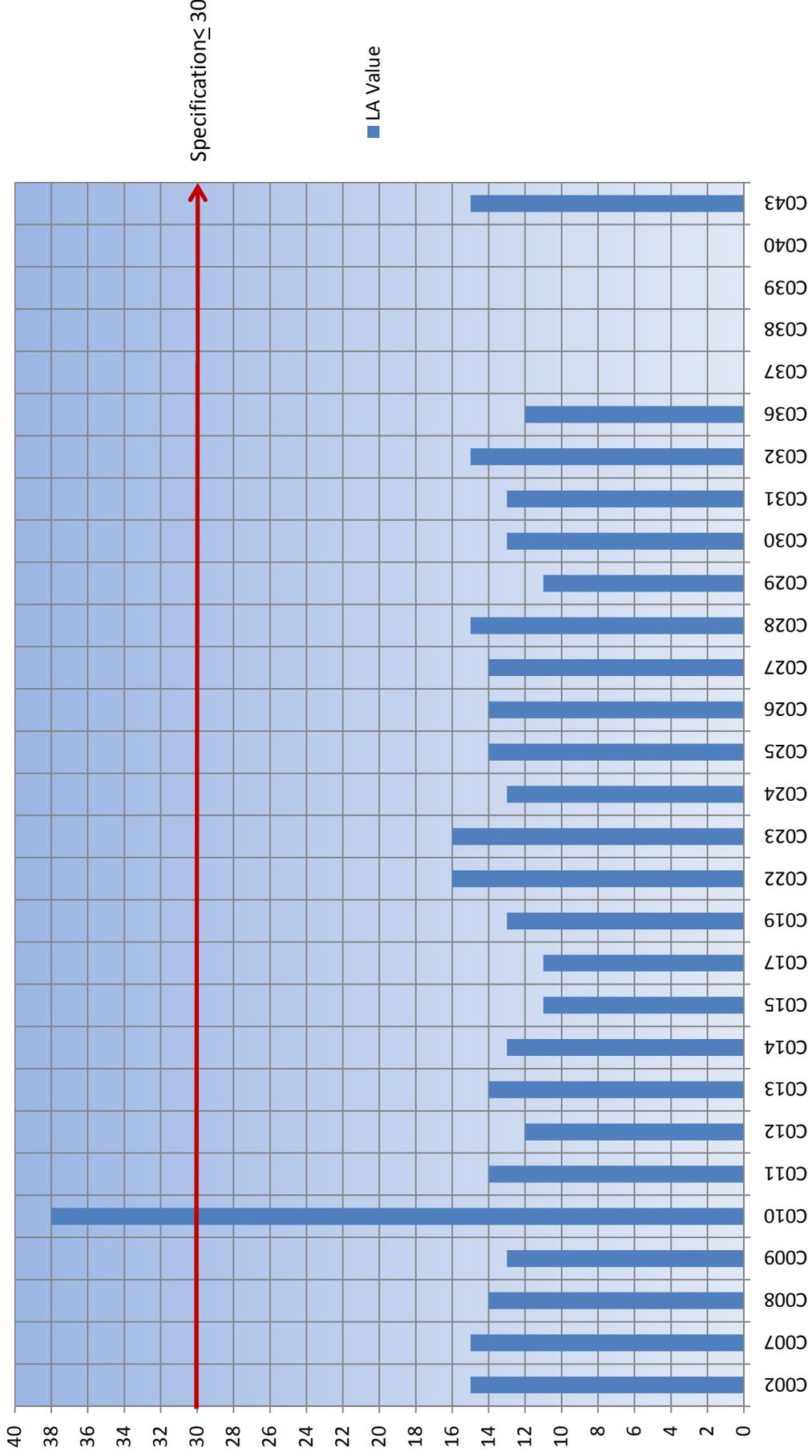
Project 120 - Bell Bay - Dolerite
Water Absorption Fine (%) - Estimated Resource Results



Project 120 - Bell Bay - Dolerite
Sodium Sulphate Soundness (%) - Estimated Resource Results

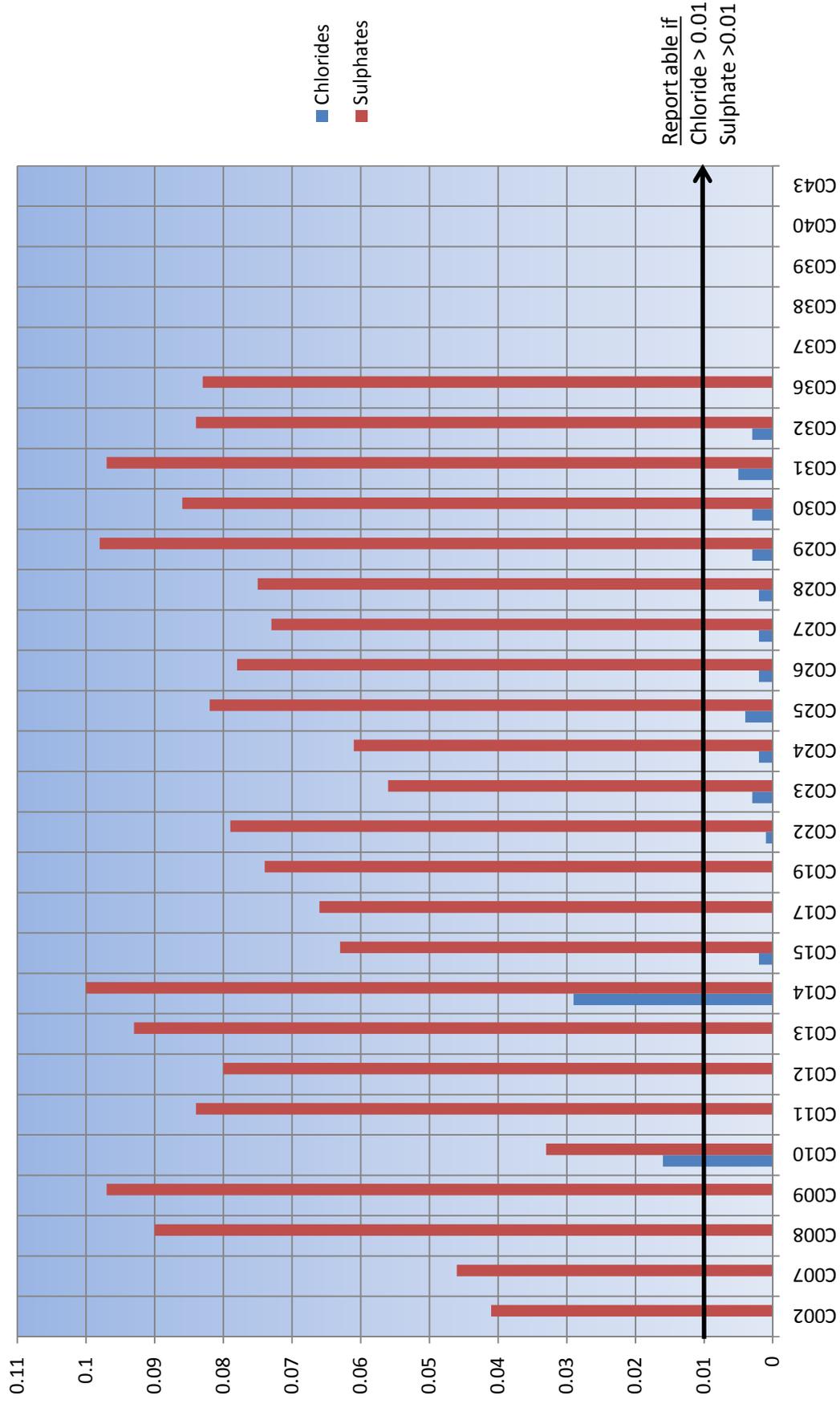


Project 120 - Bell Bay - Dolerite
LA Value (%) - Estimated Resource Results



Project 120 - Bell Bay - Dolerite

Chlorides & Sulphates (%) - Estimated Resource Results



Material Testing

Sample ID			Extra Testing																	Comments
Aust Standards		AS1141.12 (Obtained from AS1141.11)	AS1141.14	AS1141.22- Wet / Dry			AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24	AS1141.23	AS1012.20		AS1141.40, .41, .42	
Specification Limits			<4% ³	<35%	<25%	>100kN	>150kN	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2.5%	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2%	<9%	<30%	Reported ¹ > 0.01%	Reported ² > 0.01%	
Location:	W/O & Lot #	Lab. Sample No. MAT:WARA10S	Materials Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	Wet Strength (kN)	Dry Strength (kN)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Chlorides	Sulphates	Polished Agg Friction Value
C001	WARA10W01757 - Lot 1	04366	2.6	40	7.1	285	307	2.79	2.44	2.57	5.20	2.92	2.78	2.83	1.7	9.8	13	<0.001	0.064	-
C002		04367	2.8	40	28.8	262	368	2.89	2.64	2.73	3.20	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	-
C003		04368	10.4	32	N/A	N/A	N/A	2.75	2.32	2.47	6.80	2.53	2.12	2.28	7.5	95.4	62	<0.001	0.021	-
C004		04369	7.0	28	9.0	240	264	2.80	2.32	2.49	7.30	2.92	2.83	2.86	1.1	7.5	16	<0.001	0.016	-
C005		04370	3.0	32	42.0	160	274	3.19	2.59	2.78	7.20	2.83	2.7	2.75	1.6	16.3	14	<0.001	0.051	-
C006		04371	7.8	34	12.4	226	258	3.01	2.31	2.54	10.00	2.90	2.78	2.82	1.5	6.7	15	0.002	0.053	-
C007		04372	4.8	21	16.0	283	338	2.81	2.40	2.54	6.10	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	-
C008	WARA10W0209 5- Lot 2	05273	2.0	40	16.0	257	307	2.70	2.75	2.84	1.90	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	-
C009		05274	1.1	33	12.0	270	305	2.78	2.82	2.90	1.50	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	-
C010		05275	6.8	12	87.0	10	77	2.29	2.53	3.00	10.30	2.61	2.25	2.39	6.2	36.8	38	0.016	0.033	-
C011		05276	2.7	18	18.0	267	326	3.08	3.15	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	-
C012		05277	3.0	29	23.0	220	284	2.90	2.67	2.75	3.00	2.95	2.85	2.88	1.1	5.5	12	<0.001	0.080	-
C013	05278	2.2	13	1.0	273	276	2.28	2.24	2.26	0.90	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	-	
C014	WARA10W02320 - Lot 3	05924	3.0	33	19.0	239	294	2.84	2.87	2.93	1.10	2.81	2.7	2.74	1.5	3.4	13	0.029	0.100	-
C015		05925	2.8	26	7.0	237	255	2.73	2.77	2.85	1.60	2.87	2.79	2.82	0.9	1.2	11	0.002	0.063	-
C016		05926	11.5	29	37.0	193	307	2.76	2.54	2.62	3.20	2.83	2.43	2.57	5.7	18.5	13	0.015	0.067	-
C017		05927	2.2	21	22.0	219	281	2.62	2.08	2.29	9.90	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	-
C018		05928	10.6	18	38.0	151	243	1.44	2.83	2.35	26.80	2.84	2.55	2.66	4.0	26.5	19	0.003	0.062	-
C019		05929	2.7	27	20.0	279	350	2.91	2.74	2.80	2.10	2.88	2.75	2.80	1.6	4.6	13	<0.001	0.074	-
C020		05930	3.8	22	37.0	189	298	2.72	2.43	2.54	4.30	2.85	2.71	2.76	1.9	10.8	15	0.002	0.075	-
C021		05931	5.5	14	42.0	162	280	2.25	2.43	2.74	7.90	2.80	2.47	2.59	4.7	43.0	18	<0.001	0.090	-
C022		05932	3.0	33	18.0	328	398	2.80	2.85	2.94	1.70	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	-
C023		06925	0.7	27	26.0	270	201	2.87	2.75	2.67	4.10	2.93	2.84	2.87	1.1	15.6	16	0.003	0.056	-
C024	06926	2.6	24	10.0	309	343	2.93	2.77	2.82	1.90	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	-	
C025	06927	0.9	26	9.0	286	314	2.98	2.84	2.89	1.60	2.99	2.94	2.96	0.5	1	14	0.004	0.082	-	
C026	06928	0.4	27	9.0	271	299	2.96	2.85	2.89	1.30	2.83	2.78	2.80	0.6	1.5	14	0.002	0.078	-	
C027	06929	1.7	28	8.0	289	315	2.92	2.74	2.80	2.20	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	-	
C028	06930	4.4	19	16.0	237	283	2.89	2.71	2.78	2.30	2.96	2.81	2.86	1.9	10.8	15	0.002	0.075	-	
C029	07726	2.1	27	17.0	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	0.8	1.6	11	0.003	0.098	-	
C030	07727	1.5	20	11.0	284	318	2.95	2.83	2.87	1.40	2.93	2.84	2.87	1.1	1.5	13	0.003	0.086	-	
C031	07728	1.6	29	9.0	275	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	0.8	1.4	13	0.005	0.097	-	
C032	07729	3.1	21	18.0	255	312	2.79	2.51	2.61	4.00	2.96	2.75	2.82	2.6	2.8	15	0.003	0.084	-	
C033	07730																			
C034	07731	9.0	26	71.0	22	78	2.59	2.16	2.33	7.60	2.76	2.18	2.39	9.7	29.6	34	0.007	0.068	-	
C035	07732	12.1	17	42	60	103	2.67	2.13	2.34	9.40	2.80	2.15	2.38	10.7	24.9	23	0.010	0.093	-	
C036	07733	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083	-	
C037	07734	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
C038	07735	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
C039	07736	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
C040	07737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50
C041	07738	7.3	23	47	83	156	2.68	2.45	2.59	9.30	2.81	2.39	2.54	6.2	17.9	23	0.020	0.075	-	
C042	07739	8.9	21	34	127	192	2.75	2.18	2.38	9.50	2.85	2.41	2.56	6.4	23.4	15	0.003	0.090	-	
C043	07740	1.6	18	2	280	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	0.5	3.7	15	<0.001	0.100	-	
		Arithmetic Max	12.10	40.00	87.00	328.00	398.00	3.19	3.15	3.32	26.80	3.00	2.95	2.96	10.70	95.40	62.00	0.03	0.10	50
		Arithmetic Min	0.40	12.00	1.00	10.00	77.00	1.44	2.08	2.26	0.90	2.53	2.12	2.28	0.50	0.70	11.00	0.00	0.02	47
		Arithmetic Average	4.27	25.71	23.22	224.76	276.30	2.76	2.59	2.69	4.97	2.88	2.70	2.76	2.52	12.29	16.95	0.01	0.07	49

Note:	1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete
	2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m3 of concrete containing this aggregate
	3	AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.

Material Testing

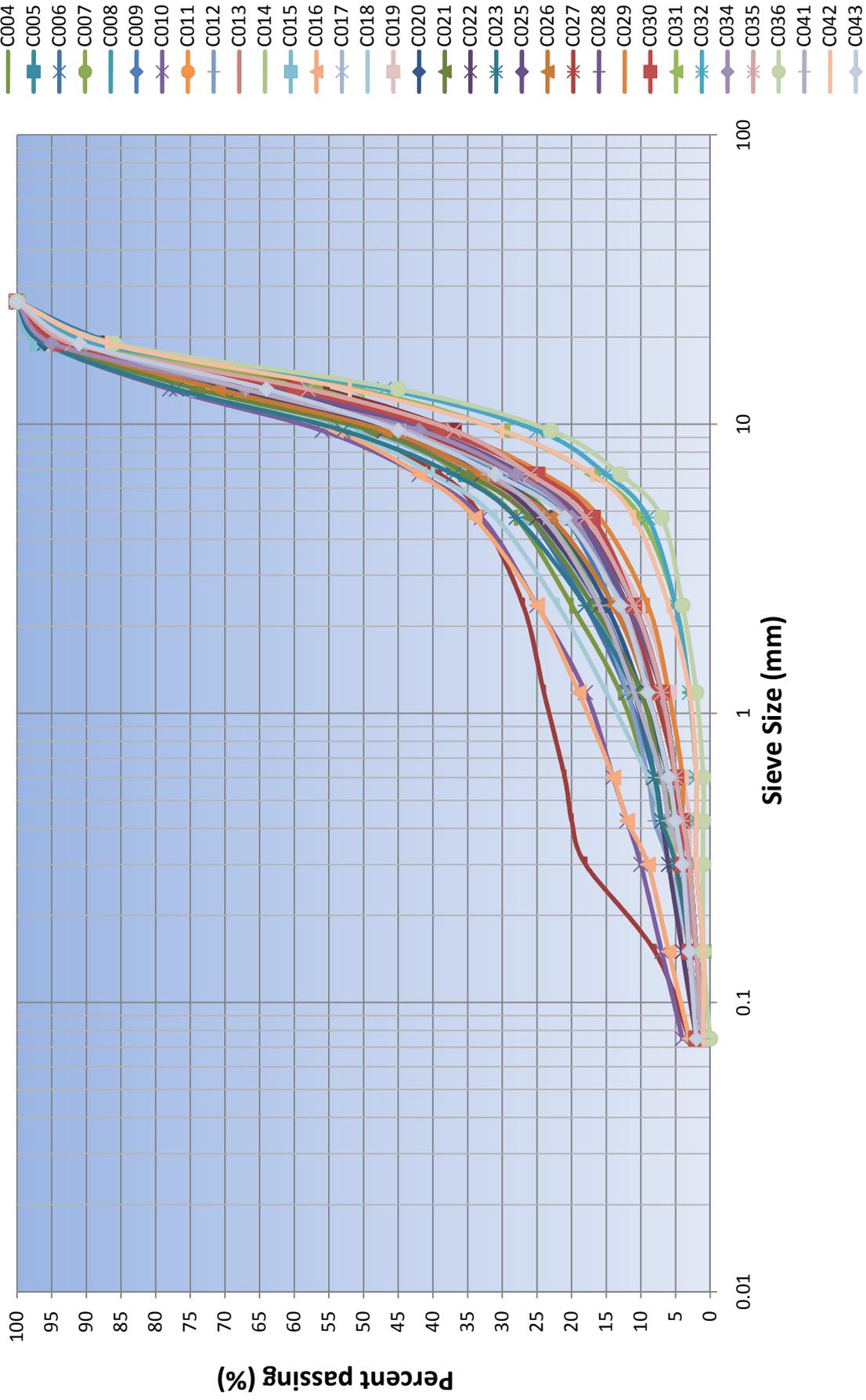
Drill Hole	From	To	Length	Description	Location:	W/O & Lot #	Lab. Sample No. MAT-WAR10-015	AS1141.12 (Obtained from AS1141.11)		AS1141.5 - Particle Density & Water Absorption (Fine)										AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.23		AS1012.20		Comments		
								<4%?	Materials Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	>100KN (kN)	Wet Strength (kN)	>150KN (kN)	Apparent Particle Density (t/m ³)	>2.5t/m ³ Particle Density (t/m ³)	>2.5t/m ³ Particle Density SSD (t/m ³)	Water Absorption (%)	<2.5t/m ³ Particle Density (t/m ³)	>2.5t/m ³ Particle Density SSD (t/m ³)	Water Absorption (%)	Particle Density Dry Density (t/m ³)	Particle Density SSD (t/m ³)	Water Absorption (%)	LA Value	Chlorides	Sulphates		Reported ² > 0.01%	Reported ² > 0.01%
BB10-1	0	36.8	36.8	fault zone (Central Fault)	C001		04366	2.6	40	7	285	307	2.79	2.44	2.57	5.20	2.83	2.83	1.1	9.8	13	<0.001	0.064	AS1141.40, .41, .42	>44 min >48 preferred					
BB10-1	36.8	74.85	38.05	dolomite (Central Resource)	C002		04366	2.8	40	29	262	368	2.89	2.64	2.73	3.20	2.81	2.84	1.1	4.9	15	<0.001	0.041							
BB10-1	74.85	164.3	89.45	sediment	C003		04366	10.4	32	N/A	N/A	N/A	2.75	2.32	2.47	6.80	2.52	2.52	7.5	95.4	62	<0.001	0.021			Sandstone				
BB10-2	0	69.4	28	fault zone (Central Fault)	C004		04369	7.0	29	240	N/A	254	2.80	2.32	2.49	7.30	2.96	2.96	1.1	7.5	16	<0.001	0.016							
BB10-2	28	69.4	41.4	fault zone (Central Fault)	C005		04370	3.0	32	42	160	239	3.19	2.39	2.56	6.20	2.83	2.83	1.6	16.3	14	<0.001	0.091							
BB10-2	41.4	69.4	28	fault zone (Central Fault)	C006		04370	4.8	34	16	265	338	2.91	2.40	2.54	6.40	2.76	2.76	1.6	12.5	14	<0.001	0.046							
BB10-3	0	56.6	56.6	fault zone (East Fault)	C007		04372	4.8	24	16	265	338	2.91	2.40	2.54	6.40	2.76	2.76	1.6	12.5	14	<0.001	0.046							
BB10-3	56.6	56.6	26.9	fault zone (East Fault)	C008		05273	2.0	40	16	257	307	2.70	2.75	2.84	1.90	2.92	2.92	0.8	4.1	14	<0.001	0.097							
BB10-4	0	50.3	50.3	dolomite (Central Resource)	C009		05273	1.1	33	12	270	305	2.78	2.61	2.66	2.96	2.96	2.96	0.5	3.1	13	<0.001	0.097							
BB10-4	50.3	125.5	75.2	dolomite (Central Resource)	C010		05276	6.8	12	87	10	77	2.29	2.53	3.00	10.30	2.25	2.29	6.2	36.8	38	<0.001	0.033							
BB10-5	0	27.8	27.8	weathered dolomite (Central Res.)	C011		05276	2.7	18	18	267	326	3.08	3.15	3.32	2.40	2.80	2.80	0.7	1.4	14	<0.001	0.084							
BB10-5	27.8	74.1	46.3	dolomite (Central Resource)	C012		05277	3.0	29	23	220	284	2.90	2.67	2.75	3.00	2.95	2.95	1.1	5.5	12	<0.001	0.080							
BB10-6	0	29.5	29.5	weathered dolomite (Central Res.)	C013		05278	2.2	13	273	276	2.28	2.24	2.26	0.90	2.92	2.92	0.6	0.7	14	<0.001	0.093								
BB10-7	0	20.9	20.9	dolomite (Central Resource)	C014		05824	3.0	33	19	239	294	2.73	2.87	2.84	1.10	2.81	2.81	1.5	3.4	11	0.029	0.100							
BB10-7	20.9	47.7	26.8	dolomite (Central Resource)	C015		05825	2.8	26	7	237	255	2.73	2.77	2.85	1.60	2.87	2.87	0.9	1.2	11	0.82	0.063							
BB10-8	0	50.4	50.4	fault zone (East Fault)	C016		05826	11.5	29	37	193	207	2.76	2.58	2.62	3.20	2.83	2.43	5.7	18.5	13	0.015	0.067							
BB10-8	50.4	110.5	60.5	dolomite (East Resource)	C017		05827	2.2	21	22	219	281	2.62	2.04	2.29	9.90	2.83	2.77	1.1	2.3	11	<0.001	0.066							
BB10-9	0	52.5	52.5	fault zone (East Fault)	not listed		05828	10.6	18	38	151	243	1.44	2.83	2.35	26.80	2.84	2.55	4.0	26.5	19	0.003	0.062							
BB10-10	0	59.9	59.9	dolomite (Central Resource)	C018		05829	2.7	27	20	279	350	2.81	2.74	2.80	2.10	2.86	2.75	2.80	1.6	4.6	13	<0.001	0.074						
BB10-10	59.9	93	33.1	fault zone (Central Fault)	C019		05829	3.8	22	37	189	298	2.72	2.43	2.54	4.30	2.85	2.71	2.76	10.8	15	0.002	0.075							
BB10-11	0	109	109	dolomite (West Resource)	C021		05831	5.5	34	42	162	280	2.25	2.43	2.74	7.90	2.80	2.47	4.7	43.0	18	<0.001	0.090							
BB10-11	109	166	57	dolomite (West Resource)	C022		05832	3.0	33	18	328	388	2.80	2.85	2.94	1.70	2.92	2.83	1.0	1.6	16	<0.001	0.079							
BB10-12	0	28.8	28.8	weathered dolomite (West Res.)	C023		06825	0.7	27	26	270	230	2.87	2.75	2.87	4.00	2.83	2.84	0.1	15.6	16	0.003	0.096							
BB10-12	28.8	94.9	66.1	dolomite (West Resource)	C024		06825	0.6	26	9	248	313	2.98	2.87	2.86	1.60	2.90	2.94	0.8	2.3	13	0.002	0.082							
BB10-13	0	94.9	94.9	dolomite (West Resource)	C025		06829	0.4	27	9	269	299	2.96	2.85	2.89	1.80	2.94	2.94	0.6	1.5	14	0.002	0.073							
BB10-14	0	133.65	133.65	dolomite (West Resource)	C026		06828	1.7	28	8	289	315	2.92	2.84	2.80	2.20	3.00	2.92	0.8	3.4	14	0.002	0.073							
BB10-15	0	86.4	86.4	weathered dolomite (West Res.)	C028		06830	4.4	19	16	237	283	2.69	2.71	2.78	2.30	2.96	2.81	2.86	1.9	10.8	15	0.002	0.075						
BB10-15	86.4	119.87	33.47	dolomite (West Resource)	C029		06830	2.1	27	17	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	1.6	11	0.003	0.068							
BB10-16	0	87.7	87.7	dolomite (West Resource)	C030		07271	1.5	20	11	284	318	2.95	2.83	2.87	1.40	2.93	2.84	1.1	1.5	13	0.003	0.066							
BB10-17	0	33.2	33.2	fault zone (Central Fault)	C033		NOT TESTED																							
BB10-18	0	33.2	33.2	dolomite (Central Fault)	C031		07278	1.6	29	9	255	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	1.4	13	0.005	0.097							
BB10-18	33.2	82.4	49.2	dolomite (West Resource)	C032		07279	3.1	21	18	275	312	2.79	2.51	2.61	4.00	2.96	2.75	2.82	2.8	15	0.003	0.094							
BB10-19	0	67.2	67.2	fault zone (Central Fault)	C034		07312	9.0	26	71	22	78	2.16	2.13	2.33	7.60	2.76	2.18	2.39	9.7	29.6	34	0.007	0.068						
BB10-20	0	67.2	67.2	fault zone (Central Fault)	C035		07332	12.1	17	42	60	103	2.67	2.13	2.34	9.40	2.80	2.15	2.38	10.7	24.9	23	0.010	0.093						
BB10-20	67.2	93.5	26.3	fault zone (Central Fault)	C036		07332	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083						
BB10-21	0	53.4	53.4	dolomite (Central Resource)	C041		07338	7.3	23	47	83	156	2.69	2.45	2.59	9.30	2.81	2.39	2.54	6.2	17.9	23	0.020	0.075						
BB10-21	53.4	87.5	34.1	fault zone (Central Fault)	C042		07339	8.9	21	34	127	192	2.75	2.18	2.38	9.50	2.85	2.41	2.56	6.4	23.4	15	0.003	0.090						
BB10-21	87.5	113.2	25.7	dolomite (Central Resource)	C043		07340	1.6	18	0	284	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	3.7	15	<0.001	0.100							
BB10-4	54.65	99.5	44.85	medium grained (Central Resource)	C037		07334																							
BB10-4	104.9	122.8	17.9	fine grained (Central Resource)	C038		07336																							
BB10-12	57.9	116	58.1	medium grained (West Resource)	C039		07337																							
BB10-12	123.1	138.65	15.55	fine grained (West Resource)	C040		07337																							
							Arithmetic Avg	4.27	25.71	23.17	224.86	276.27	2.76	2.59	2.69	4.97	2.88	2.70	2.76	2.52	12.29	16.95	0.01	0.07	49					
							Length Weighted Avg - Note that excludes C037 to C040	3.83	25.20	19.67	221.55	268.19	2.74	2.88	2.66	4.32	2.84	2.68	2.74	2.28	11.90	17.03	0.00	0.07						
							Length Weighted Standard Deviation	3.26	7.19	18.43	78.59	73.30	0.30	0.25	0.23	4.76	0.10	0.23	0.18	2.67	17.50	9.32	0.01	0.02						
							1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete																						
							2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m3 of concrete containing this aggregate																						

Material Testing

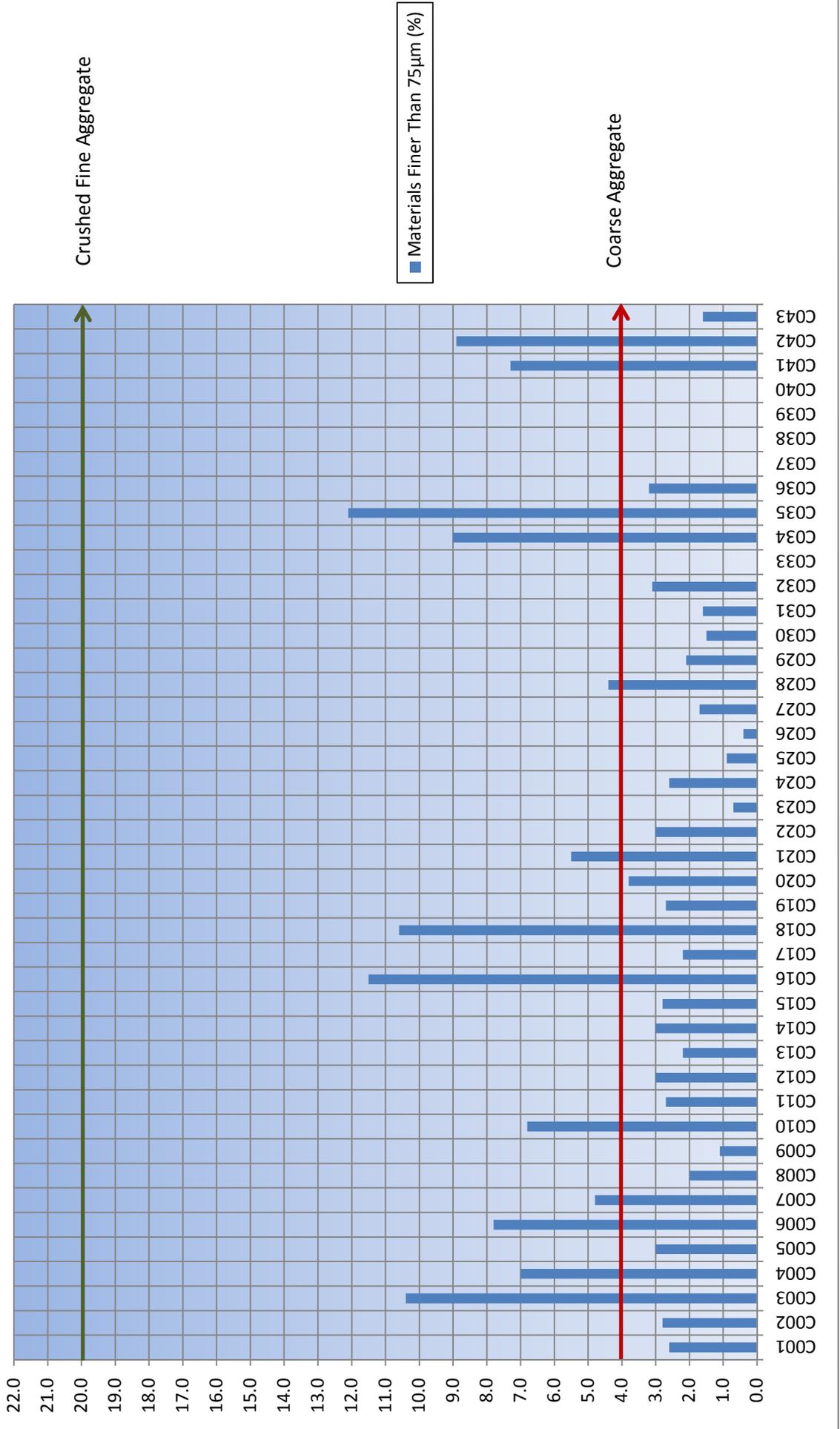
Particle Size Distribution (Grading) - Composite Samples Post Coffey Lab Crusher

Coffey Ref		Composite #	AS1141.11 - Sieve Size (mm)												
Lot #	Lab Sample No. MAT:WARA105	Location:	26.5	19.0	13.2	9.5	6.7	4.75	2.36	1.18	0.600	0.425	0.300	0.150	0.075
- Lot 1 WARA10W01757	C001		100	88	56	37	26	19	12	7	5	4	3	2	1
	C002		100	89	59	40	28	20	12	7	5	4	4	2	1
	C003		100	94	75	53	39	33	27	24	21	20	18	8	3
	C004		100	89	64	47	36	28	20	13	9	7	6	3	2
	C005		100	90	58	39	28	20	13	8	5	4	4	2	1
	C006		100	86	60	43	33	26	18	12	8	7	5	3	2
	C007		100	91	57	40	30	23	16	11	7	6	5	3	2
	C008		100	92	66	45	31	24	16	11	7	6	5	3	2
	C009		100	92	68	46	30	21	14	8	5	5	4	3	1
	C010		100	96	78	56	42	33	25	18	14	12	10	7	4
- Lot 2 WARA10W02095	C011		100	94	71	47	32	23	14	9	6	5	5	3	2
	C012		100	91	70	48	34	26	17	12	9	8	6	4	2
	C013		100	96	73	49	34	25	16	10	7	6	5	4	2
	C014		100	94	70	47	33	24	16	10	7	6	5	3	2
	C015		100	97	74	50	35	26	16	10	6	5	4	3	2
	C016		100	94	72	54	42	34	25	19	14	12	9	6	3
	C017		100	94	65	44	29	20	13	8	5	4	4	2	1
	C018		100	95	75	53	40	31	22	15	9	7	6	3	2
	C019		100	95	67	41	26	18	10	6	4	3	3	2	1
	C020		100	96	70	45	32	23	15	10	6	5	4	2	1
- Lot 3 WARA10W02320	C021		100	95	74	49	35	26	17	10	7	5	4	2	1
	C022		100	93	68	47	33	25	16	11	8	7	6	4	2
	C023		100	96	77	53	37	28	18	11	8	7	5	3	2
	C025		100	93	63	41	27	19	11	7	5	4	3	2	1
	C026		100	94	71	47	33	23	14	9	6	5	4	3	2
	C027		100	93	66	43	28	19	12	8	5	5	4	3	1
	C028		100	95	62	41	27	19	12	7	5	4	3	2	1
	C029		100	92	60	38	24	16	9	6	4	4	3	3	2
	C030		100	94	60	39	25	17	11	7	5	4	4	3	2
	C031		100	91	57	30	17	10	5	3	2	2	2	1	1
- Lot 4 WARA10W02715 - Lot 4	C032		100	89	47	25	15	9	5	3	2	2	2	1	1
	C034		100	95	67	42	28	20	13	9	6	5	4	2	1
	C035		100	92	58	37	26	18	11	7	5	4	3	2	1
	C036		100	86	45	23	13	7	4	2	1	1	1	1	0
	C041		100	91	67	44	32	24	16	11	7	6	4	3	1
	C042		100	87	52	30	17	11	6	3	2	2	2	1	1
	C043		100	91	64	45	31	21	13	9	6	5	4	3	2
	C0307		100	97	78	56	42	34	27	24	21	20	18	8	4
	Arithmetic Max		100	86	45	23	13	7	4	2	1	1	1	1	0
	Arithmetic Min		100	92	65	43	30	22	14	9	7	6	5	3	2
Arithmetic AV		100	92	65	43	30	22	14	9	7	6	5	3	2	

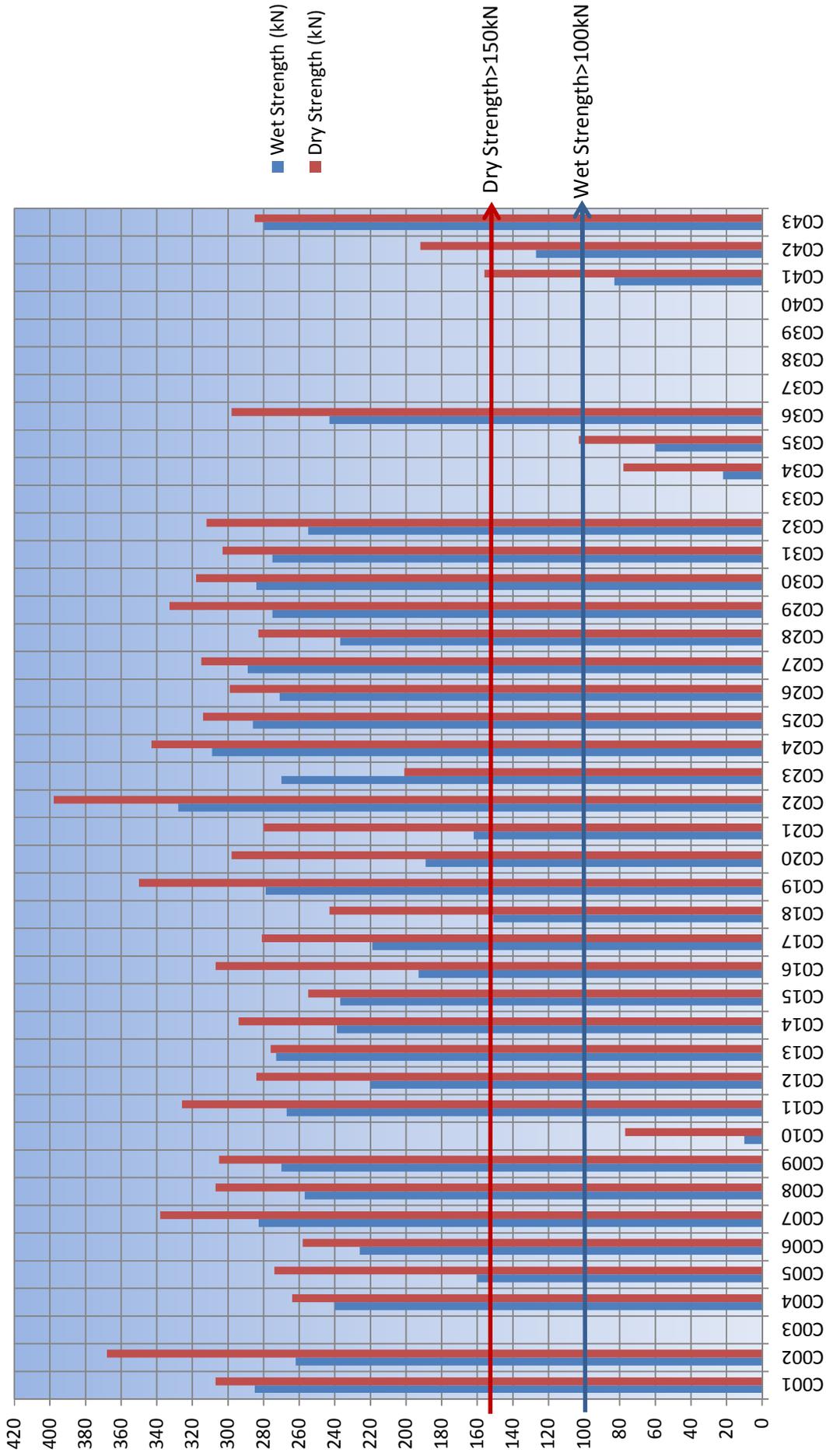
Project 120 -Bell Bay - Dolerite - Grading Summary (% Passing)- All Results



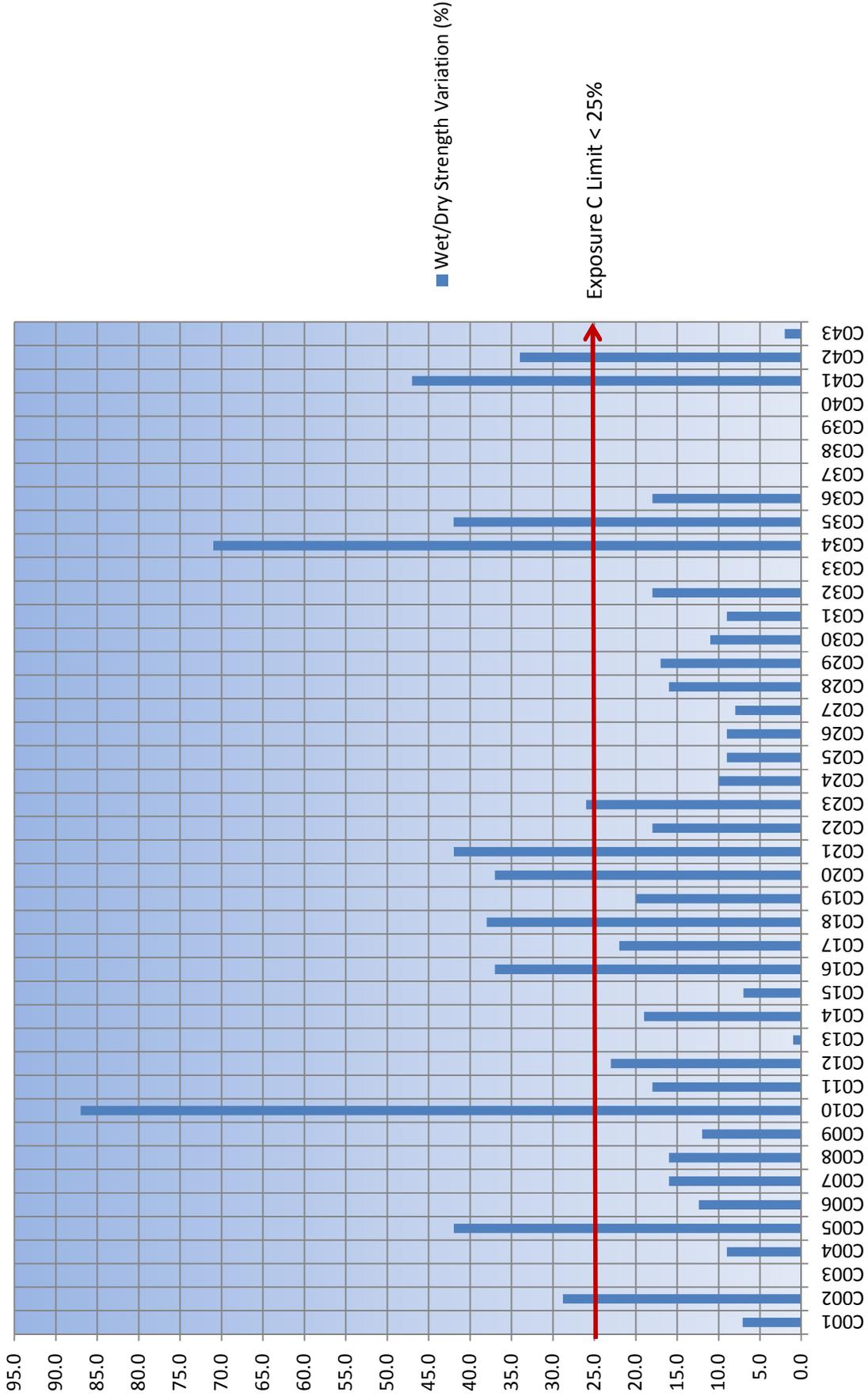
Project 120 - Bell Bay - Dolerite Materials Finer Than 75µm (%) - All Results



Project 120 - Bell Bay - Dolerite
Wet Strength (kN) & Dry Strength (kN)- All Results



Project 120 - Bell Bay - Dolerite
Wet/Dry Strength Variation (%) - All Results

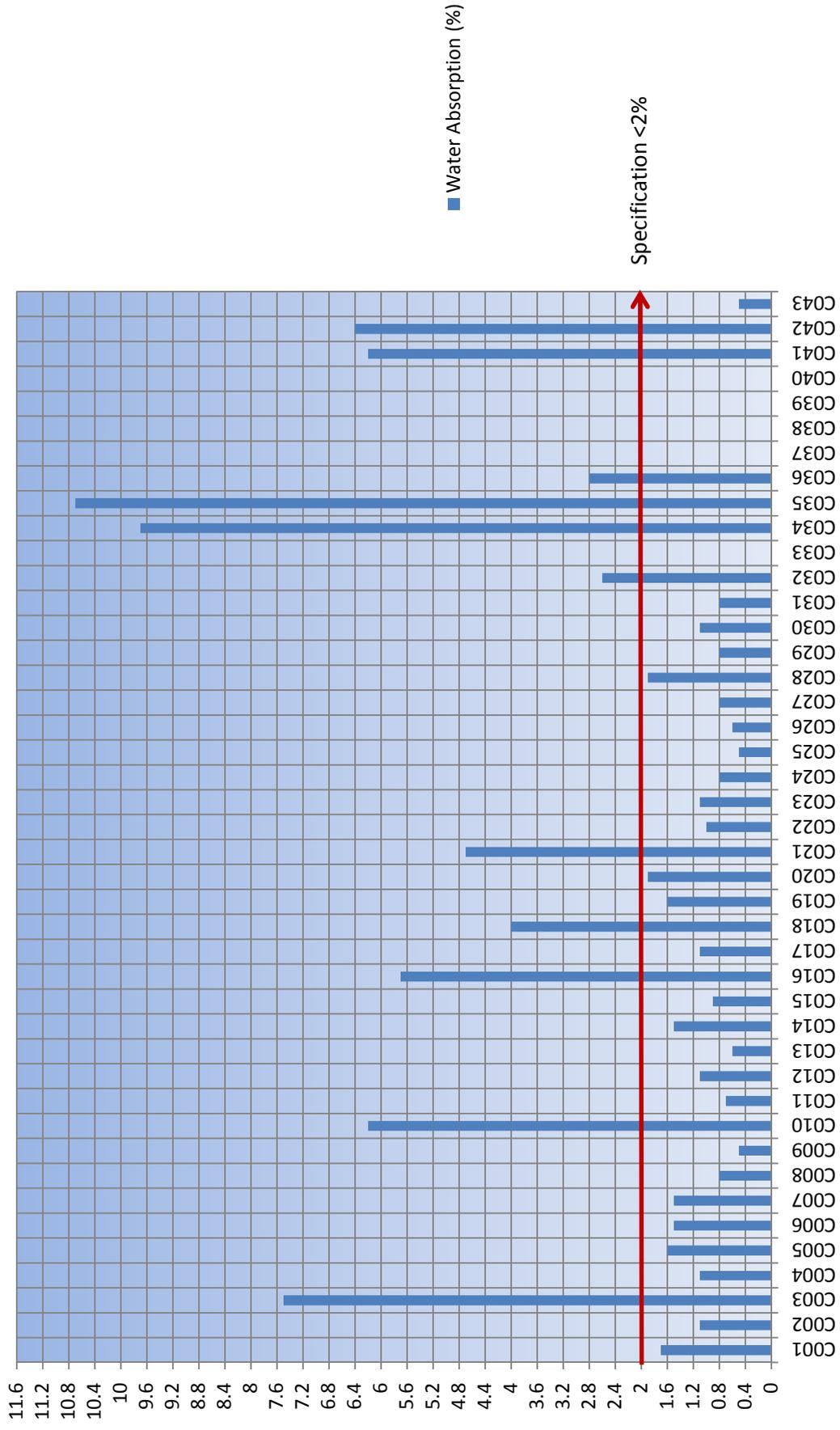


Project 120 - Bell Bay - Dolerite

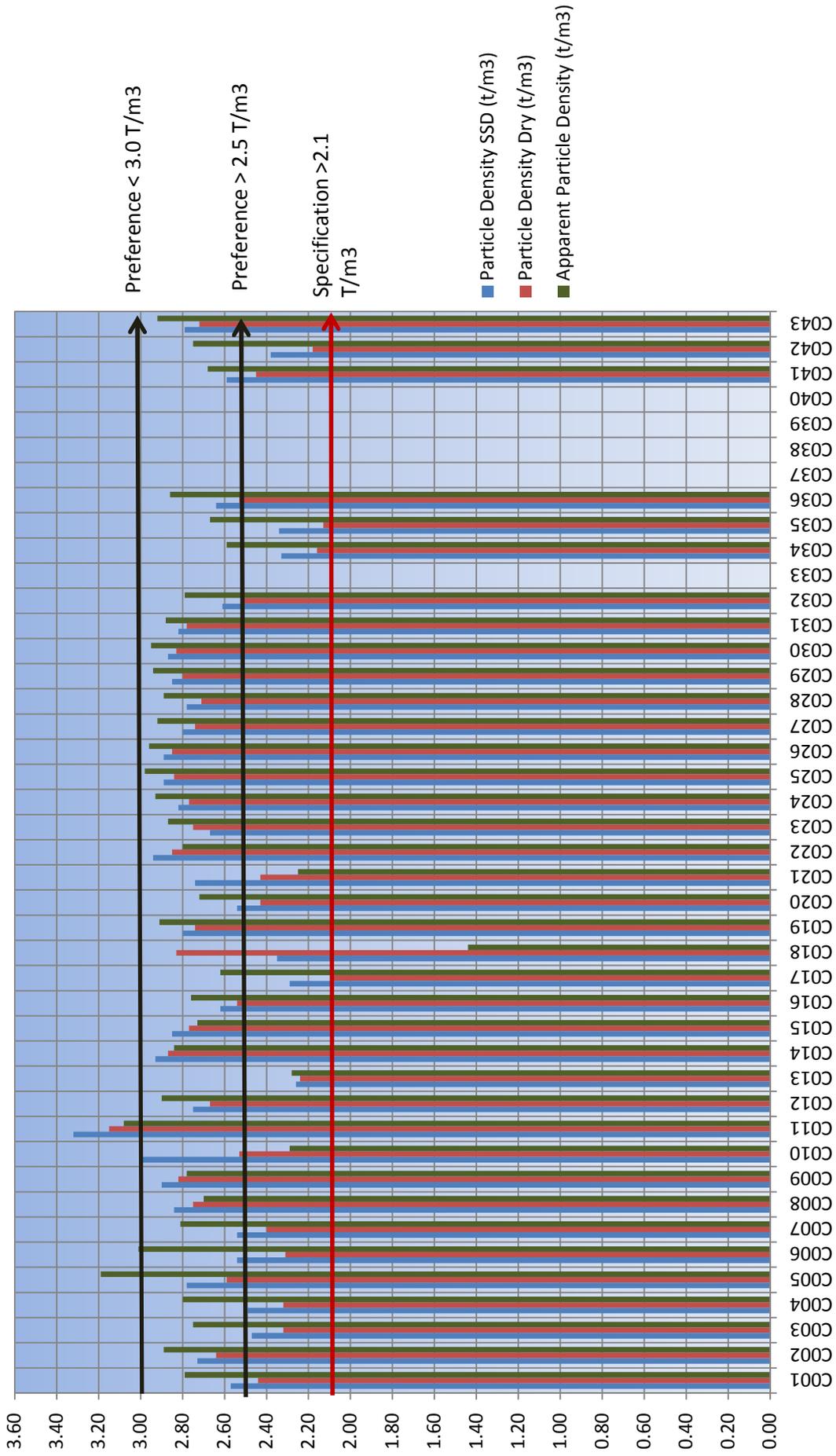
Particle Density Coarse (T/m³)- All Results



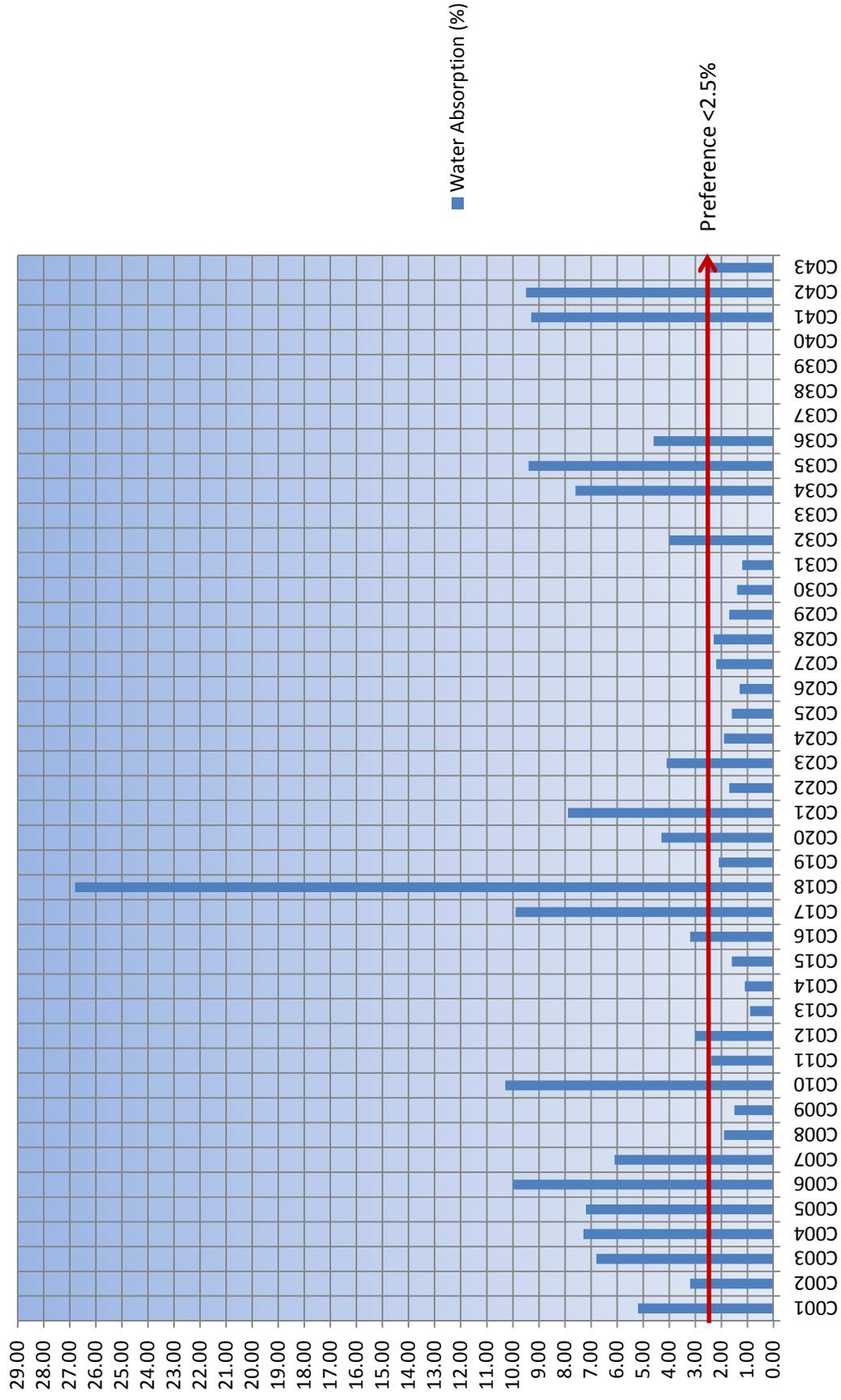
Project 120 -Bell Bay - Dolerite Water Absorption Coarse (%) - All Results



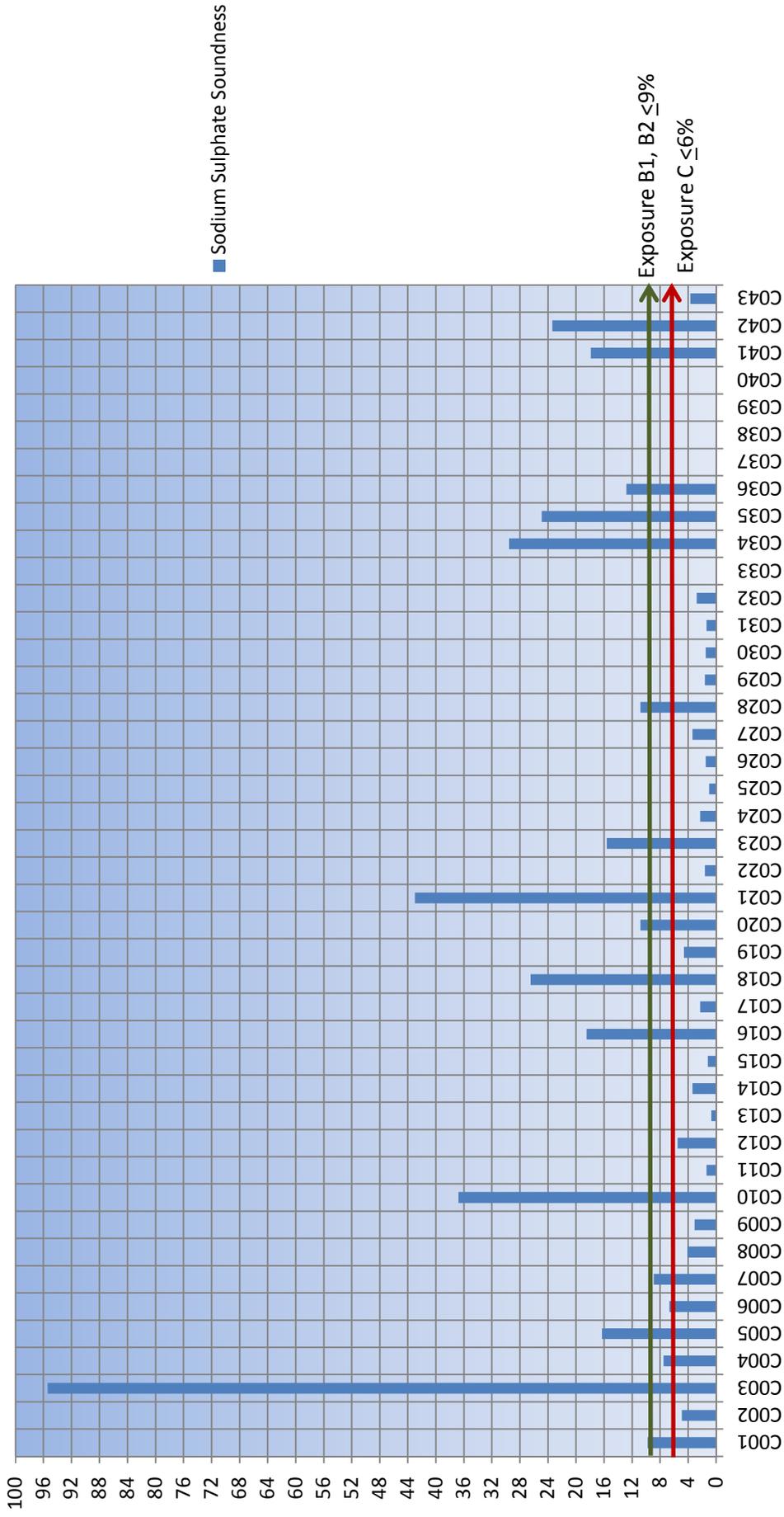
Project 120 -Bell Bay - Dolerite Particle Density Fine (T/m3)- All Results



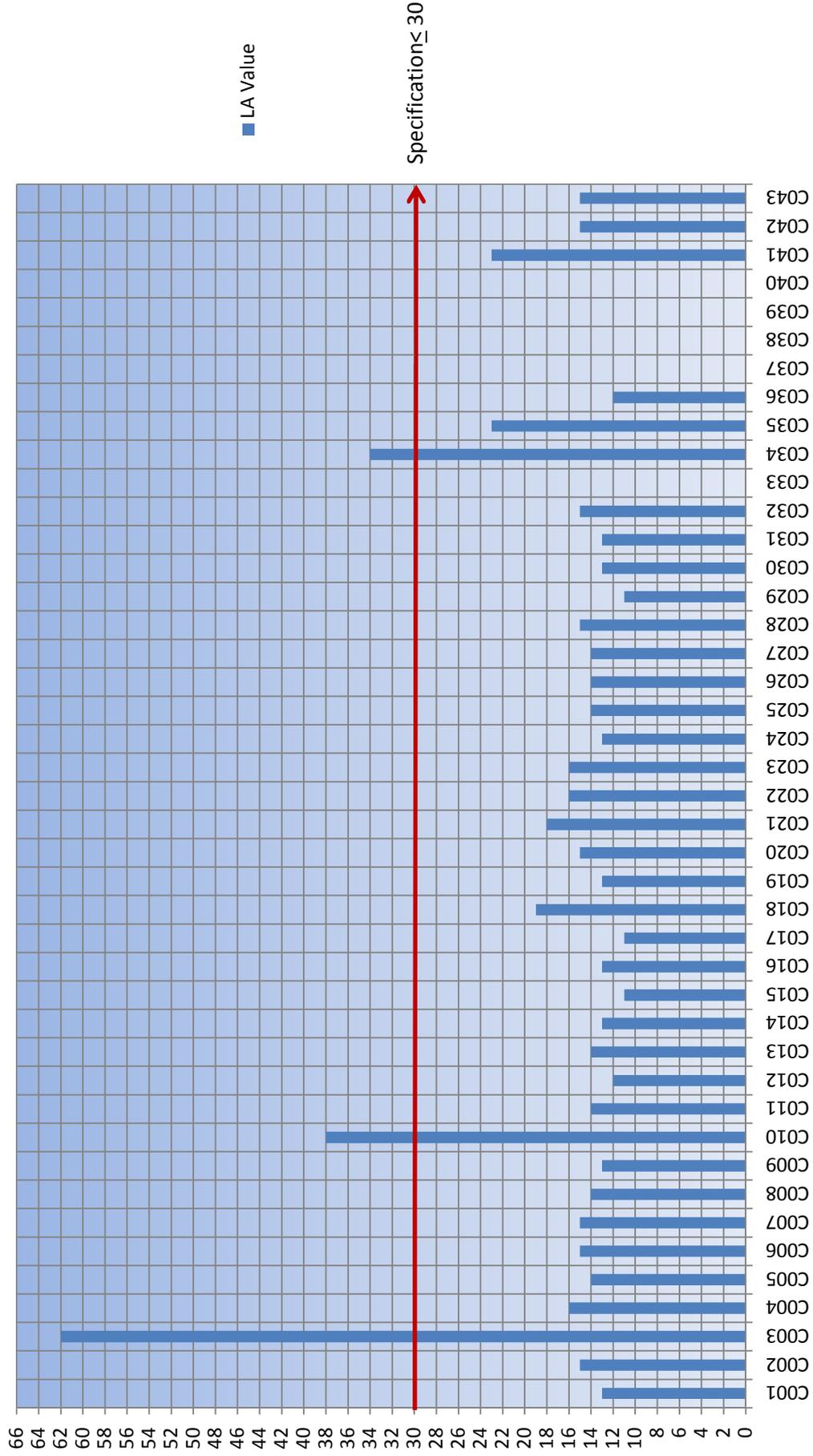
Project 120 - Bell Bay - Dolerite Water Absorption Fine (%) - All Results



Project 120 -Bell Bay - Dolerite Sodium Sulphate Soundness (%) - All Results

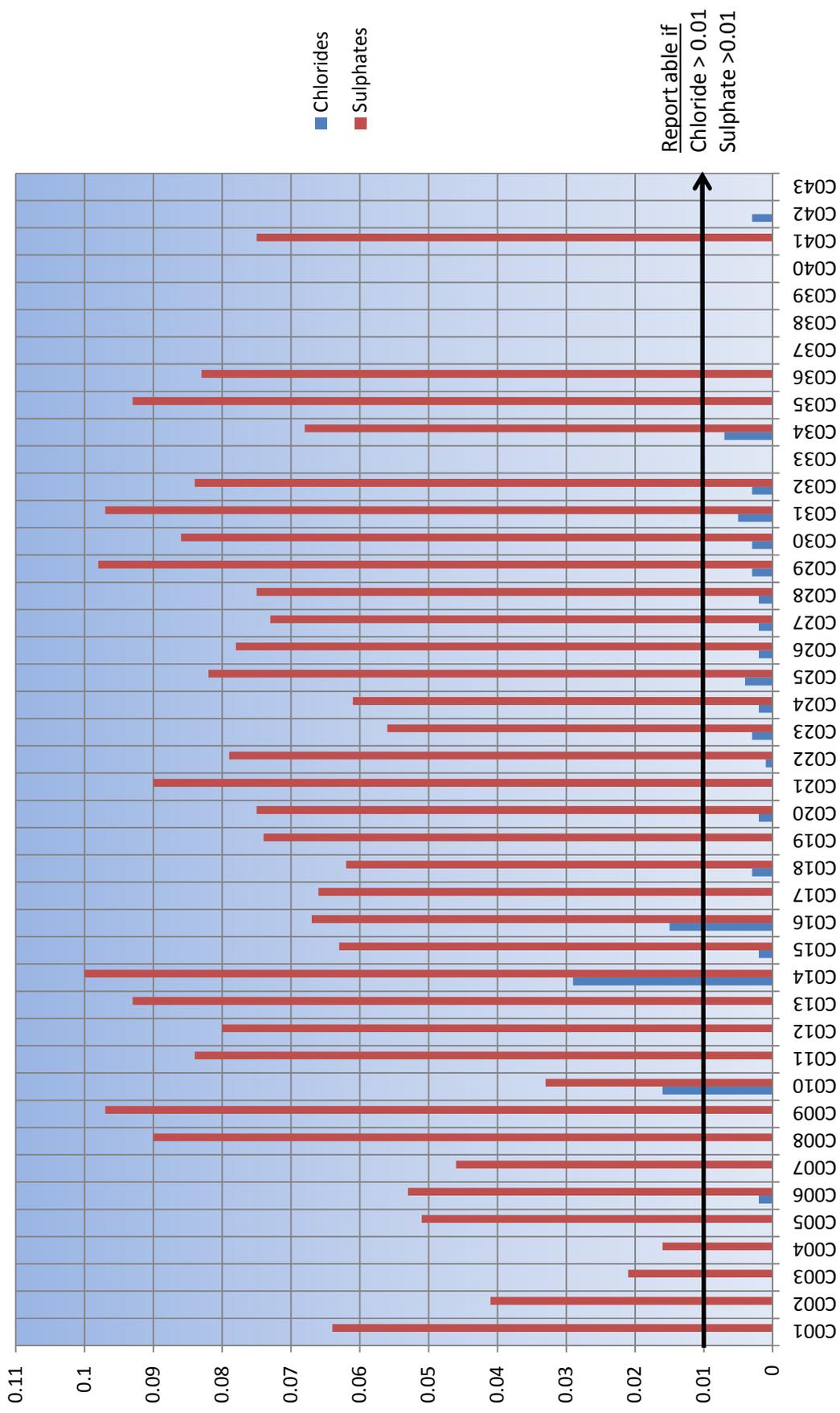


Project 120 - Bell Bay - Dolerite
LA Value (%) - All Results



Project 120 - Bell Bay - Dolerite

Chlorides & Sulphates (%) - All Results



Material Test Report

Report No: MAT:WARA10S-04366

Issue No: 4

This report replaces all previous issues of report no 'MAT:WARA10S-04366'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	INFOWARA00675AA		
Project Name:	Material Testing		
Lot No.:	-	TRN:	-

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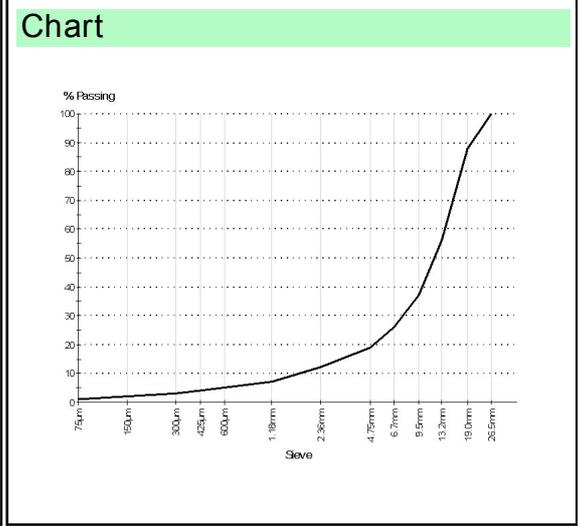
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04366
Field Sample:	00001
Date Sampled:	14/04/2010
Source:	BB
Material:	C001
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	88	
13.2mm	56	
9.5mm	37	
6.7mm	26	
4.75mm	19	
2.36mm	12	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	40	
Flat Particles (%)		31.5	
Elongated Particles (%)		8.3	
Flat & Elongated Particles (%)		0.4	
Calliper Ratio		2:1	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	3.9	
Loss 19.0 to 13.2 mm (%)		9.1	
Loss 13.2 to 9.5 mm (%)		7.3	
Loss 9.5 to 4.75 mm (%)		13.2	
Loss 4.75 to 2.36 mm (%)		20.9	
Total Weighted Loss (%)		9.8	
Los Angeles Value	AS 1141.23	13	
Test Grading		B	
Apparent Particle Density (t/m³)	AS 1141.5	2.79	
Particle Density Dry (t/m³)		2.44	
Particle Density SSD (t/m³)		2.57	
Water Absorption (%)		5.2	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		285	
Dry Strength (kN)		308	
Wet/Dry Strength Variation (%)		7	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.064	
Acid Soluble Chloride Cl ⁻ (%)		0.000	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-04366

Issue No: 4

This report replaces all previous issues of report no 'MAT:WARA10S-04366'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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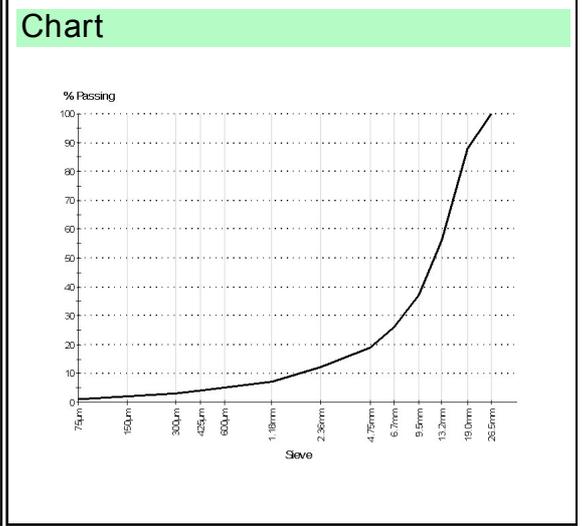
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04366
Field Sample:	00001
Date Sampled:	14/04/2010
Source:	BB
Material:	C001
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	88	
13.2mm	56	
9.5mm	37	
6.7mm	26	
4.75mm	19	
2.36mm	12	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.92	
Particle Density Dry (t/m³)		2.78	
Particle Density SSD (t/m³)		2.83	
Water Absorption (%)		1.7	
Finer 75µm (%)	AS 1141.12	3	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00848

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00848
Field Sample: 00001
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C001
WAR10S-04366

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-04367

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-04367'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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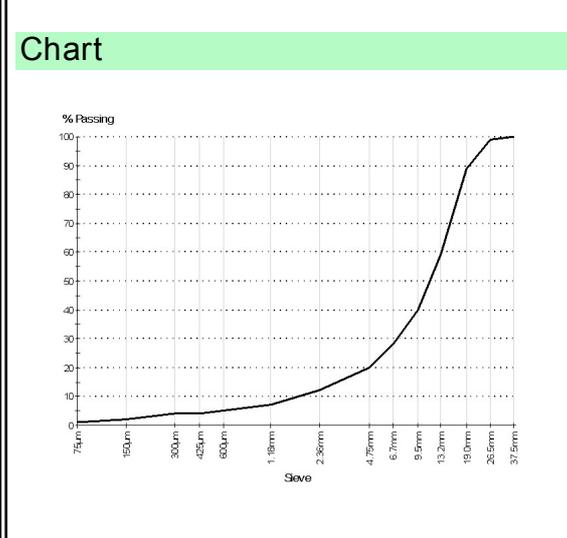
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04367
Field Sample:	00002
Date Sampled:	14/04/2010
Source:	BB
Material:	C002
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	89	
13.2mm	59	
9.5mm	40	
6.7mm	28	
4.75mm	20	
2.36mm	12	
1.18mm	7	
600µm	5	
425µm	4	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	1.5	
Loss 19.0 to 13.2 mm (%)		2.6	
Loss 13.2 to 9.5 mm (%)		6.0	
Loss 9.5 to 4.75 mm (%)		7.1	
Loss 4.75 to 2.36 mm (%)		9.8	
Total Weighted Loss (%)		4.9	
Los Angeles Value	AS 1141.23	15	
Test Grading		B	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.041	
Acid Soluble Chloride Cl- (%)		0.000	
Apparent Particle Density (t/m ³)	AS 1141.5	2.89	
Particle Density Dry (t/m ³)		2.64	
Particle Density SSD (t/m ³)		2.73	
Water Absorption (%)		3.2	
Misshapen Particles (%)	AS 1141.14	40	
Flat Particles (%)		27.1	
Elongated Particles (%)		9.9	
Flat & Elongated Particles (%)		3.0	
Calliper Ratio		2:1	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.90	
Particle Density Dry (t/m ³)		2.81	
Particle Density SSD (t/m ³)		2.84	
Water Absorption (%)		1.1	
Nominal Sample Size (mm)	AS 1141.22	30	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		263	
Dry Strength (kN)		368	
Wet/Dry Strength Variation (%)		28	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-04367

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-04367'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-04367
Field Sample:	00002
Date Sampled:	14/04/2010
Source:	BB
Material:	C002
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

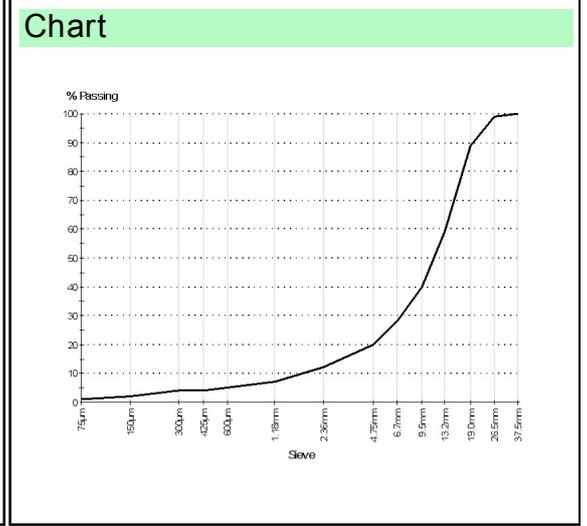
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	89	
13.2mm	59	
9.5mm	40	
6.7mm	28	
4.75mm	20	
2.36mm	12	
1.18mm	7	
600µm	5	
425µm	4	
300µm	4	
150µm	2	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Finer 75µm (%)	AS 1141.12	3	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00850

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00850
Field Sample: 00002
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C002
WARA10S-04367

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-04368

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-04368'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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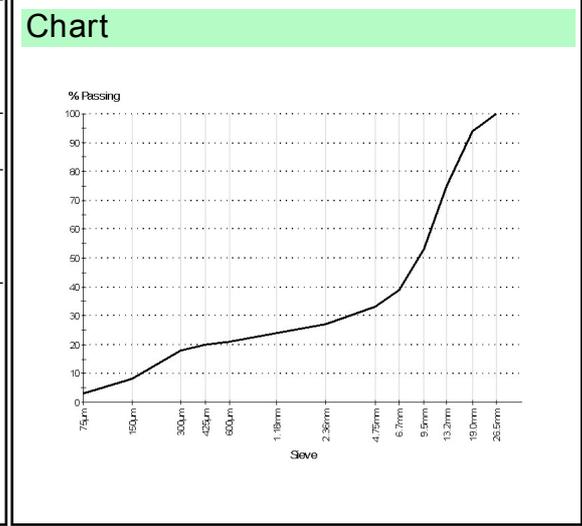
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04368
Field Sample:	00003
Date Sampled:	14/04/2010
Source:	BB
Material:	C003
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	75	
9.5mm	53	
6.7mm	39	
4.75mm	33	
2.36mm	27	
1.18mm	24	
600µm	21	
425µm	20	
300µm	18	
150µm	8	
75µm	3	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	95.5	
Loss 19.0 to 13.2 mm (%)		97.4	
Loss 13.2 to 9.5 mm (%)		93.6	
Total Weighted Loss (%)		0.0	
Los Angeles Value Test Grading	AS 1141.23	62 B	
Finer 75µm (%)	AS 1141.12	10	
Misshapen Particles (%)	AS 1141.14	32	
Flat Particles (%)		27.8	
Elongated Particles (%)		2.7	
Flat & Elongated Particles (%) Calliper Ratio		1.5 2:1	
Apparent Particle Density (t/m³)	AS 1141.5	2.75	
Particle Density Dry (t/m³)		2.32	
Particle Density SSD (t/m³)		2.47	
Water Absorption (%)		6.8	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.021	
Acid Soluble Chloride Cl ⁻ (%)		0.000	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.53	
Particle Density Dry (t/m³)		2.12	
Particle Density SSD (t/m³)		2.28	
Water Absorption (%)		7.5	



Comments

*Wet Dry not performed due to material breaking apart during moist curing period
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00851

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00851
Field Sample: 00003
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C003
WARA10S-04368

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	62	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-04369

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04369'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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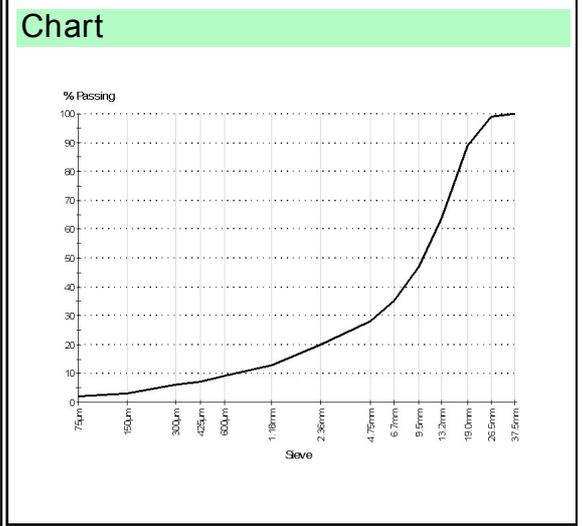
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04369
Field Sample:	00004
Date Sampled:	14/04/2010
Source:	BB
Material:	C004
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	89	
13.2mm	64	
9.5mm	47	
6.7mm	35	
4.75mm	28	
2.36mm	20	
1.18mm	13	
600µm	9	
425µm	7	
300µm	6	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.7	
Loss 19.0 to 13.2 mm (%)		3.2	
Loss 13.2 to 9.5 mm (%)		5.1	
Loss 9.5 to 4.75 mm (%)		8.6	
Loss 4.75 to 2.36 mm (%)		21.4	
Loss 2.36 to 1.18 mm (%)		16.3	
Total Weighted Loss (%)		7.5	
Los Angeles Value	AS 1141.23	16	
Test Grading		B	
Missshapen Particles (%)	AS 1141.14	28	
Flat Particles (%)		23.9	
Elongated Particles (%)		2.6	
Flat & Elongated Particles (%)		1.1	
Calliper Ratio		2:1	
Apparent Particle Density (t/m ³)	AS 1141.5	2.80	
Particle Density Dry (t/m ³)		2.32	
Particle Density SSD (t/m ³)		2.49	
Water Absorption (%)		7.3	
Nominal Sample Size (mm)	AS 1141.22	30	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		240	
Dry Strength (kN)		263	
Wet/Dry Strength Variation (%)		9	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.016	
Acid Soluble Chloride Cl- (%)		0.000	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-04369

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04369'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-04369
Field Sample:	00004
Date Sampled:	14/04/2010
Source:	BB
Material:	C004
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

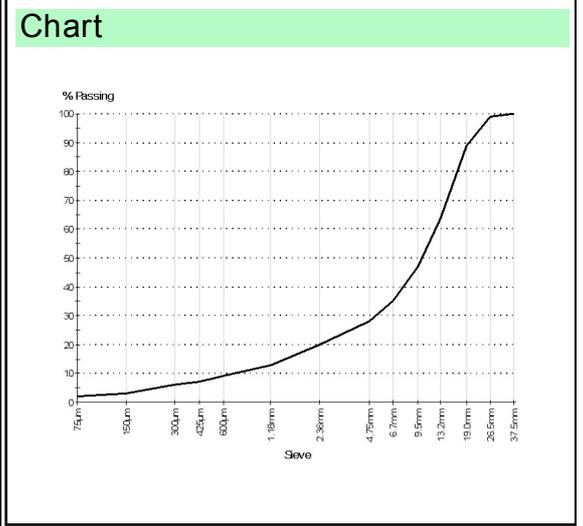
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	89	
13.2mm	64	
9.5mm	47	
6.7mm	35	
4.75mm	28	
2.36mm	20	
1.18mm	13	
600µm	9	
425µm	7	
300µm	6	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.92	
Particle Density Dry (t/m³)		2.83	
Particle Density SSD (t/m³)		2.86	
Water Absorption (%)		1.1	
Finer 75µm (%)	AS 1141.12	7	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00852

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00852
Field Sample: 00004
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C004
WARA10S-04369

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	16	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-04370

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04370'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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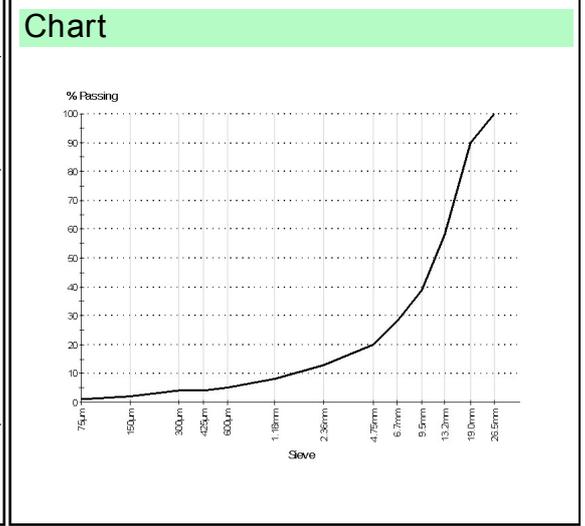
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04370
Field Sample:	00005
Date Sampled:	14/04/2010
Source:	BB
Material:	C005
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	90	
13.2mm	58	
9.5mm	39	
6.7mm	28	
4.75mm	20	
2.36mm	13	
1.18mm	8	
600µm	5	
425µm	4	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	1.9	
Loss 19.0 to 13.2 mm (%)		10.2	
Loss 13.2 to 9.5 mm (%)		15.9	
Loss 9.5 to 4.75 mm (%)		25.7	
Loss 4.75 to 2.36 mm (%)		40.9	
Total Weighted Loss (%)		16.3	
Los Angeles Value	AS 1141.23	14	
Test Grading		B	
Finer 75µm (%)	AS 1141.12	3	
Misshapen Particles (%)	AS 1141.14	32	
Flat Particles (%)		25.5	
Elongated Particles (%)		5.9	
Flat & Elongated Particles (%)		0.8	
Calliper Ratio		2:1	
Apparent Particle Density (t/m³)	AS 1141.5	3.19	
Particle Density Dry (t/m³)		2.59	
Particle Density SSD (t/m³)		2.78	
Water Absorption (%)		7.2	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		160	
Dry Strength (kN)		274	
Wet/Dry Strength Variation (%)		42	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.051	
Acid Soluble Chloride Cl- (%)		0.000	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-04370

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04370'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-04370
Field Sample:	00005
Date Sampled:	14/04/2010
Source:	BB
Material:	C005
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

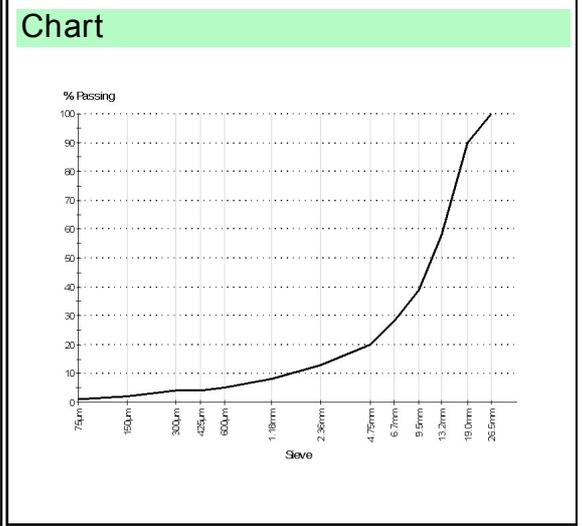
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	90	
13.2mm	58	
9.5mm	39	
6.7mm	28	
4.75mm	20	
2.36mm	13	
1.18mm	8	
600µm	5	
425µm	4	
300µm	4	
150µm	2	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.83	
Particle Density Dry (t/m³)		2.70	
Particle Density SSD (t/m³)		2.75	
Water Absorption (%)		1.6	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00853

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00853
Field Sample: 00005
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C005
WARA10S-04370

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-04371

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04371'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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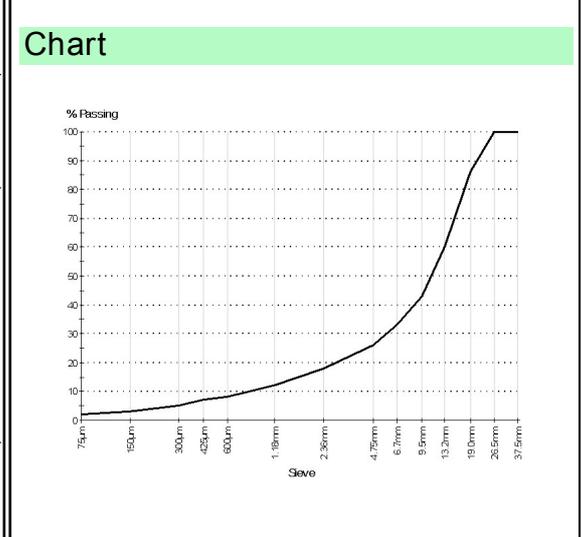
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04371
Field Sample:	00006
Date Sampled:	14/04/2010
Source:	BB
Material:	C006
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	100	
19.0mm	86	
13.2mm	60	
9.5mm	43	
6.7mm	33	
4.75mm	26	
2.36mm	18	
1.18mm	12	
600µm	8	
425µm	7	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	1.8	
Loss 19.0 to 13.2 mm (%)		7.0	
Loss 13.2 to 9.5 mm (%)		6.7	
Loss 9.5 to 4.75 mm (%)		9.5	
Loss 4.75 to 2.36 mm (%)		8.5	
Total Weighted Loss (%)		6.7	
Los Angeles Value	AS 1141.23	15	
Test Grading		B	
Finer 75µm (%)	AS 1141.12	8	
Missshapen Particles (%)	AS 1141.14	34	
Flat Particles (%)		24.8	
Elongated Particles (%)		7.6	
Flat & Elongated Particles (%)		1.8	
Calliper Ratio		2:1	
Apparent Particle Density (t/m³)	AS 1141.5	3.01	
Particle Density Dry (t/m³)		2.31	
Particle Density SSD (t/m³)		2.54	
Water Absorption (%)		10.0	
Nominal Sample Size (mm)	AS 1141.22	30	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		225	
Dry Strength (kN)		259	
Wet/Dry Strength Variation (%)		13	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.053	
Acid Soluble Chloride Cl- (%)		0.002	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-04371

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04371'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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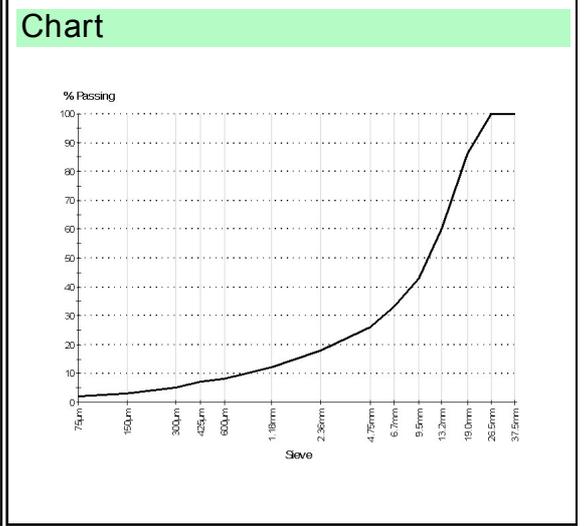
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04371
Field Sample:	00006
Date Sampled:	14/04/2010
Source:	BB
Material:	C006
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	100	
19.0mm	86	
13.2mm	60	
9.5mm	43	
6.7mm	33	
4.75mm	26	
2.36mm	18	
1.18mm	12	
600µm	8	
425µm	7	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.90	
Particle Density Dry (t/m ³)		2.78	
Particle Density SSD (t/m ³)		2.82	
Water Absorption (%)		1.5	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00854

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00854
Field Sample: 00006
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C006
WARA10S-04371

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-04372

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04372'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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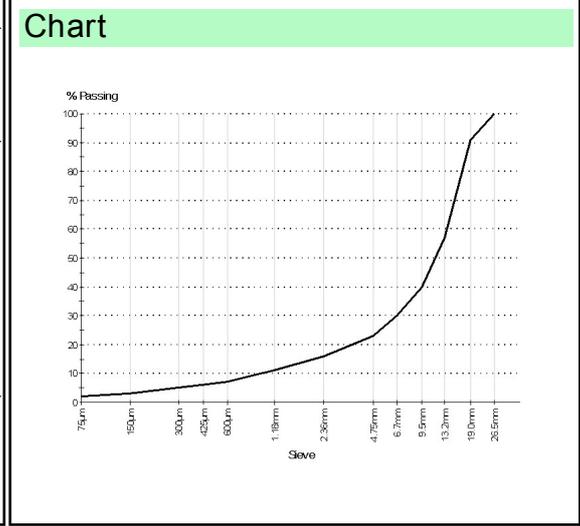
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-04372
Field Sample:	00007
Date Sampled:	14/04/2010
Source:	BB
Material:	C007
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	91	
13.2mm	57	
9.5mm	40	
6.7mm	30	
4.75mm	23	
2.36mm	16	
1.18mm	11	
600µm	7	
425µm	6	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	3.1	
Loss 19.0 to 13.2 mm (%)		5.7	
Loss 13.2 to 9.5 mm (%)		13.4	
Loss 9.5 to 4.75 mm (%)		13.6	
Total Weighted Loss (%)		0.0	
Los Angeles Value	AS 1141.23	15	
Test Grading		B	
Finer 75µm (%)	AS 1141.12	5	
Misshapen Particles (%)	AS 1141.14	21	
Flat Particles (%)		17.6	
Elongated Particles (%)		3.6	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Apparent Particle Density (t/m³)	AS 1141.5	2.81	
Particle Density Dry (t/m³)		2.40	
Particle Density SSD (t/m³)		2.54	
Water Absorption (%)		6.1	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		283	
Dry Strength (kN)		338	
Wet/Dry Strength Variation (%)		16	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.046	
Acid Soluble Chloride Cl ⁻ (%)		0.000	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-04372

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-04372'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-04372
Field Sample:	00007
Date Sampled:	14/04/2010
Source:	BB
Material:	C007
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

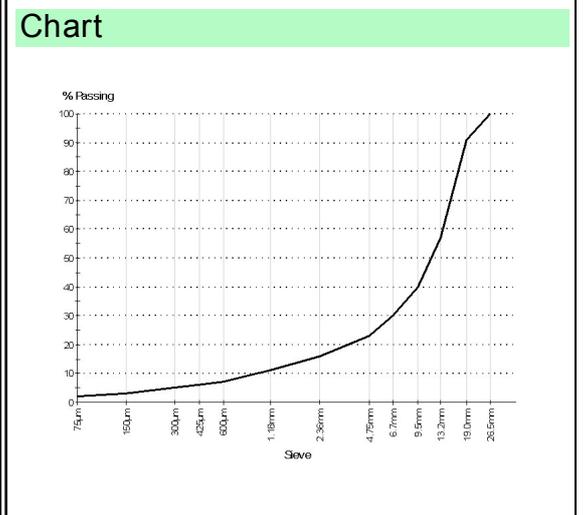
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	91	
13.2mm	57	
9.5mm	40	
6.7mm	30	
4.75mm	23	
2.36mm	16	
1.18mm	11	
600µm	7	
425µm	6	
300µm	5	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.90	
Particle Density Dry (t/m³)		2.78	
Particle Density SSD (t/m³)		2.82	
Water Absorption (%)		1.5	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00855

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 10/05/2010

Sample Details

Sample ID: NEWS10S-00855
Field Sample: 00007
Date Sampled: 14/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C007
WARA10S-04372

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05273

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05273'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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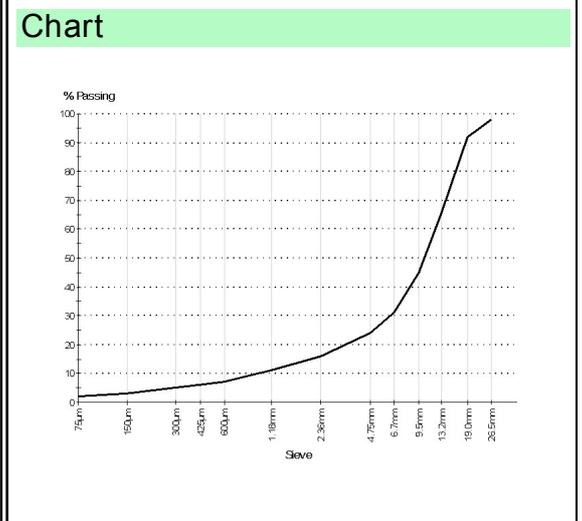
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05273
Field Sample:	00004
Date Sampled:	30/04/2010
Source:	BB
Material:	C008
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	98	
19.0mm	92	
13.2mm	66	
9.5mm	45	
6.7mm	31	
4.75mm	24	
2.36mm	16	
1.18mm	11	
600µm	7	
425µm	6	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	40	
Flat Particles (%)		25.3	
Elongated Particles (%)		13.8	
Flat & Elongated Particles (%)		1.2	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	
Nominal Sample Size (mm)	AS 1141.22	30	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		257	
Dry Strength (kN)		307	
Wet/Dry Strength Variation (%)		16	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	1.7	
Loss 19.0 to 13.2 mm (%)		2.5	
Loss 13.2 to 9.5 mm (%)		3.3	
Loss 9.5 to 4.75 mm (%)		5.0	
Loss 4.75 to 2.36 mm (%)		7.7	
Loss 2.36 to 1.18 mm (%)		8.9	
Total Weighted Loss (%)		4.1	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.97	
Particle Density Dry (t/m ³)		2.90	
Particle Density SSD (t/m ³)		2.92	
Water Absorption (%)		0.8	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05273

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05273'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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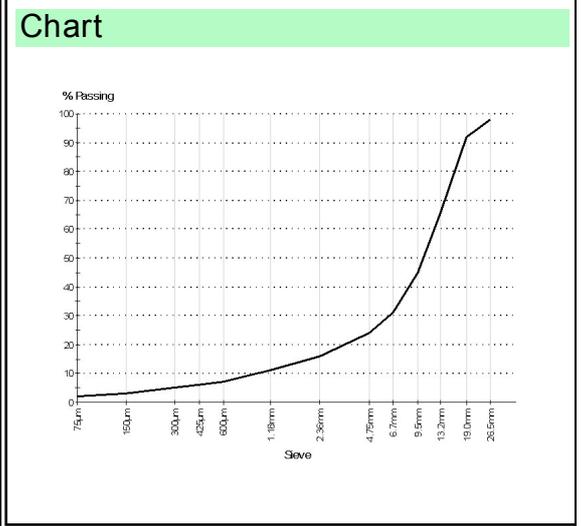
Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05273
Field Sample:	00004
Date Sampled:	30/04/2010
Source:	BB
Material:	C008
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution	
Method:	AS 1141.11.1
Drying by:	Oven
Note:	Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	98	
19.0mm	92	
13.2mm	66	
9.5mm	45	
6.7mm	31	
4.75mm	24	
2.36mm	16	
1.18mm	11	
600µm	7	
425µm	6	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	2.84	
Particle Density Dry (t/m³)		2.70	
Particle Density SSD (t/m³)		2.75	
Water Absorption (%)		1.9	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.090	
Acid Soluble Chloride Cl ⁻ (%)		0.000	
Finer 75µm (%)	AS 1141.12	4	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01000

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 26/05/2010

Sample Details

Sample ID: NEWS10S-01000
Field Sample: 00011
Date Sampled: 30/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C008
WARA10S-05273

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05274

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05274'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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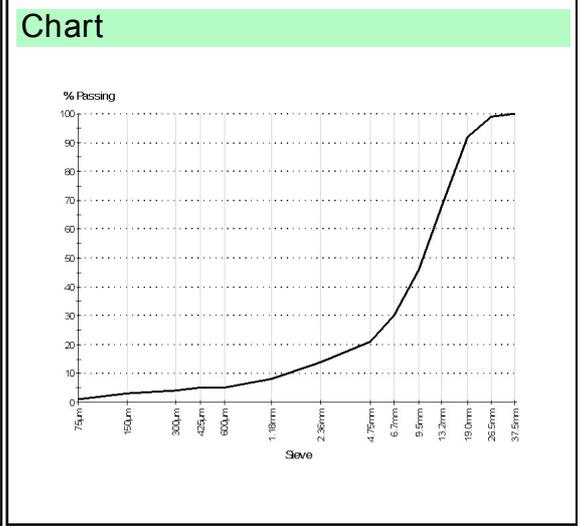
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05274
Field Sample:	00005
Date Sampled:	30/04/2010
Source:	BB
Material:	C009
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	92	
13.2mm	68	
9.5mm	46	
6.7mm	30	
4.75mm	21	
2.36mm	14	
1.18mm	8	
600µm	5	
425µm	5	
300µm	4	
150µm	3	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.097	
Acid Soluble Chloride Cl- (%)		0.000	
Misshapen Particles (%)	AS 1141.14	33	
Flat Particles (%)		20.8	
Elongated Particles (%)		8.8	
Flat & Elongated Particles (%)		2.9	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	
Nominal Sample Size (mm)	AS 1141.22	19	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		270	
Dry Strength (kN)		305	
Wet/Dry Strength Variation (%)		12	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	7.0	
Loss 19.0 to 13.2 mm (%)		2.4	
Loss 13.2 to 9.5 mm (%)		2.3	
Loss 9.5 to 4.75 mm (%)		2.2	
Loss 4.75 to 2.36 mm (%)		2.7	
Loss 2.36 to 1.18 mm (%)		8.0	
Total Weighted Loss (%)		3.1	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.99	
Particle Density Dry (t/m ³)		2.95	
Particle Density SSD (t/m ³)		2.96	
Water Absorption (%)		0.5	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05274

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05274'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: LABTWARA00513AA

Project Name: Material Testing - Sydney

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-05274
Field Sample:	00005
Date Sampled:	30/04/2010
Source:	BB
Material:	C009
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

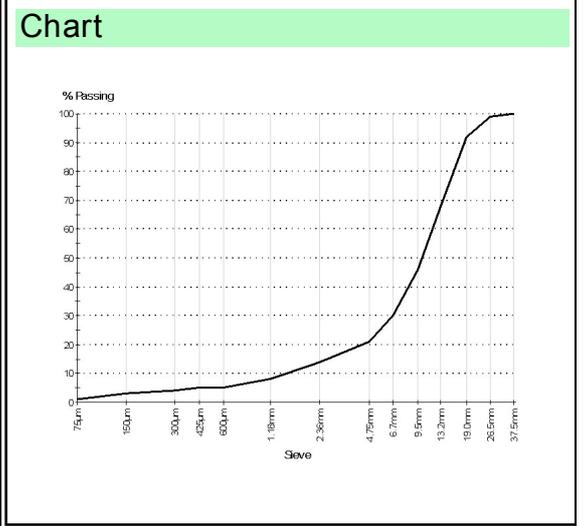
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	92	
13.2mm	68	
9.5mm	46	
6.7mm	30	
4.75mm	21	
2.36mm	14	
1.18mm	8	
600µm	5	
425µm	5	
300µm	4	
150µm	3	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	2.90	
Particle Density Dry (t/m³)		2.78	
Particle Density SSD (t/m³)		2.82	
Water Absorption (%)		1.5	
Finer 75µm (%)	AS 1141.12	1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01001

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 26/05/2010

Sample Details

Sample ID: NEWS10S-01001
Field Sample: 00012
Date Sampled: 30/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C009
WARA10S-05274

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05275

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05275'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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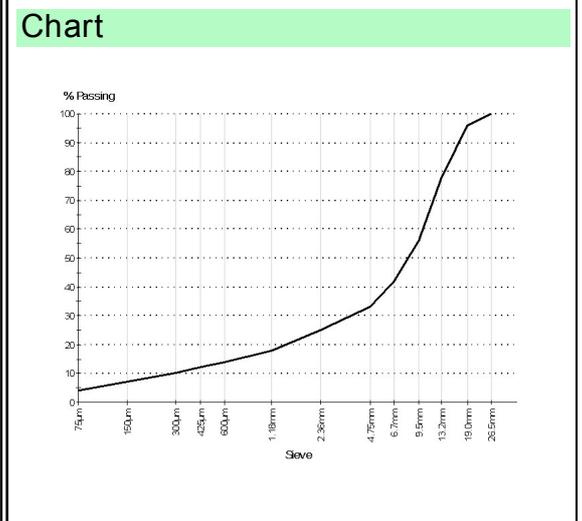
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05275
Field Sample:	00006
Date Sampled:	30/04/2010
Source:	BB
Material:	C010
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	78	
9.5mm	56	
6.7mm	42	
4.75mm	33	
2.36mm	25	
1.18mm	18	
600µm	14	
425µm	12	
300µm	10	
150µm	7	
75µm	4	

Other Test Results			
Description	Method	Result	Limits
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.033	
Acid Soluble Chloride Cl ⁻ (%)		0.016	
Misshapen Particles (%)	AS 1141.14	12	
Flat Particles (%)		9.0	
Elongated Particles (%)		3.2	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	38	
Test Grading		B-25	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		10	
Dry Strength (kN)		77	
Wet/Dry Strength Variation (%)		87	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Loss 19.0 to 13.2 mm (%)	AS 1141.24	32.2	
Loss 13.2 to 9.5 mm (%)		26.4	
Loss 9.5 to 4.75 mm (%)		38.4	
Loss 4.75 to 2.36 mm (%)		52.4	
Loss 2.36 to 1.18 mm (%)		57.7	
Total Weighted Loss (%)		36.8	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.61	
Particle Density Dry (t/m ³)		2.25	
Particle Density SSD (t/m ³)		2.39	
Water Absorption (%)		6.2	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05275

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05275'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	LABTWARA00513AA
Project Name:	Material Testing - Sydney
Lot No.:	-
TRN:	-

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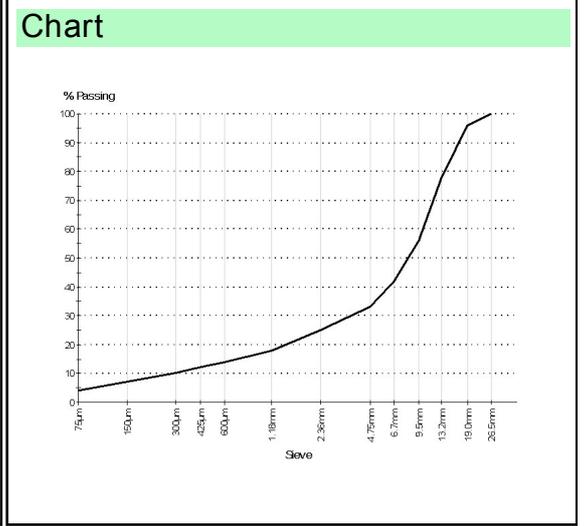
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05275
Field Sample:	00006
Date Sampled:	30/04/2010
Source:	BB
Material:	C010
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	78	
9.5mm	56	
6.7mm	42	
4.75mm	33	
2.36mm	25	
1.18mm	18	
600µm	14	
425µm	12	
300µm	10	
150µm	7	
75µm	4	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	3.00	
Particle Density Dry (t/m³)		2.29	
Particle Density SSD (t/m³)		2.53	
Water Absorption (%)		10.3	
Finer 75µm (%)	AS 1141.12	7	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01002

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number: 431
Date of Issue: 26/05/2010

Sample Details

Sample ID: NEWS10S-01002
Field Sample: 00013
Date Sampled: 30/04/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C010
WARA10S-05275

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	38	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05276

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05276'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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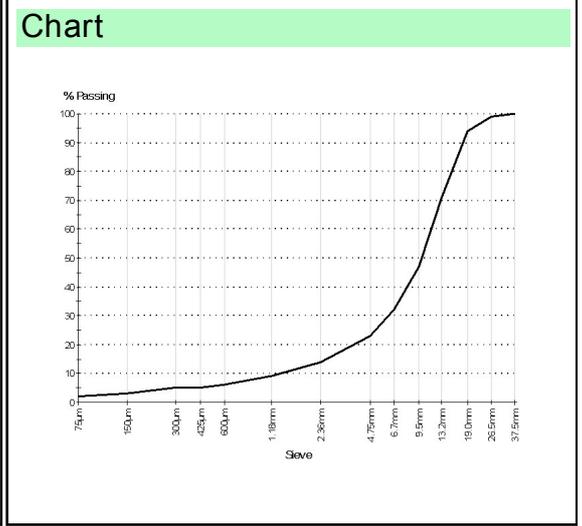
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05276
Field Sample:	00007
Date Sampled:	30/04/2010
Source:	BB
Material:	C011
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	94	
13.2mm	71	
9.5mm	47	
6.7mm	32	
4.75mm	23	
2.36mm	14	
1.18mm	9	
600µm	6	
425µm	5	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.084	
Acid Soluble Chloride Cl- (%)		0.000	
Misshapen Particles (%)	AS 1141.14	18	
Flat Particles (%)		14.6	
Elongated Particles (%)		2.9	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	
Nominal Sample Size (mm)	AS 1141.22	19	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		267	
Dry Strength (kN)		326	
Wet/Dry Strength Variation (%)		18	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.4	
Loss 19.0 to 13.2 mm (%)		1.0	
Loss 13.2 to 9.5 mm (%)		0.9	
Loss 9.5 to 4.75 mm (%)		1.5	
Loss 4.75 to 2.36 mm (%)		2.2	
Loss 2.36 to 1.18 mm (%)		2.8	
Total Weighted Loss (%)		1.4	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.95	
Particle Density Dry (t/m ³)		2.89	
Particle Density SSD (t/m ³)		2.91	
Water Absorption (%)		0.7	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05276

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05276'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: LABTWARA00513AA

Project Name: Material Testing - Sydney

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-05276
Field Sample:	00007
Date Sampled:	30/04/2010
Source:	BB
Material:	C011
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

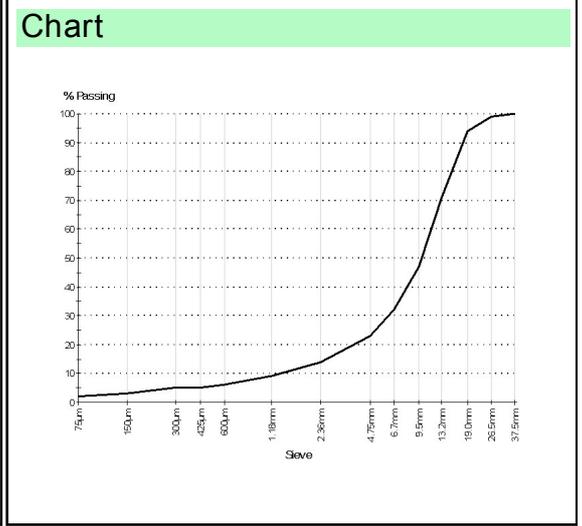
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	94	
13.2mm	71	
9.5mm	47	
6.7mm	32	
4.75mm	23	
2.36mm	14	
1.18mm	9	
600µm	6	
425µm	5	
300µm	5	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	3.32	
Particle Density Dry (t/m³)		3.08	
Particle Density SSD (t/m³)		3.15	
Water Absorption (%)		2.4	
Finer 75µm (%)	AS 1141.12	3	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00924

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/05/2010

Sample Details

Sample ID: NEWS10S-00924
Field Sample: 00008
Date Sampled: 10/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C011
WARA10S-05276

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05277

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05277'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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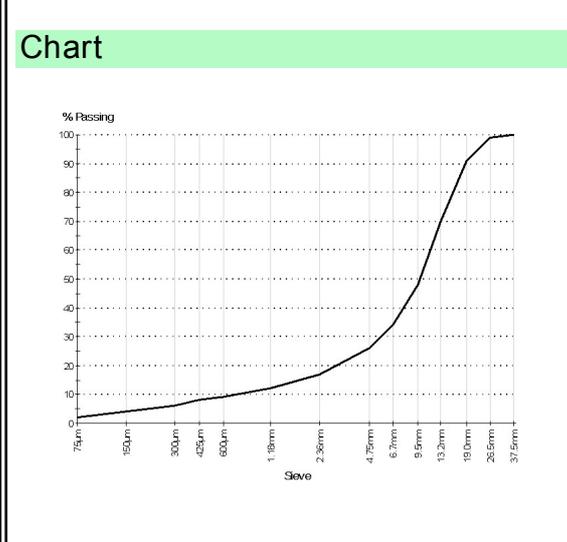
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05277
Field Sample:	00008
Date Sampled:	30/04/2010
Source:	BB
Material:	C012
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	91	
13.2mm	70	
9.5mm	48	
6.7mm	34	
4.75mm	26	
2.36mm	17	
1.18mm	12	
600µm	9	
425µm	8	
300µm	6	
150µm	4	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.080	
Acid Soluble Chloride Cl- (%)		0.000	
Misshapen Particles (%)	AS 1141.14	29	
Flat Particles (%)		20.1	
Elongated Particles (%)		7.8	
Flat & Elongated Particles (%)		1.1	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	12	
Test Grading		B-25	
Nominal Sample Size (mm)	AS 1141.22	19	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		220	
Dry Strength (kN)		284	
Wet/Dry Strength Variation (%)		23	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	5.5	
Loss 19.0 to 13.2 mm (%)		2.7	
Loss 13.2 to 9.5 mm (%)		4.3	
Loss 9.5 to 4.75 mm (%)		7.4	
Loss 4.75 to 2.36 mm (%)		9.5	
Loss 2.36 to 1.18 mm (%)		7.7	
Total Weighted Loss (%)		5.5	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.95	
Particle Density Dry (t/m ³)		2.85	
Particle Density SSD (t/m ³)		2.88	
Water Absorption (%)		1.1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05277

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05277'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: LABTWARA00513AA

Project Name: Material Testing - Sydney

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID: WARA10S-05277
Field Sample: 00008
Date Sampled: 30/04/2010
Source: BB
Material: C012
Specification: As Directed By Client
Sampling Method: Submitted by Client
Project Location: 120
Sample Location: On Site

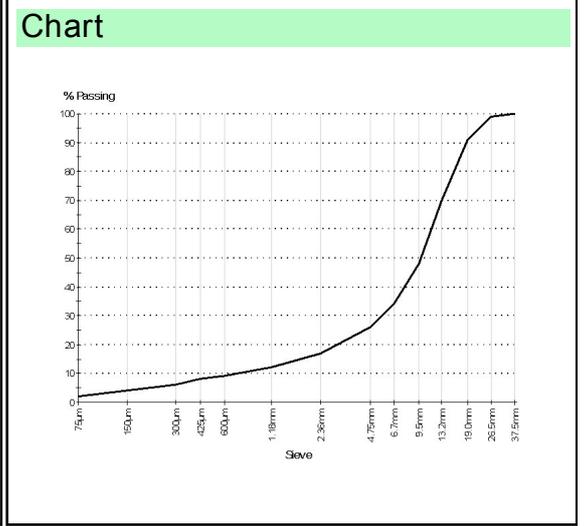
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	99	
19.0mm	91	
13.2mm	70	
9.5mm	48	
6.7mm	34	
4.75mm	26	
2.36mm	17	
1.18mm	12	
600µm	9	
425µm	8	
300µm	6	
150µm	4	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	2.90	
Particle Density Dry (t/m³)		2.67	
Particle Density SSD (t/m³)		2.75	
Water Absorption (%)		3.0	
Finer 75µm (%)	AS 1141.12	3	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00925

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/05/2010

Sample Details

Sample ID: NEWS10S-00925
Field Sample: 00009
Date Sampled: 10/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C012
WARA10S-05277

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	12	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05278

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05278'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	LABTWARA00513AA		
Project Name:	Material Testing - Sydney		
Lot No.:	-	TRN:	-

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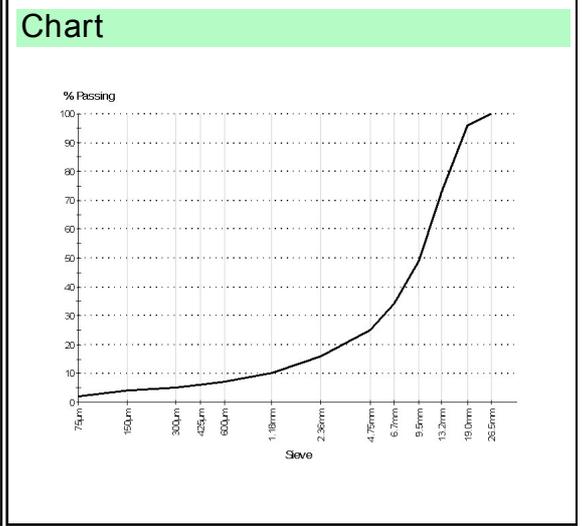
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05278
Field Sample:	00009
Date Sampled:	30/04/2010
Source:	BB
Material:	C013
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	73	
9.5mm	49	
6.7mm	34	
4.75mm	25	
2.36mm	16	
1.18mm	10	
600µm	7	
425µm	6	
300µm	5	
150µm	4	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.093	
Acid Soluble Chloride Cl ⁻ (%)		0.000	
Misshapen Particles (%)	AS 1141.14	13	
Flat Particles (%)		10.9	
Elongated Particles (%)		1.7	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	
Nominal Sample Size (mm)	AS 1141.22	19	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		273	
Dry Strength (kN)		276	
Wet/Dry Strength Variation (%)		1	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Loss 19.0 to 13.2 mm (%)	AS 1141.24	0.2	
Loss 13.2 to 9.5 mm (%)		0.9	
Loss 9.5 to 4.75 mm (%)		0.7	
Loss 4.75 to 2.36 mm (%)		1.1	
Loss 2.36 to 1.18 mm (%)		1.9	
Total Weighted Loss (%)		0.7	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.95	
Particle Density Dry (t/m ³)		2.90	
Particle Density SSD (t/m ³)		2.92	
Water Absorption (%)		0.6	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05278

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05278'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: LABTWARA00513AA

Project Name: Material Testing - Sydney

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-05278
Field Sample:	00009
Date Sampled:	30/04/2010
Source:	BB
Material:	C013
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

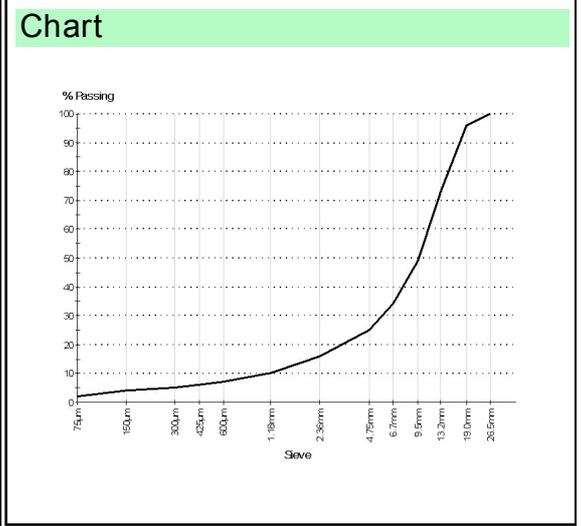
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	73	
9.5mm	49	
6.7mm	34	
4.75mm	25	
2.36mm	16	
1.18mm	10	
600µm	7	
425µm	6	
300µm	5	
150µm	4	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	2.28	
Particle Density Dry (t/m³)		2.24	
Particle Density SSD (t/m³)		2.26	
Water Absorption (%)		0.9	
Finer 75µm (%)	AS 1141.12	2	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-00926

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/05/2010

Sample Details

Sample ID: NEWS10S-00926
Field Sample: 00010
Date Sampled: 10/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: C013
WARA10S-05278

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05924

Issue No: 4

This report replaces all previous issues of report no 'MAT:WARA10S-05924'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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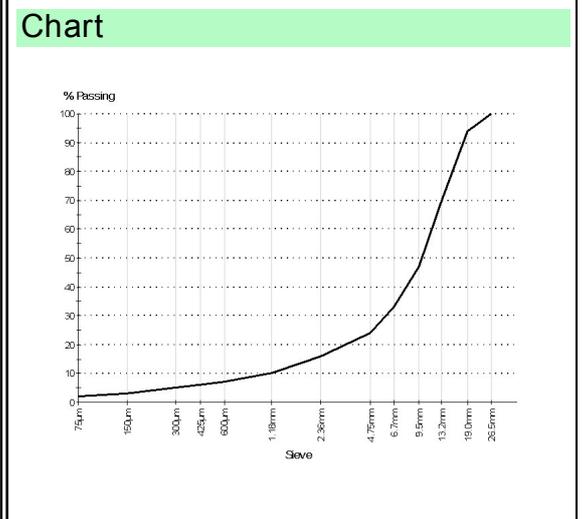
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 1/09/2010

Sample Details	
Sample ID:	WARA10S-05924
Field Sample:	00008
Date Sampled:	10/05/2010
Source:	BB
Material:	C014
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	70	
9.5mm	47	
6.7mm	33	
4.75mm	24	
2.36mm	16	
1.18mm	10	
600µm	7	
425µm	6	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	33	
Flat Particles (%)		28.5	
Elongated Particles (%)		4.5	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.100	
Acid Soluble Chloride Cl ⁻ (%)		0.029	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.81	
Particle Density Dry (t/m ³)		2.70	
Particle Density SSD (t/m ³)		2.74	
Water Absorption (%)		1.5	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.3	
Loss 19.0 to 13.2 mm (%)		1.5	
Loss 13.2 to 9.5 mm (%)		3.9	
Loss 9.5 to 4.75 mm (%)		2.8	
Loss 4.75 to 2.36 mm (%)		5.4	
Loss 2.36 to 1.18 mm (%)		8.4	
Total Weighted Loss (%)		3.4	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		239	
Dry Strength (kN)		294	
Wet/Dry Strength Variation (%)		19	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05924

Issue No: 4

This report replaces all previous issues of report no 'MAT:WARA10S-05924'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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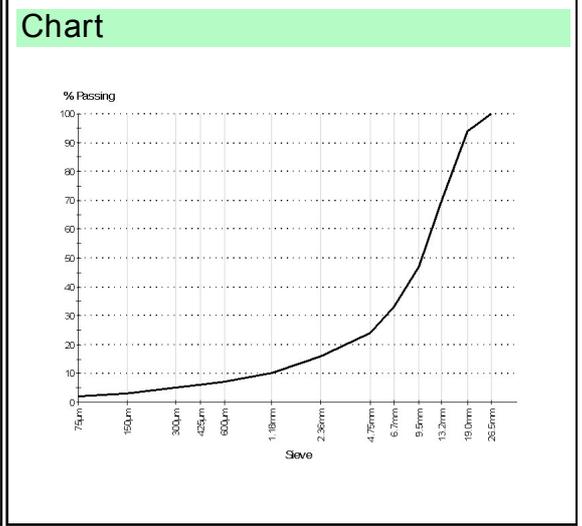
Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 1/09/2010

Sample Details	
Sample ID:	WARA10S-05924
Field Sample:	00008
Date Sampled:	10/05/2010
Source:	BB
Material:	C014
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution	
Method:	AS 1141.11.1
Drying by:	Oven
Note:	Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	70	
9.5mm	47	
6.7mm	33	
4.75mm	24	
2.36mm	16	
1.18mm	10	
600µm	7	
425µm	6	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	2.93	
Particle Density Dry (t/m³)		2.84	
Particle Density SSD (t/m³)		2.87	
Water Absorption (%)		1.1	
Finer 75µm (%)	AS 1141.12	3	
Los Angeles Value Test Grading	AS 1141.23	13	B-25



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01172

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 10/06/2010

Sample Details

Sample ID: NEWS10S-01172
Field Sample: 00026
Date Sampled: 11/05/2010
Source: Supplied
Material: Half Drill Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO14
WARA10S-05924

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value Test Grading	AS 1141.23	13 B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01087

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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Adam Crawford
Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details

Sample ID: COFH10S-01087
Client Sample: 10S05924
Date Sampled: 11/05/2010
Source: Not Specified
Material: Natural
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Material Testing - Georgetown, Tasmania
Sample Location: C014 1.8 - 8.8

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		239	
Dry Strength (kN)		294	
Wet/Dry Strength Variation (%)		19	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		Yes	
Amount of significant breakdown		-	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05925

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05925'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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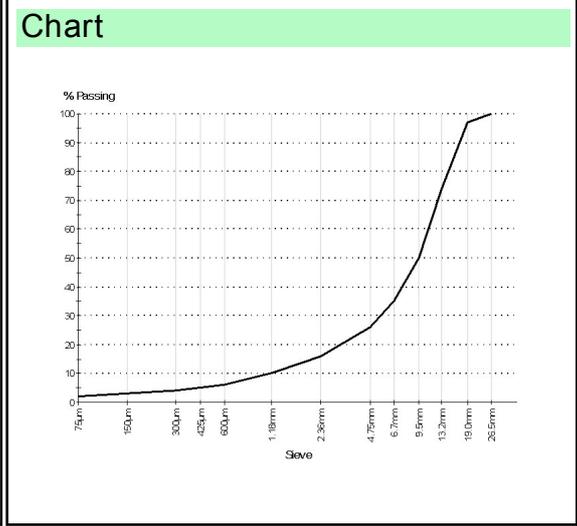
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05925
Field Sample:	00009
Date Sampled:	10/05/2010
Source:	BB
Material:	C015
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	97	
13.2mm	74	
9.5mm	50	
6.7mm	35	
4.75mm	26	
2.36mm	16	
1.18mm	10	
600µm	6	
425µm	5	
300µm	4	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	26	
Flat Particles (%)		16.6	
Elongated Particles (%)		8.0	
Flat & Elongated Particles (%)		1.8	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	11	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.063	
Acid Soluble Chloride Cl- (%)		0.002	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.87	
Particle Density Dry (t/m ³)		2.79	
Particle Density SSD (t/m ³)		2.82	
Water Absorption (%)		0.9	
Loss 19.0 to 13.2 mm (%)	AS 1141.24	1.0	
Loss 13.2 to 9.5 mm (%)		1.1	
Loss 9.5 to 4.75 mm (%)		1.2	
Loss 4.75 to 2.36 mm (%)		1.4	
Loss 2.36 to 1.18 mm (%)		2.4	
Total Weighted Loss (%)		1.2	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		237	
Dry Strength (kN)		255	
Wet/Dry Strength Variation (%)		7	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05925

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05925'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-05925
Field Sample:	00009
Date Sampled:	10/05/2010
Source:	BB
Material:	C015
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

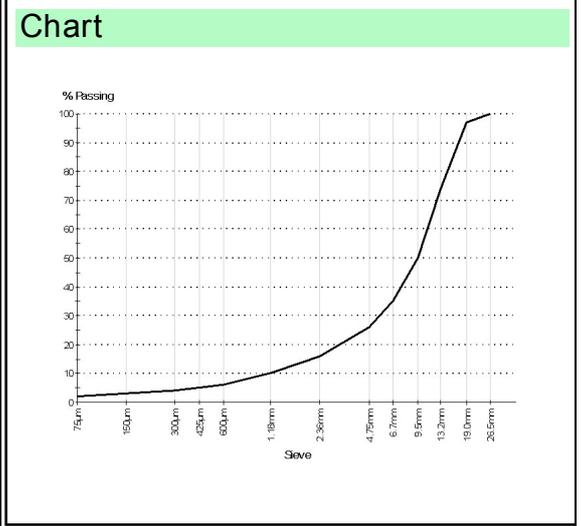
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	97	
13.2mm	74	
9.5mm	50	
6.7mm	35	
4.75mm	26	
2.36mm	16	
1.18mm	10	
600µm	6	
425µm	5	
300µm	4	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Apparent Particle Density (t/m³)	AS 1141.5	2.85	
Particle Density Dry (t/m³)		2.73	
Particle Density SSD (t/m³)		2.77	
Water Absorption (%)		1.6	
Finer 75µm (%)	AS 1141.12	3	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01173

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 10/06/2010

Sample Details

Sample ID: NEWS10S-01173
Field Sample: 00027
Date Sampled: 11/05/2010
Source: Supplied
Material: Half Drill Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO15
WARA10S-05925

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	11	
Test Grading		B-25	

Chart

Comments

N/A

Report No: MAT:COFH10S-01088

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:

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Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details

Sample ID: COFH10S-01088
Client Sample: 10S05925
Date Sampled: 11/05/2010
Source: Not Specified
Material: Natural
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Material Testing - Georgetown, Tasmania
Sample Location: C015 1.9 - 9.9

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		237	
Dry Strength (kN)		255	
Wet/Dry Strength Variation (%)		7	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		Yes	
Amount of significant breakdown		-	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05926

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05926'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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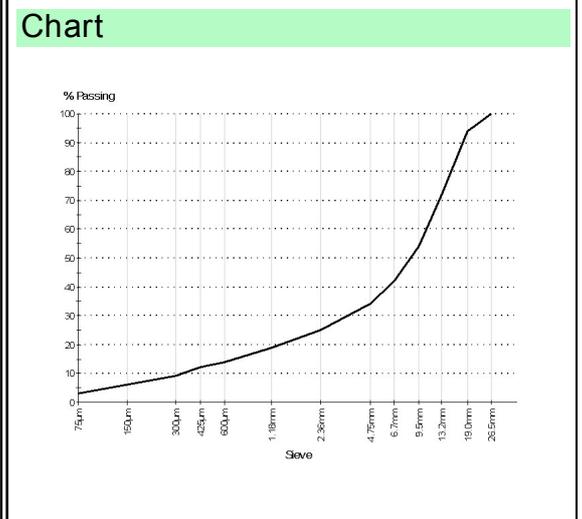
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05926
Field Sample:	00010
Date Sampled:	10/05/2010
Source:	BB
Material:	C016
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	72	
9.5mm	54	
6.7mm	42	
4.75mm	34	
2.36mm	25	
1.18mm	19	
600µm	14	
425µm	12	
300µm	9	
150µm	6	
75µm	3	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.067	
Acid Soluble Chloride Cl- (%)		0.015	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.83	
Particle Density Dry (t/m ³)		2.43	
Particle Density SSD (t/m ³)		2.57	
Water Absorption (%)		5.7	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	5.6	
Loss 19.0 to 13.2 mm (%)		6.3	
Loss 13.2 to 9.5 mm (%)		12.6	
Loss 9.5 to 4.75 mm (%)		16.8	
Loss 4.75 to 2.36 mm (%)		26.1	
Loss 2.36 to 1.18 mm (%)		43.3	
Loss 1.18 to 0.600 mm (%)		49.9	
Loss 0.600 to 0.300 mm (%)		39.9	
Total Weighted Loss (%)		18.5	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		193	
Dry Strength (kN)		307	
Wet/Dry Strength Variation (%)		37	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.76	
Particle Density Dry (t/m ³)		2.54	
Particle Density SSD (t/m ³)		2.62	
Water Absorption (%)		3.2	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05926

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05926'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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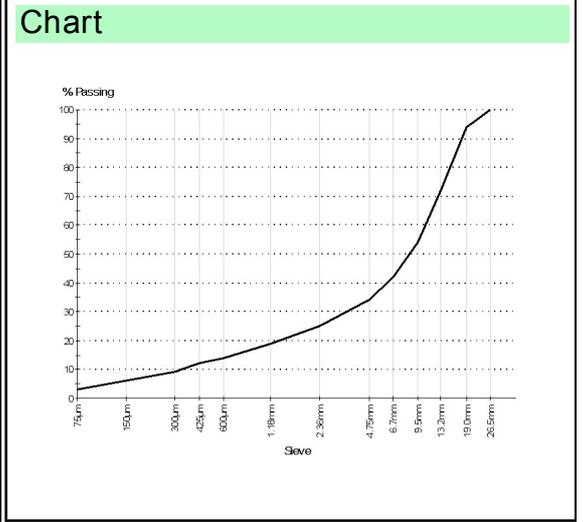
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05926
Field Sample:	00010
Date Sampled:	10/05/2010
Source:	BB
Material:	C016
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	72	
9.5mm	54	
6.7mm	42	
4.75mm	34	
2.36mm	25	
1.18mm	19	
600µm	14	
425µm	12	
300µm	9	
150µm	6	
75µm	3	

Other Test Results			
Description	Method	Result	Limits
Finer 75µm (%)	AS 1141.12	12	
Misshapen Particles (%)	AS 1141.14	29	
Flat Particles (%)		22.0	
Elongated Particles (%)		6.6	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01174

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 10/06/2010

Sample Details

Sample ID: NEWS10S-01174
Field Sample: 00028
Date Sampled: 11/05/2010
Source: Supplied
Material: Half Drill Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO16
WARA10S-05926

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01089

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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Adam Crawford
Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details	
Sample ID:	COFH10S-01089
Client Sample:	10S05926
Date Sampled:	11/05/2010
Source:	Not Specified
Material:	Natural
Specification:	No Specification
Sampling Method:	Submitted by client
Project Location:	Material Testing - Georgetown, Tasmania
Sample Location:	C016 1.16 - 16.16

Particle Size Distribution		
Method:		
Drying by:		
Date Tested:		
Sieve Size	% Passing	Limits

Other Test Results			
Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		193	
Dry Strength (kN)		307	
Wet/Dry Strength Variation (%)		37	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		Yes	
Amount of significant breakdown		5%	

Chart



Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05927

Issue No: 4

This report replaces all previous issues of report no 'MAT:WARA10S-05927'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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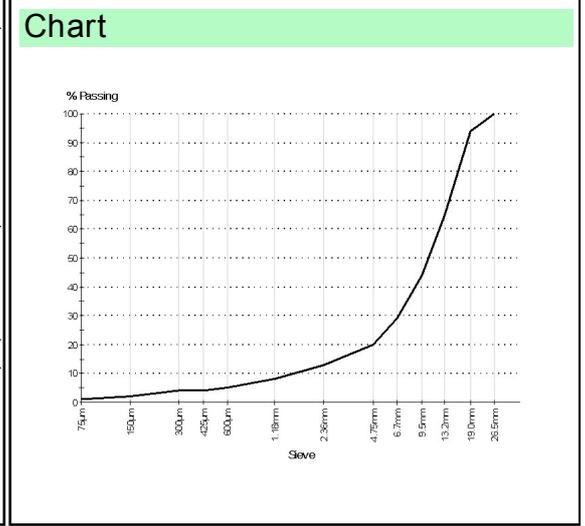
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 6/09/2010

Sample Details	
Sample ID:	WARA10S-05927
Field Sample:	00011
Date Sampled:	10/05/2010
Source:	BB
Material:	C017
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	65	
9.5mm	44	
6.7mm	29	
4.75mm	20	
2.36mm	13	
1.18mm	8	
600µm	5	
425µm	4	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Missshapen Particles (%)	AS 1141.14	21	
Flat Particles (%)		14.8	
Elongated Particles (%)		6.0	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	11	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.066	
Acid Soluble Chloride Cl- (%)		0.000	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.83	
Particle Density Dry (t/m ³)		2.74	
Particle Density SSD (t/m ³)		2.77	
Water Absorption (%)		1.1	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	0.8	
Loss 19.0 to 13.2 mm (%)		1.1	
Loss 13.2 to 9.5 mm (%)		2.3	
Loss 9.5 to 4.75 mm (%)		2.9	
Loss 4.75 to 2.36 mm (%)		4.2	
Loss 2.36 to 1.18 mm (%)		6.0	
Total Weighted Loss (%)		2.3	
Apparent Particle Density (t/m ³)	AS 1141.5	2.62	
Particle Density Dry (t/m ³)		2.08	
Particle Density SSD (t/m ³)		2.29	
Water Absorption (%)		9.9	
Finer 75µm (%)	AS 1141.12	2	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample	Crushed Rock		
Agg Size and Crush Details	Constant Rate		
Fraction Size	-19.0 + 9.5 mm		
Wet Strength (kN)	219		



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05927

Issue No: 4

This report replaces all previous issues of report no 'MAT:WARA10S-05927'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 6/09/2010

Sample Details

Sample ID: WARA10S-05927
Field Sample: 00011
Date Sampled: 10/05/2010
Source: BB
Material: C017
Specification: As Directed By Client
Sampling Method: Submitted by Client
Project Location: George Town
Sample Location: On Site

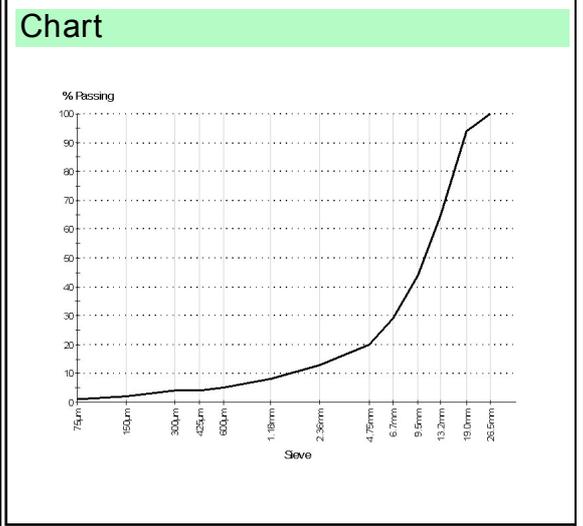
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	65	
9.5mm	44	
6.7mm	29	
4.75mm	20	
2.36mm	13	
1.18mm	8	
600µm	5	
425µm	4	
300µm	4	
150µm	2	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Dry Strength (kN)		281	
Wet/Dry Strength Variation (%)		22	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01175

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 10/06/2010

Sample Details

Sample ID: NEWS10S-01175
Field Sample: 00029
Date Sampled: 11/05/2010
Source: Supplied
Material: Half Drill Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO17
WARA10S-05927

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value Test Grading	AS 1141.23	11 B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01090

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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Adam Crawford
Approved Signatory: Adam Crawford
(Laboratory Manager)

NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details

Sample ID: COFH10S-01090
Client Sample: 10S05927
Date Sampled: 11/05/2010
Source: Not Specified
Material: Natural
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Material Testing - Georgetown, Tasmania
Sample Location: C017 1.19 - 19.19

Other Test Results

Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		219	
Dry Strength (kN)		281	
Wet/Dry Strength Variation (%)		22	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		Yes	
Amount of significant breakdown		-	

Particle Size Distribution

Method:

Drying by:

Date Tested:

Sieve Size	% Passing	Limits
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Chart

Comments

N/A

Material Test Report

Report No: MAT:WARA10S-05928

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05928'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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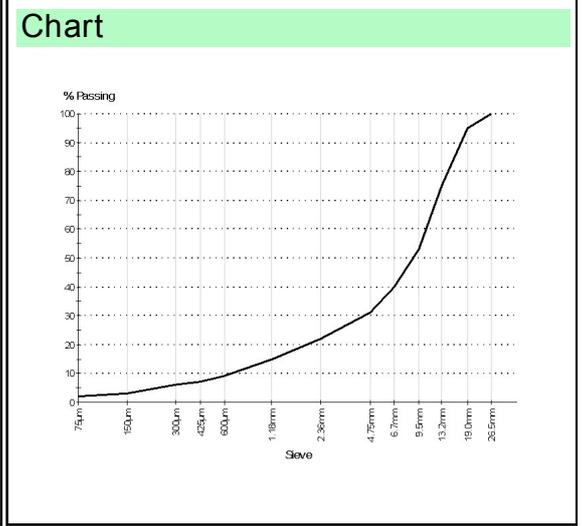
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05928
Field Sample:	00012
Date Sampled:	10/05/2010
Source:	BB
Material:	C018
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	75	
9.5mm	53	
6.7mm	40	
4.75mm	31	
2.36mm	22	
1.18mm	15	
600µm	9	
425µm	7	
300µm	6	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	19	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.062	
Acid Soluble Chloride Cl- (%)		0.003	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.84	
Particle Density Dry (t/m ³)		2.55	
Particle Density SSD (t/m ³)		2.66	
Water Absorption (%)		4.0	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	11.4	
Loss 19.0 to 13.2 mm (%)		15.4	
Loss 13.2 to 9.5 mm (%)		23.5	
Loss 9.5 to 4.75 mm (%)		25.2	
Loss 4.75 to 2.36 mm (%)		39.6	
Loss 2.36 to 1.18 mm (%)		46.2	
Loss 1.18 to 0.600 mm (%)		48.8	
Total Weighted Loss (%)		26.5	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		151	
Dry Strength (kN)		243	
Wet/Dry Strength Variation (%)		38	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.35	
Particle Density Dry (t/m ³)		1.44	
Particle Density SSD (t/m ³)		1.83	
Water Absorption (%)		26.8	
Finer 75µm (%)	AS 1141.12	11	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05928

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05928'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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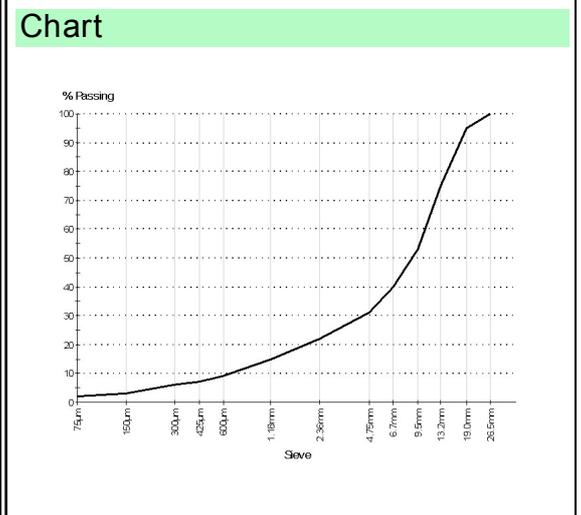
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05928
Field Sample:	00012
Date Sampled:	10/05/2010
Source:	BB
Material:	C018
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	75	
9.5mm	53	
6.7mm	40	
4.75mm	31	
2.36mm	22	
1.18mm	15	
600µm	9	
425µm	7	
300µm	6	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	18	
Flat Particles (%)		12.2	
Elongated Particles (%)		4.9	
Flat & Elongated Particles (%)		0.4	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01108

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 31/05/2010

Sample Details

Sample ID: NEWS10S-01108
Field Sample: 00014
Date Sampled: 11/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO18 (1.18-18.18m)
WARA10S-05928

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	19	
Test Grading		B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01091

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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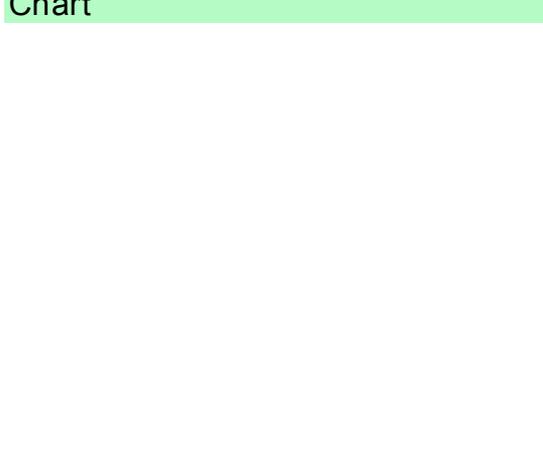
Adam Crawford
Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details	
Sample ID:	COFH10S-01091
Client Sample:	10S05928
Date Sampled:	11/05/2010
Source:	Not Specified
Material:	Natural
Specification:	No Specification
Sampling Method:	Submitted by client
Project Location:	Material Testing - Georgetown, Tasmania
Sample Location:	C018 1.18 - 18.18

Particle Size Distribution		
Method:		
Drying by:		
Date Tested:		
Sieve Size	% Passing	Limits

Other Test Results			
Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		151	
Dry Strength (kN)		243	
Wet/Dry Strength Variation (%)		38	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		No	
Amount of significant breakdown		-	

Chart



Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05929

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05929'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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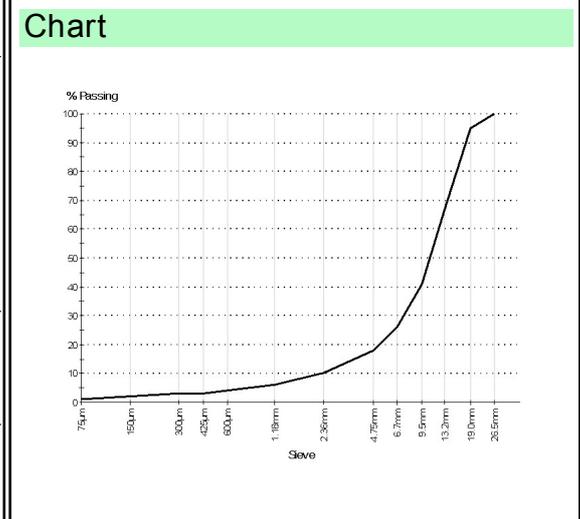
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05929
Field Sample:	00013
Date Sampled:	10/05/2010
Source:	BB
Material:	C019
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	67	
9.5mm	41	
6.7mm	26	
4.75mm	18	
2.36mm	10	
1.18mm	6	
600µm	4	
425µm	3	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.074	
Acid Soluble Chloride Cl- (%)		0.000	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.88	
Particle Density Dry (t/m ³)		2.75	
Particle Density SSD (t/m ³)		2.80	
Water Absorption (%)		1.6	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	3.3	
Loss 19.0 to 13.2 mm (%)		2.2	
Loss 13.2 to 9.5 mm (%)		2.3	
Loss 9.5 to 4.75 mm (%)		7.6	
Loss 4.75 to 2.36 mm (%)		12.5	
Total Weighted Loss (%)		4.6	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		279	
Dry Strength (kN)		350	
Wet/Dry Strength Variation (%)		20	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.91	
Particle Density Dry (t/m ³)		2.74	
Particle Density SSD (t/m ³)		2.80	
Water Absorption (%)		2.1	
Finer 75µm (%)	AS 1141.12	3	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05929

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05929'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID: WARA10S-05929
Field Sample: 00013
Date Sampled: 10/05/2010
Source: BB
Material: C019
Specification: As Directed By Client
Sampling Method: Submitted by Client
Project Location: George Town
Sample Location: On Site

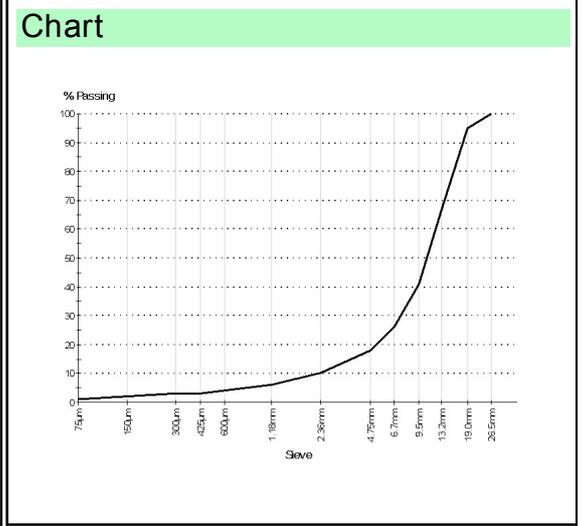
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	67	
9.5mm	41	
6.7mm	26	
4.75mm	18	
2.36mm	10	
1.18mm	6	
600µm	4	
425µm	3	
300µm	3	
150µm	2	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	27	
Flat Particles (%)		22.5	
Elongated Particles (%)		3.4	
Flat & Elongated Particles (%)		1.4	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01109

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 31/05/2010

Sample Details

Sample ID: NEWS10S-01109
Field Sample: 00015
Date Sampled: 11/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO19 (1.21-21.22m)
WARA10S-05929

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01092

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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Adam Crawford
Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details	
Sample ID:	COFH10S-01092
Client Sample:	10S05929
Date Sampled:	11/05/2010
Source:	Not Specified
Material:	Natural
Specification:	No Specification
Sampling Method:	Submitted by client
Project Location:	Material Testing - Georgetown, Tasmania
Sample Location:	C019 1.21 - 21.22

Particle Size Distribution		
Method:		
Drying by:		
Date Tested:		
Sieve Size	% Passing	Limits

Other Test Results			
Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		279	
Dry Strength (kN)		350	
Wet/Dry Strength Variation (%)		20	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		No	
Amount of significant breakdown		-	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-05930

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05930'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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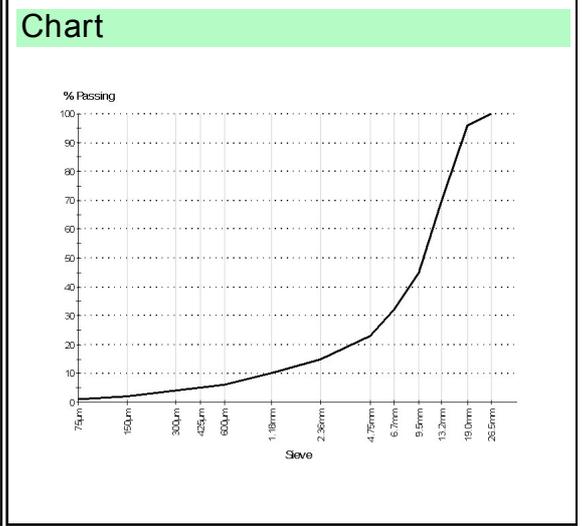
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05930
Field Sample:	00014
Date Sampled:	10/05/2010
Source:	BB
Material:	C020
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	70	
9.5mm	45	
6.7mm	32	
4.75mm	23	
2.36mm	15	
1.18mm	10	
600µm	6	
425µm	5	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.075	
Acid Soluble Chloride Cl- (%)		0.002	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.85	
Particle Density Dry (t/m ³)		2.71	
Particle Density SSD (t/m ³)		2.76	
Water Absorption (%)		1.9	
Loss 19.0 to 13.2 mm (%)	AS 1141.24	7.0	
Loss 13.2 to 9.5 mm (%)		9.2	
Loss 9.5 to 4.75 mm (%)		10.9	
Loss 4.75 to 2.36 mm (%)		20.1	
Loss 2.36 to 1.18 mm (%)		23.6	
Total Weighted Loss (%)		10.8	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		189	
Dry Strength (kN)		298	
Wet/Dry Strength Variation (%)		37	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.72	
Particle Density Dry (t/m ³)		2.43	
Particle Density SSD (t/m ³)		2.54	
Water Absorption (%)		4.3	
Finer 75µm (%)	AS 1141.12	4	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05930

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05930'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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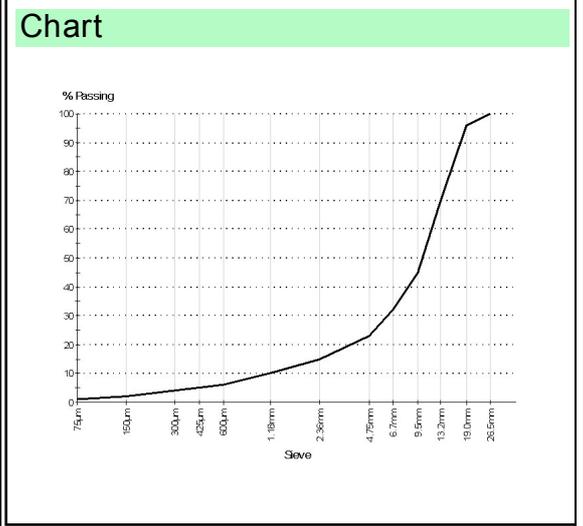
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05930
Field Sample:	00014
Date Sampled:	10/05/2010
Source:	BB
Material:	C020
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	70	
9.5mm	45	
6.7mm	32	
4.75mm	23	
2.36mm	15	
1.18mm	10	
600µm	6	
425µm	5	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	22	
Flat Particles (%)		17.4	
Elongated Particles (%)		4.8	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01110

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 31/05/2010

Sample Details

Sample ID: NEWS10S-01110

Field Sample: 00016

Date Sampled: 11/05/2010

Source: Supplied

Material: Crushed Core

Specification: AS Grading

Sampling Method: Submitted by client

Project Location: Supplied - Warabrook

Sample Location: CO20 (1.19-19.19m)
WARA10S-05930

Particle Size Distribution

Method:

Drying by:

Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01093

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details

Sample ID: COFH10S-01093
Client Sample: 10S05930
Date Sampled: 11/05/2010
Source: Not Specified
Material: Natural
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Material Testing - Georgetown, Tasmania
Sample Location: C020 1.19 - 19.19

Other Test Results

Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		189	
Dry Strength (kN)		298	
Wet/Dry Strength Variation (%)		37	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		Yes	
Amount of significant breakdown		2%	

Particle Size Distribution

Method:

Drying by:

Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Chart

Comments

N/A

Material Test Report

Report No: MAT:WARA10S-05931

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05931'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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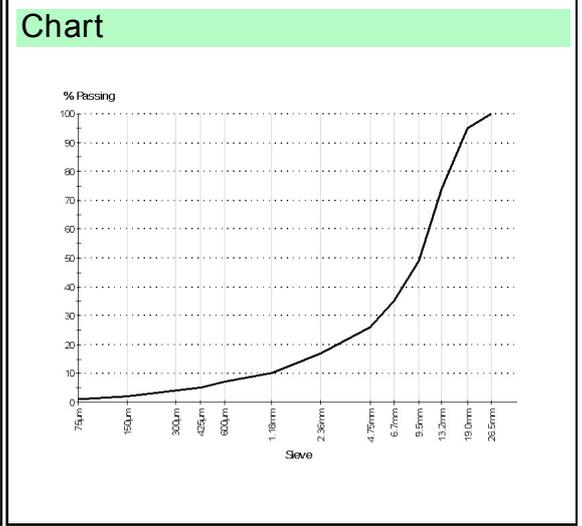
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05931
Field Sample:	00015
Date Sampled:	10/05/2010
Source:	BB
Material:	C021
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	74	
9.5mm	49	
6.7mm	35	
4.75mm	26	
2.36mm	17	
1.18mm	10	
600µm	7	
425µm	5	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	18	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.090	
Acid Soluble Chloride Cl- (%)		0.000	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.80	
Particle Density Dry (t/m ³)		2.47	
Particle Density SSD (t/m ³)		2.59	
Water Absorption (%)		4.7	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	16.0	
Loss 19.0 to 13.2 mm (%)		22.9	
Loss 13.2 to 9.5 mm (%)		39.1	
Loss 9.5 to 4.75 mm (%)		57.5	
Loss 4.75 to 2.36 mm (%)		62.6	
Loss 2.36 to 1.18 mm (%)		62.8	
Total Weighted Loss (%)		43.0	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		162	
Dry Strength (kN)		280	
Wet/Dry Strength Variation (%)		42	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.74	
Particle Density Dry (t/m ³)		2.25	
Particle Density SSD (t/m ³)		2.43	
Water Absorption (%)		7.9	
Finer 75µm (%)	AS 1141.12	6	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05931

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05931'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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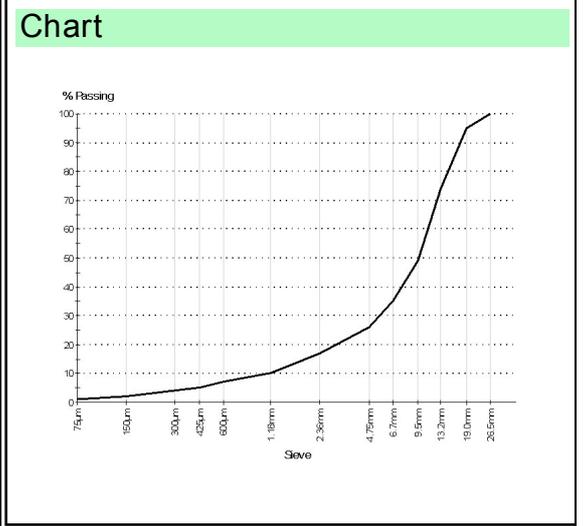
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05931
Field Sample:	00015
Date Sampled:	10/05/2010
Source:	BB
Material:	C021
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	74	
9.5mm	49	
6.7mm	35	
4.75mm	26	
2.36mm	17	
1.18mm	10	
600µm	7	
425µm	5	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	14	
Flat Particles (%)		14.4	
Elongated Particles (%)		0.0	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01111

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park

Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 31/05/2010

Sample Details

Sample ID: NEWS10S-01111
Field Sample: 00017
Date Sampled: 11/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO21 (1.12-12.12m)
WARA10S-05931

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	18	
Test Grading		B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01094

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:
Project No.: INFOCOFH00122AA
Project Name: Coffey Information(Warabrook) - General Testing 2010
Lot No.: Half Drill Core TRN:



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Adam Crawford
Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

Sample Details

Sample ID: COFH10S-01094
Client Sample: 10S05931
Date Sampled: 11/05/2010
Source: Not Specified
Material: Natural
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Material Testing - Georgetown, Tasmania
Sample Location: C021 1.12 - 12.12

Other Test Results

Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		162	
Dry Strength (kN)		280	
Wet/Dry Strength Variation (%)		42	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		Yes	
Amount of significant breakdown		2%	

Particle Size Distribution

Method:

Drying by:

Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Chart

Comments

N/A

Material Test Report

Report No: MAT:WARA10S-05932

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05932'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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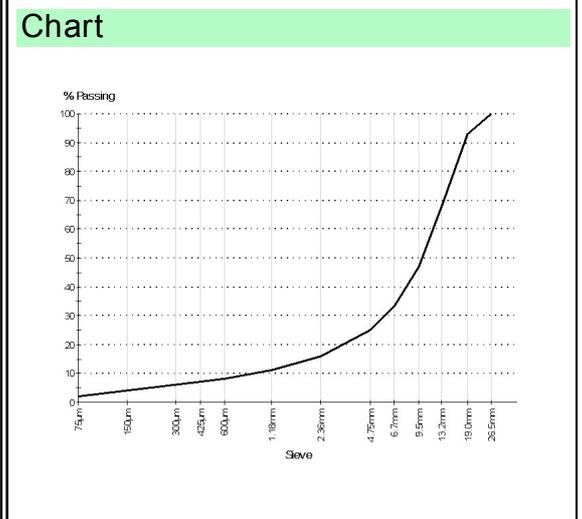
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-05932
Field Sample:	00016
Date Sampled:	10/05/2010
Source:	BB
Material:	C022
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	George Town
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	68	
9.5mm	47	
6.7mm	33	
4.75mm	25	
2.36mm	16	
1.18mm	11	
600µm	8	
425µm	7	
300µm	6	
150µm	4	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	16	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.079	
Acid Soluble Chloride Cl- (%)		0.001	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.92	
Particle Density Dry (t/m ³)		2.83	
Particle Density SSD (t/m ³)		2.86	
Water Absorption (%)		1.0	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.8	
Loss 19.0 to 13.2 mm (%)		0.7	
Loss 13.2 to 9.5 mm (%)		0.9	
Loss 9.5 to 4.75 mm (%)		2.3	
Loss 4.75 to 2.36 mm (%)		2.1	
Loss 2.36 to 1.18 mm (%)		3.5	
Total Weighted Loss (%)		1.6	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		328	
Dry Strength (kN)		398	
Wet/Dry Strength Variation (%)		18	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.94	
Particle Density Dry (t/m ³)		2.80	
Particle Density SSD (t/m ³)		2.85	
Water Absorption (%)		1.7	
Finer 75µm (%)	AS 1141.12	3	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-05932

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-05932'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID: WARA10S-05932
Field Sample: 00016
Date Sampled: 10/05/2010
Source: BB
Material: C022
Specification: As Directed By Client
Sampling Method: Submitted by Client
Project Location: George Town
Sample Location: On Site

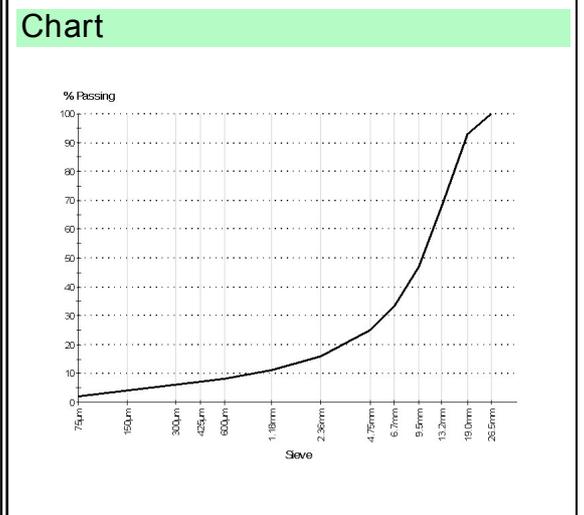
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	68	
9.5mm	47	
6.7mm	33	
4.75mm	25	
2.36mm	16	
1.18mm	11	
600µm	8	
425µm	7	
300µm	6	
150µm	4	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	33	
Flat Particles (%)		24.3	
Elongated Particles (%)		8.2	
Flat & Elongated Particles (%)		0.6	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01112

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Chris Park
Approved Signatory: Chris Park
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 31/05/2010

Sample Details

Sample ID: NEWS10S-01112
Field Sample: 00018
Date Sampled: 11/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO22 (1.12-12.12m)
WARA10S-05932

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	16	
Test Grading		B-25	

Chart

Comments
N/A

Report No: MAT:COFH10S-01095

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal:

Project No.: INFOCOFH00122AA

Project Name: Coffey Information(Warabrook) - General Testing 2010

Lot No.: Half Drill Core TRN:



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Adam Crawford

Approved Signatory: Adam Crawford
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 23/06/2010

WORLD RECOGNISED ACCREDITATION

Sample Details

Sample ID: COFH10S-01095
Client Sample: 10S05932
Date Sampled: 11/05/2010
Source: Not Specified
Material: Natural
Specification: No Specification
Sampling Method: Submitted by client
Project Location: Material Testing - Georgetown, Tasmania
Sample Location: C022 1.12 - 12.12

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Other Test Results

Description	Method	Result	Limits
Nominal Sample Size (mm)	RTA T215	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		20	
Wet Strength (kN)		328	
Dry Strength (kN)		398	
Wet/Dry Strength Variation (%)		18	
Fraction Size		-19.0 + 9.5 mm	
Breakdown Occured		No	
Amount of significant breakdown		-	

Chart

Comments

N/A

Material Test Report

Report No: MAT:WARA10S-06925

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06925'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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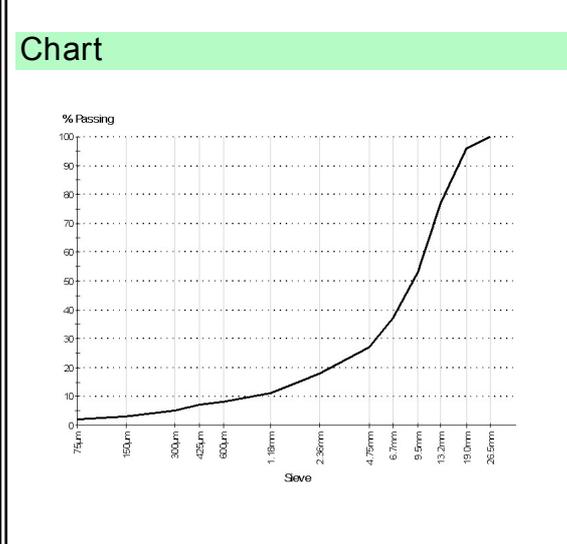
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06925
Field Sample:	00017
Date Sampled:	25/05/2010
Source:	BB
Material:	C023
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	77	
9.5mm	53	
6.7mm	37	
4.75mm	27	
2.36mm	18	
1.18mm	11	
600µm	8	
425µm	7	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.93	
Particle Density Dry (t/m³)		2.84	
Particle Density SSD (t/m³)		2.87	
Water Absorption (%)		1.1	
Loss 19.0 to 13.2 mm (%)	AS 1141.24	6.7	
Loss 13.2 to 9.5 mm (%)		10.6	
Loss 9.5 to 4.75 mm (%)		12.1	
Loss 4.75 to 2.36 mm (%)		29.3	
Loss 2.36 to 1.18 mm (%)		53.0	
Total Weighted Loss (%)		15.6	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		201	
Dry Strength (kN)		270	
Wet/Dry Strength Variation (%)		26	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Los Angeles Value	AS 1141.23	16	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.056	
Acid Soluble Chloride Cl- (%)		0.003	
Apparent Particle Density (t/m³)	AS 1141.5	2.87	
Particle Density Dry (t/m³)		2.57	
Particle Density SSD (t/m³)		2.67	
Water Absorption (%)		4.1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-06925

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06925'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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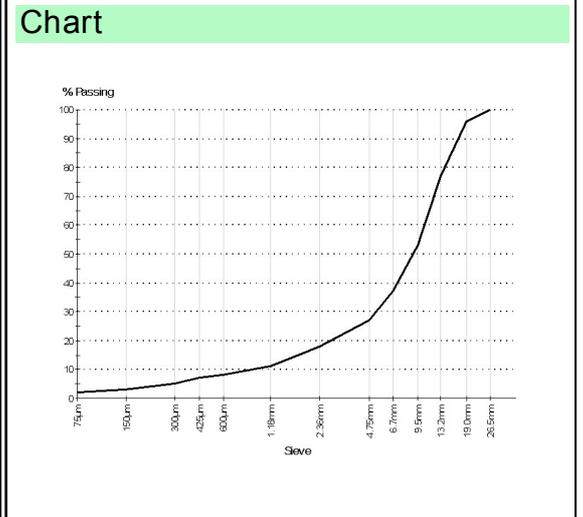
Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06925
Field Sample:	00017
Date Sampled:	25/05/2010
Source:	BB
Material:	C023
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution	
Method:	AS 1141.11.1
Drying by:	Oven
Note:	Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	96	
13.2mm	77	
9.5mm	53	
6.7mm	37	
4.75mm	27	
2.36mm	18	
1.18mm	11	
600µm	8	
425µm	7	
300µm	5	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	27	
Flat Particles (%)		18.1	
Elongated Particles (%)		9.0	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Finer 75µm (%)	AS 1141.12	1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01165

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 4/06/2010

Sample Details

Sample ID: NEWS10S-01165
Field Sample: 00024
Date Sampled: 26/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO23
WARA10S-06925

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	16	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-06926

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06926'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	INFOWARA00675AA		
Project Name:	Material Testing		
Lot No.:	-	TRN:	-

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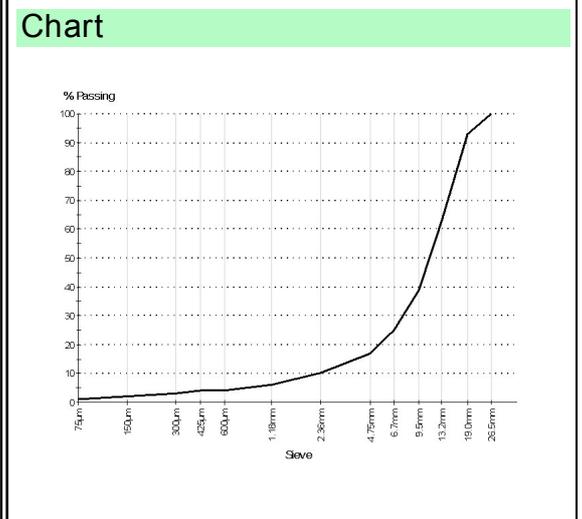
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06926
Field Sample:	00018
Date Sampled:	25/05/2010
Source:	BB
Material:	C024
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	63	
9.5mm	39	
6.7mm	25	
4.75mm	17	
2.36mm	10	
1.18mm	6	
600µm	4	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.97	
Particle Density Dry (t/m ³)		2.90	
Particle Density SSD (t/m ³)		2.93	
Water Absorption (%)		0.8	
Finer 75µm (%)	AS 1141.12	3	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.2	
Loss 19.0 to 13.2 mm (%)		1.4	
Loss 13.2 to 9.5 mm (%)		1.8	
Loss 9.5 to 4.75 mm (%)		2.7	
Loss 4.75 to 2.36 mm (%)		6.8	
Total Weighted Loss (%)		2.3	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		309	
Dry Strength (kN)		343	
Wet/Dry Strength Variation (%)		10	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.061	
Acid Soluble Chloride Cl- (%)		0.002	
Apparent Particle Density (t/m ³)	AS 1141.5	2.93	
Particle Density Dry (t/m ³)		2.77	
Particle Density SSD (t/m ³)		2.82	
Water Absorption (%)		1.9	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-06926

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06926'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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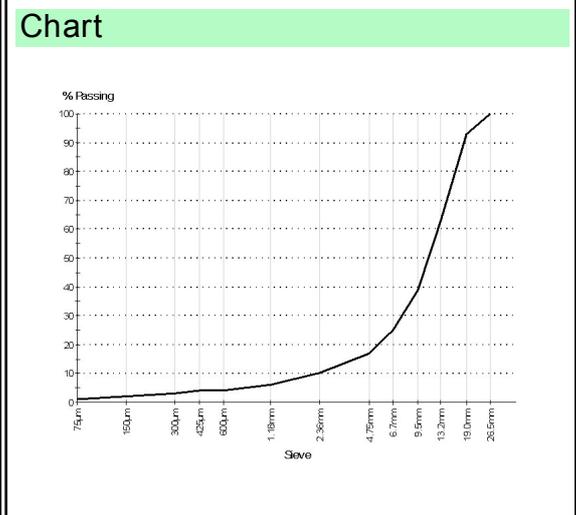
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06926
Field Sample:	00018
Date Sampled:	25/05/2010
Source:	BB
Material:	C024
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	63	
9.5mm	39	
6.7mm	25	
4.75mm	17	
2.36mm	10	
1.18mm	6	
600µm	4	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	24	
Flat Particles (%)		21.4	
Elongated Particles (%)		2.4	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01166

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 4/06/2010

Sample Details

Sample ID: NEWS10S-01166
Field Sample: 00025
Date Sampled: 26/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO24
WARA10S-06926

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-06927

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06927'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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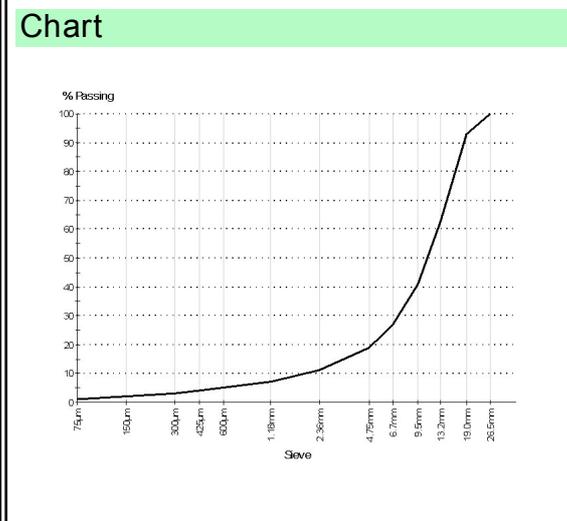
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06927
Field Sample:	00019
Date Sampled:	25/05/2010
Source:	BB
Material:	C025
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	63	
9.5mm	41	
6.7mm	27	
4.75mm	19	
2.36mm	11	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.99	
Particle Density Dry (t/m ³)		2.94	
Particle Density SSD (t/m ³)		2.96	
Water Absorption (%)		0.5	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	0.4	
Loss 19.0 to 13.2 mm (%)		0.5	
Loss 13.2 to 9.5 mm (%)		0.8	
Loss 9.5 to 4.75 mm (%)		1.1	
Loss 4.75 to 2.36 mm (%)		3.1	
Total Weighted Loss (%)		1.0	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		286	
Dry Strength (kN)		314	
Wet/Dry Strength Variation (%)		9	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.082	
Acid Soluble Chloride Cl- (%)		0.004	
Apparent Particle Density (t/m ³)	AS 1141.5	2.98	
Particle Density Dry (t/m ³)		2.84	
Particle Density SSD (t/m ³)		2.89	
Water Absorption (%)		1.6	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-06927

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06927'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-06927
Field Sample:	00019
Date Sampled:	25/05/2010
Source:	BB
Material:	C025
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

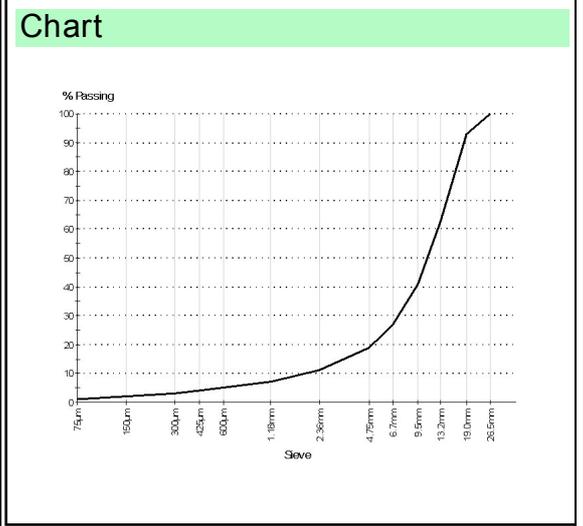
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	63	
9.5mm	41	
6.7mm	27	
4.75mm	19	
2.36mm	11	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	26	
Flat Particles (%)		18.0	
Elongated Particles (%)		6.9	
Flat & Elongated Particles (%)		1.2	
Calliper Ratio		2:1	
Finer 75µm (%)	AS 1141.12	1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01162

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 4/06/2010

Sample Details

Sample ID: NEWS10S-01162
Field Sample: 00022
Date Sampled: 26/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO25
WARA10S-06927

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-06928

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06928'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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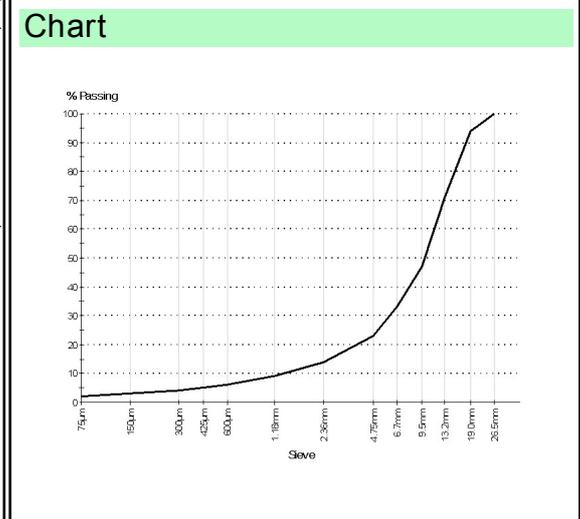
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06928
Field Sample:	00020
Date Sampled:	25/05/2010
Source:	BB
Material:	C026
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	71	
9.5mm	47	
6.7mm	33	
4.75mm	23	
2.36mm	14	
1.18mm	9	
600µm	6	
425µm	5	
300µm	4	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.078	
Acid Soluble Chloride Cl- (%)		0.002	
Apparent Particle Density (t/m ³)	AS 1141.5	2.96	
Particle Density Dry (t/m ³)		2.85	
Particle Density SSD (t/m ³)		2.89	
Water Absorption (%)		1.3	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.83	
Particle Density Dry (t/m ³)		2.78	
Particle Density SSD (t/m ³)		2.80	
Water Absorption (%)		0.6	
Finer 75µm (%)	AS 1141.12	0	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	0.7	
Loss 19.0 to 13.2 mm (%)		0.9	
Loss 13.2 to 9.5 mm (%)		0.8	
Loss 9.5 to 4.75 mm (%)		1.1	
Loss 4.75 to 2.36 mm (%)		2.4	
Loss 2.36 to 1.18 mm (%)		7.9	
Total Weighted Loss (%)		1.5	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Drill Core	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		271	
Dry Strength (kN)		299	
Wet/Dry Strength Variation (%)		9	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-06928

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06928'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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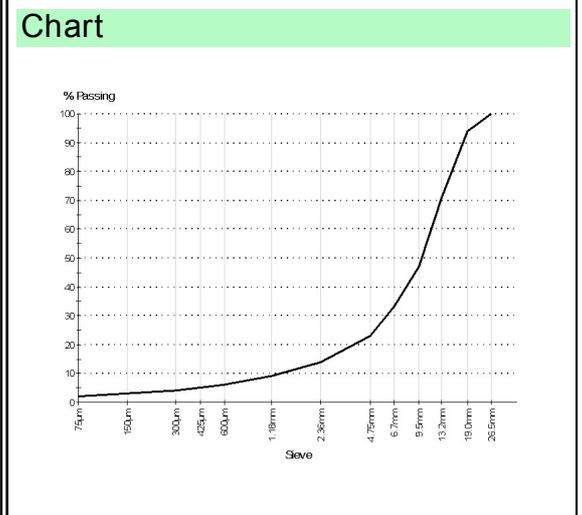
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06928
Field Sample:	00020
Date Sampled:	25/05/2010
Source:	BB
Material:	C026
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	71	
9.5mm	47	
6.7mm	33	
4.75mm	23	
2.36mm	14	
1.18mm	9	
600µm	6	
425µm	5	
300µm	4	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	27	
Flat Particles (%)		23.2	
Elongated Particles (%)		2.0	
Flat & Elongated Particles (%)		1.8	
Calliper Ratio		2:1	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01163

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 4/06/2010

Sample Details

Sample ID: NEWS10S-01163
Field Sample: 00023
Date Sampled: 26/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO26
WARA10S-06928

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
------------	-----------	--------

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-06929

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06929'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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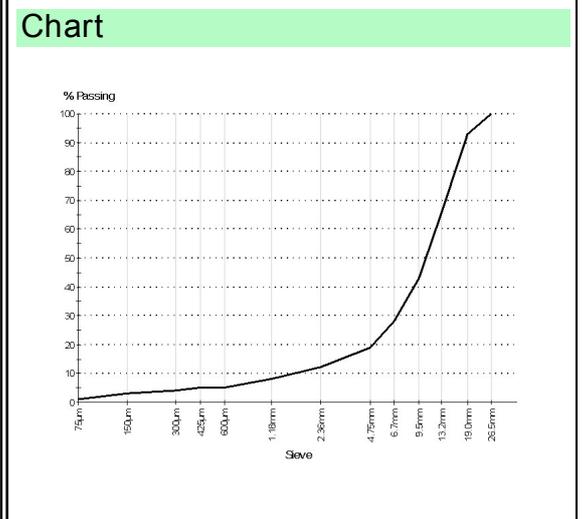
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06929
Field Sample:	00021
Date Sampled:	25/05/2010
Source:	BB
Material:	C027
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	66	
9.5mm	43	
6.7mm	28	
4.75mm	19	
2.36mm	12	
1.18mm	8	
600µm	5	
425µm	5	
300µm	4	
150µm	3	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.073	
Acid Soluble Chloride Cl- (%)		0.002	
Apparent Particle Density (t/m ³)	AS 1141.5	2.92	
Particle Density Dry (t/m ³)		2.74	
Particle Density SSD (t/m ³)		2.80	
Water Absorption (%)		2.2	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	3.00	
Particle Density Dry (t/m ³)		2.92	
Particle Density SSD (t/m ³)		2.95	
Water Absorption (%)		0.8	
Finer 75µm (%)	AS 1141.12	2	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	3.7	
Loss 19.0 to 13.2 mm (%)		4.8	
Loss 13.2 to 9.5 mm (%)		1.5	
Loss 9.5 to 4.75 mm (%)		2.6	
Loss 4.75 to 2.36 mm (%)		6.5	
Total Weighted Loss (%)		3.4	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		289	
Dry Strength (kN)		315	
Wet/Dry Strength Variation (%)		8	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-06929

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06929'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-06929
Field Sample:	00021
Date Sampled:	25/05/2010
Source:	BB
Material:	C027
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

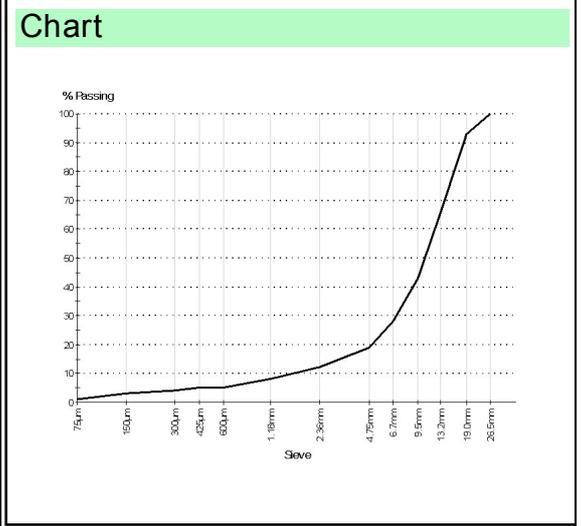
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	93	
13.2mm	66	
9.5mm	43	
6.7mm	28	
4.75mm	19	
2.36mm	12	
1.18mm	8	
600µm	5	
425µm	5	
300µm	4	
150µm	3	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	28	
Flat Particles (%)		22.3	
Elongated Particles (%)		5.6	
Flat & Elongated Particles (%)		0.5	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01160

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 4/06/2010

Sample Details

Sample ID: NEWS10S-01160
Field Sample: 00020
Date Sampled: 26/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO27
WARA10S-06929

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	14	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-06930

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06930'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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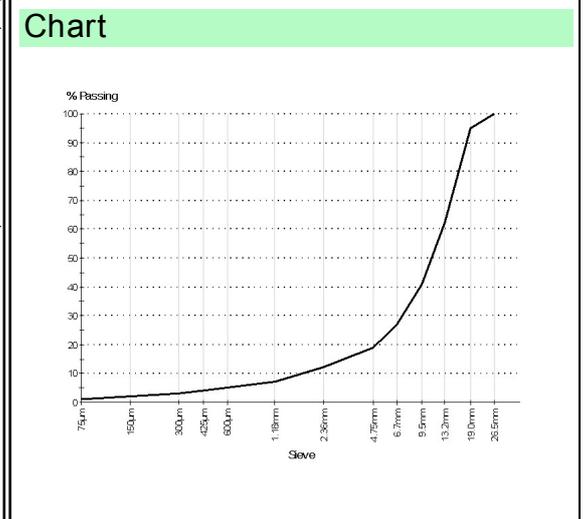
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06930
Field Sample:	00022
Date Sampled:	25/05/2010
Source:	BB
Material:	C028
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	62	
9.5mm	41	
6.7mm	27	
4.75mm	19	
2.36mm	12	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.075	
Acid Soluble Chloride Cl- (%)		0.002	
Apparent Particle Density (t/m ³)	AS 1141.5	2.89	
Particle Density Dry (t/m ³)		2.71	
Particle Density SSD (t/m ³)		2.78	
Water Absorption (%)		2.3	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.96	
Particle Density Dry (t/m ³)		2.81	
Particle Density SSD (t/m ³)		2.86	
Water Absorption (%)		1.9	
Finer 75µm (%)	AS 1141.12	4	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	8.3	
Loss 19.0 to 13.2 mm (%)		6.4	
Loss 13.2 to 9.5 mm (%)		12.8	
Loss 9.5 to 4.75 mm (%)		10.8	
Loss 4.75 to 2.36 mm (%)		18.7	
Loss 2.36 to 1.18 mm (%)		21.4	
Total Weighted Loss (%)		10.8	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		237	
Dry Strength (kN)		283	
Wet/Dry Strength Variation (%)		16	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-06930

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-06930'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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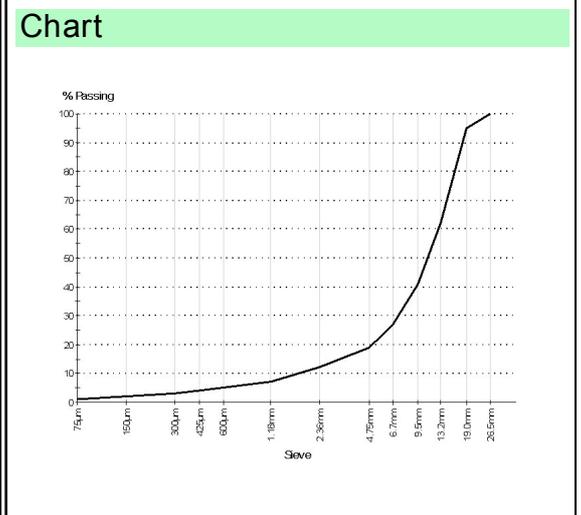
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-06930
Field Sample:	00022
Date Sampled:	25/05/2010
Source:	BB
Material:	C028
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	Georgetown, TAS
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	62	
9.5mm	41	
6.7mm	27	
4.75mm	19	
2.36mm	12	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	19	
Flat Particles (%)		10.3	
Elongated Particles (%)		7.6	
Flat & Elongated Particles (%)		0.6	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01161

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 4/06/2010

Sample Details

Sample ID: NEWS10S-01161
Field Sample: 00021
Date Sampled: 26/05/2010
Source: Supplied
Material: Crushed Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO28
WARA10S-06930

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07726

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07726'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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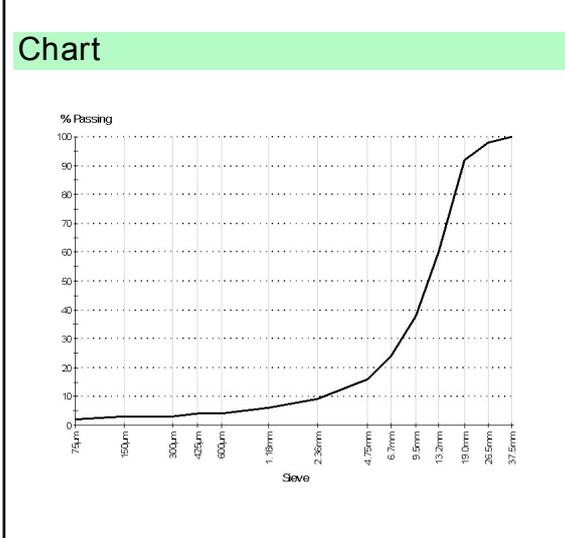
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07726
Field Sample:	00023
Date Sampled:	16/06/2010
Source:	BB
Material:	C029
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	98	
19.0mm	92	
13.2mm	60	
9.5mm	38	
6.7mm	24	
4.75mm	16	
2.36mm	9	
1.18mm	6	
600µm	4	
425µm	4	
300µm	3	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	11	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.94	
Particle Density Dry (t/m³)		2.80	
Particle Density SSD (t/m³)		2.85	
Water Absorption (%)		1.7	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		275	
Dry Strength (kN)		333	
Wet/Dry Strength Variation (%)		17	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.95	
Particle Density Dry (t/m³)		2.88	
Particle Density SSD (t/m³)		2.90	
Water Absorption (%)		0.8	
Finer 75µm (%)	AS 1141.12	2	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.2	
Loss 19.0 to 13.2 mm (%)		0.6	
Loss 13.2 to 9.5 mm (%)		1.7	
Loss 9.5 to 4.75 mm (%)		2.3	
Loss 4.75 to 2.36 mm (%)		2.6	
Total Weighted Loss (%)		1.6	
Acid Soluble Sulphate SO3 ²⁻ (%)	AS 1012.20	0.098	
Acid Soluble Chloride Cl- (%)		0.003	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07726

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07726'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-07726
Field Sample:	00023
Date Sampled:	16/06/2010
Source:	BB
Material:	C029
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

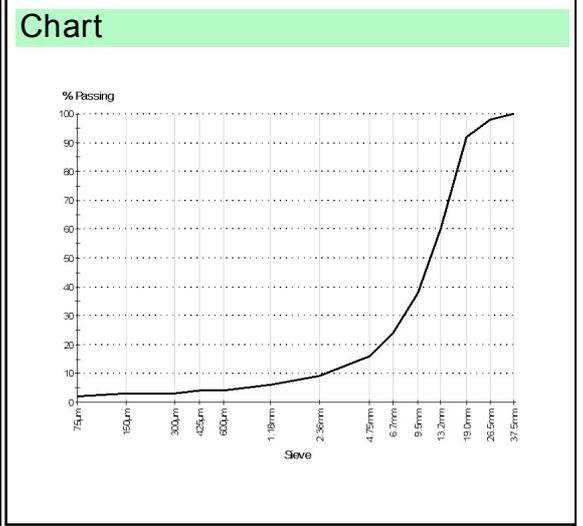
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	98	
19.0mm	92	
13.2mm	60	
9.5mm	38	
6.7mm	24	
4.75mm	16	
2.36mm	9	
1.18mm	6	
600µm	4	
425µm	4	
300µm	3	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	27	
Flat Particles (%)		20.3	
Elongated Particles (%)		5.8	
Flat & Elongated Particles (%)		0.7	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01543

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01543
Client Sample: WARA10S-07726
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO29

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	11	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07727

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07727'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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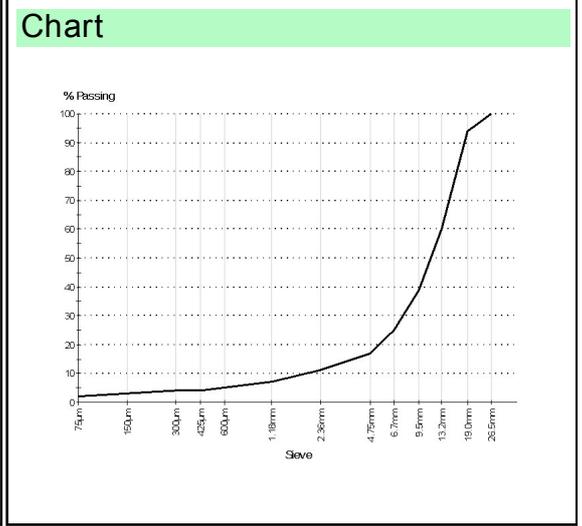
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07727
Field Sample:	00024
Date Sampled:	16/06/2010
Source:	BB
Material:	C030
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	60	
9.5mm	39	
6.7mm	25	
4.75mm	17	
2.36mm	11	
1.18mm	7	
600µm	5	
425µm	4	
300µm	4	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.95	
Particle Density Dry (t/m³)		2.83	
Particle Density SSD (t/m³)		2.87	
Water Absorption (%)		1.4	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		284	
Dry Strength (kN)		318	
Wet/Dry Strength Variation (%)		11	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.93	
Particle Density Dry (t/m³)		2.84	
Particle Density SSD (t/m³)		2.87	
Water Absorption (%)		1.1	
Finer 75µm (%)	AS 1141.12	2	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	2.4	
Loss 19.0 to 13.2 mm (%)		0.4	
Loss 13.2 to 9.5 mm (%)		2.0	
Loss 9.5 to 4.75 mm (%)		2.4	
Loss 4.75 to 2.36 mm (%)		2.6	
Total Weighted Loss (%)		1.5	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.086	
Acid Soluble Chloride Cl- (%)		0.003	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07727

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07727'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:
Project No.: INFOWARA00675AA
Project Name: Material Testing
Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-07727
Field Sample:	00024
Date Sampled:	16/06/2010
Source:	BB
Material:	C030
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

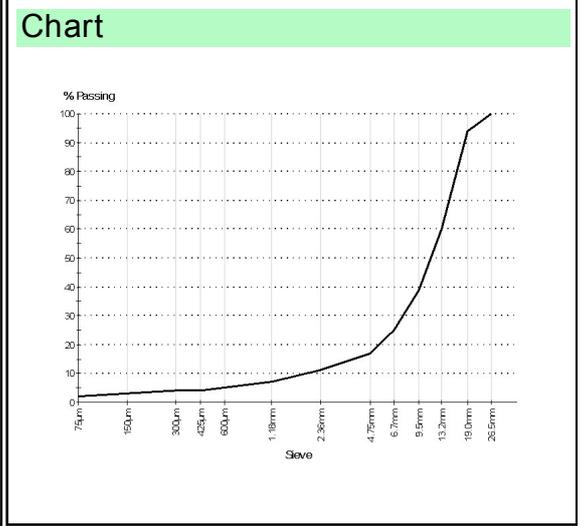
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	94	
13.2mm	60	
9.5mm	39	
6.7mm	25	
4.75mm	17	
2.36mm	11	
1.18mm	7	
600µm	5	
425µm	4	
300µm	4	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	20	
Flat Particles (%)		16.7	
Elongated Particles (%)		3.2	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01544

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01544
Client Sample: WARA10S-07727
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO30

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	

Chart

Comments

N/A

Material Test Report

Report No: MAT:WARA10S-07728

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07728'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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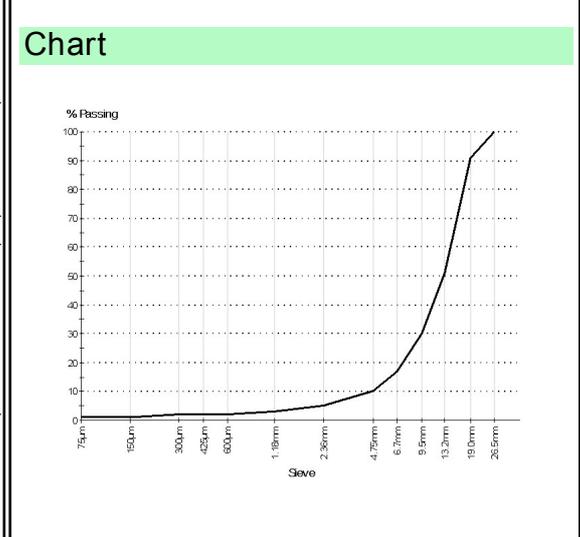
Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07728
Field Sample:	00025
Date Sampled:	16/06/2010
Source:	BB
Material:	C031
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution	
Method:	AS 1141.11.1
Drying by:	Oven
Note:	Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	91	
13.2mm	51	
9.5mm	30	
6.7mm	17	
4.75mm	10	
2.36mm	5	
1.18mm	3	
600µm	2	
425µm	2	
300µm	2	
150µm	1	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.88	
Particle Density Dry (t/m³)		2.78	
Particle Density SSD (t/m³)		2.82	
Water Absorption (%)		1.2	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		275	
Dry Strength (kN)		303	
Wet/Dry Strength Variation (%)		9	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.84	
Particle Density Dry (t/m³)		2.77	
Particle Density SSD (t/m³)		2.80	
Water Absorption (%)		0.8	
Finer 75µm (%)	AS 1141.12	2	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	0.6	
Loss 19.0 to 13.2 mm (%)		1.5	
Loss 13.2 to 9.5 mm (%)		1.0	
Loss 9.5 to 4.75 mm (%)		1.6	
Loss 4.75 to 2.36 mm (%)		2.3	
Total Weighted Loss (%)		1.4	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.097	
Acid Soluble Chloride Cl- (%)		0.005	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07728

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07728'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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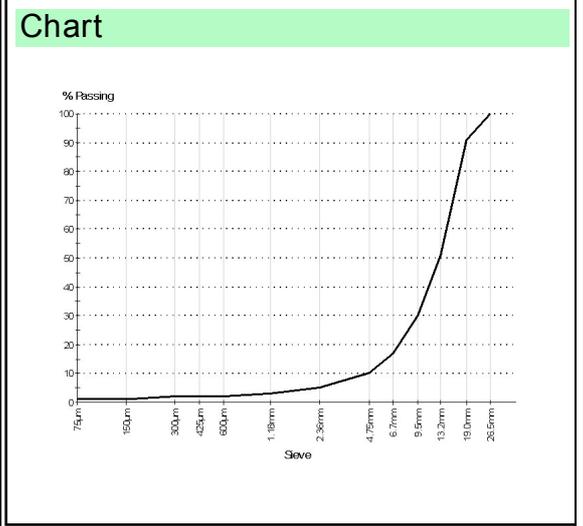
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07728
Field Sample:	00025
Date Sampled:	16/06/2010
Source:	BB
Material:	C031
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	91	
13.2mm	51	
9.5mm	30	
6.7mm	17	
4.75mm	10	
2.36mm	5	
1.18mm	3	
600µm	2	
425µm	2	
300µm	2	
150µm	1	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	29	
Flat Particles (%)		22.0	
Elongated Particles (%)		7.3	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01545

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01545
Client Sample: WARA10S-07728
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO31

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	13	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07729

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07729'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	INFOWARA00675AA		
Project Name:	Material Testing		
Lot No.:	-	TRN:	-

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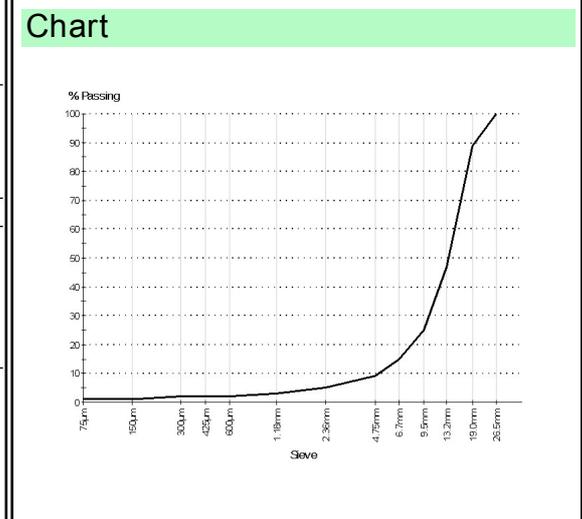
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07729
Field Sample:	00026
Date Sampled:	16/06/2010
Source:	BB
Material:	C032
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	89	
13.2mm	47	
9.5mm	25	
6.7mm	15	
4.75mm	9	
2.36mm	5	
1.18mm	3	
600µm	2	
425µm	2	
300µm	2	
150µm	1	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.79	
Particle Density Dry (t/m³)		2.51	
Particle Density SSD (t/m³)		2.61	
Water Absorption (%)		4.0	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		255	
Dry Strength (kN)		312	
Wet/Dry Strength Variation (%)		18	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.96	
Particle Density Dry (t/m³)		2.75	
Particle Density SSD (t/m³)		2.82	
Water Absorption (%)		2.6	
Finer 75µm (%)	AS 1141.12	3	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	3.6	
Loss 19.0 to 13.2 mm (%)		1.9	
Loss 13.2 to 9.5 mm (%)		2.7	
Loss 9.5 to 4.75 mm (%)		4.8	
Total Weighted Loss (%)		2.8	
Acid Soluble Sulphate SO3 ²⁻ (%)	AS 1012.20	0.084	
Acid Soluble Chloride Cl- (%)		0.003	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07729

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07729'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:
Project No.: INFOWARA00675AA
Project Name: Material Testing
Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID: WARA10S-07729
Field Sample: 00026
Date Sampled: 16/06/2010
Source: BB
Material: C032
Specification: As Directed By Client
Sampling Method: Submitted by Client
Project Location: 120
Sample Location: On Site

Particle Size Distribution

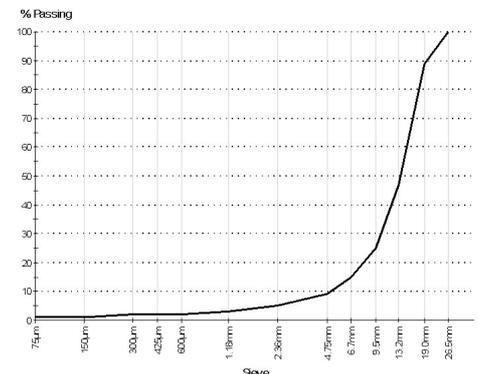
Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	89	
13.2mm	47	
9.5mm	25	
6.7mm	15	
4.75mm	9	
2.36mm	5	
1.18mm	3	
600µm	2	
425µm	2	
300µm	2	
150µm	1	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	21	
Flat Particles (%)		17.8	
Elongated Particles (%)		3.5	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	

Chart



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01546

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01546
Client Sample: WARA10S-07729
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO32

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07731

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07731'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	INFOWARA00675AA		
Project Name:	Material Testing		
Lot No.:	-	TRN:	-

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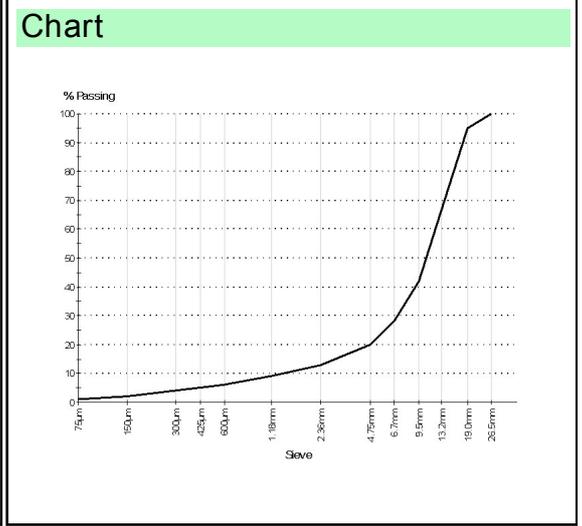
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07731
Field Sample:	00028
Date Sampled:	16/06/2010
Source:	BB
Material:	C034
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	67	
9.5mm	42	
6.7mm	28	
4.75mm	20	
2.36mm	13	
1.18mm	9	
600µm	6	
425µm	5	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	26	
Flat Particles (%)		23.7	
Elongated Particles (%)		2.7	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	34	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.59	
Particle Density Dry (t/m³)		2.16	
Particle Density SSD (t/m³)		2.33	
Water Absorption (%)		7.6	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		22	
Dry Strength (kN)		78	
Wet/Dry Strength Variation (%)		71	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.76	
Particle Density Dry (t/m³)		2.18	
Particle Density SSD (t/m³)		2.39	
Water Absorption (%)		9.7	
Finer 75µm (%)	AS 1141.12	9	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	14.7	
Loss 19.0 to 13.2 mm (%)		13.4	
Loss 13.2 to 9.5 mm (%)		28.9	
Loss 9.5 to 4.75 mm (%)		41.5	
Loss 4.75 to 2.36 mm (%)		70.5	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07731

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07731'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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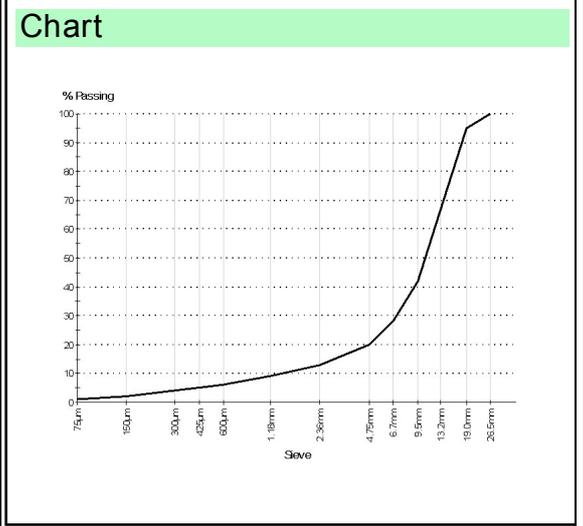
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07731
Field Sample:	00028
Date Sampled:	16/06/2010
Source:	BB
Material:	C034
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	95	
13.2mm	67	
9.5mm	42	
6.7mm	28	
4.75mm	20	
2.36mm	13	
1.18mm	9	
600µm	6	
425µm	5	
300µm	4	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Loss 13.2 to 9.5 mm (%)		28.9	
Loss 9.5 to 4.75 mm (%)		41.5	
Loss 4.75 to 2.36 mm (%)		70.5	
Total Weighted Loss (%)		29.6	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.068	
Acid Soluble Chloride Cl ⁻ (%)		0.007	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01547

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01547
Client Sample: WARA10S-07731
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO34

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	34	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07732

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07732'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	INFOWARA00675AA		
Project Name:	Material Testing		
Lot No.:	-	TRN:	-

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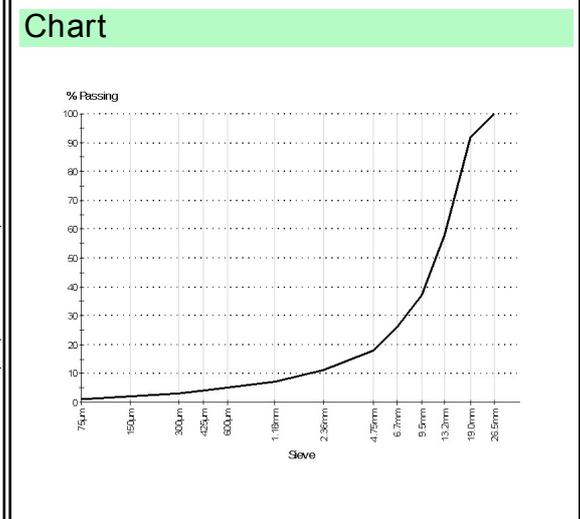
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07732
Field Sample:	00029
Date Sampled:	16/06/2010
Source:	BB
Material:	C035
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	92	
13.2mm	58	
9.5mm	37	
6.7mm	26	
4.75mm	18	
2.36mm	11	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	17	
Flat Particles (%)		15.6	
Elongated Particles (%)		0.9	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	23	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.67	
Particle Density Dry (t/m³)		2.13	
Particle Density SSD (t/m³)		2.34	
Water Absorption (%)		9.4	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		60	
Dry Strength (kN)		103	
Wet/Dry Strength Variation (%)		42	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.80	
Particle Density Dry (t/m³)		2.15	
Particle Density SSD (t/m³)		2.38	
Water Absorption (%)		10.7	
Finer 75µm (%)	AS 1141.12	12	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	6.1	
Loss 19.0 to 13.2 mm (%)		13.2	
Loss 13.2 to 9.5 mm (%)		26.1	
Loss 9.5 to 4.75 mm (%)		40.1	
Loss 4.75 to 2.36 mm (%)		58.0	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07732

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07732'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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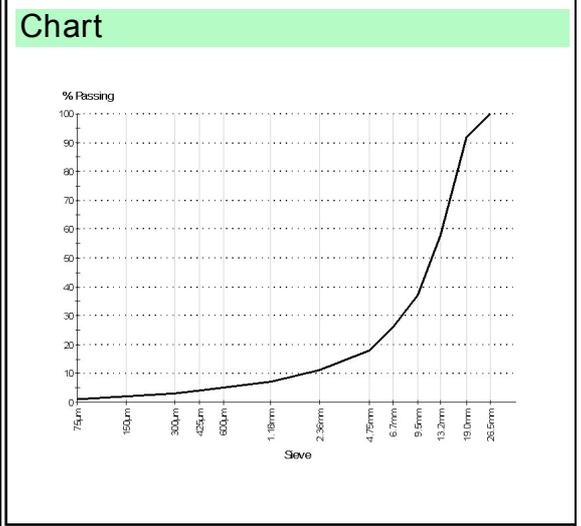
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07732
Field Sample:	00029
Date Sampled:	16/06/2010
Source:	BB
Material:	C035
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	92	
13.2mm	58	
9.5mm	37	
6.7mm	26	
4.75mm	18	
2.36mm	11	
1.18mm	7	
600µm	5	
425µm	4	
300µm	3	
150µm	2	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Loss 13.2 to 9.5 mm (%)		26.1	
Loss 9.5 to 4.75 mm (%)		40.1	
Loss 4.75 to 2.36 mm (%)		58.0	
Total Weighted Loss (%)		24.9	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.093	
Acid Soluble Chloride Cl- (%)		0.010	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01548

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01548
Client Sample: WARA10S-07732
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO35

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	23	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07733

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07733'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000		
Principal:			
Project No.:	INFOWARA00675AA		
Project Name:	Material Testing		
Lot No.:	-	TRN:	-

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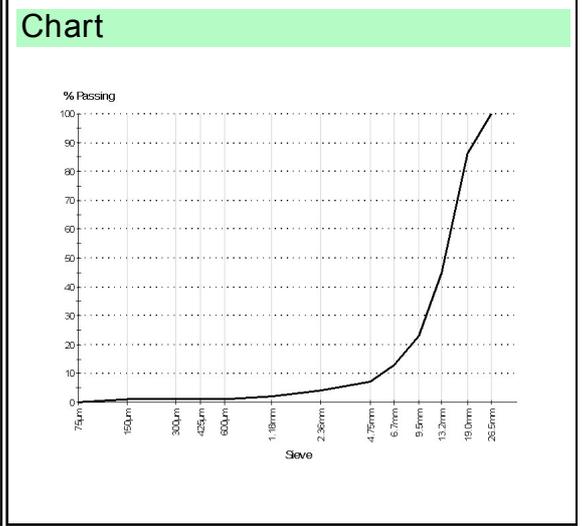
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07733
Field Sample:	00030
Date Sampled:	16/06/2010
Source:	BB
Material:	C036
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	86	
13.2mm	45	
9.5mm	23	
6.7mm	13	
4.75mm	7	
2.36mm	4	
1.18mm	2	
600µm	1	
425µm	1	
300µm	1	
150µm	1	
75µm	0	

Other Test Results			
Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	29	
Flat Particles (%)		21.3	
Elongated Particles (%)		8.0	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Los Angeles Value	AS 1141.23	12	
Test Grading		B-25	
Apparent Particle Density (t/m³)	AS 1141.5	2.86	
Particle Density Dry (t/m³)		2.53	
Particle Density SSD (t/m³)		2.64	
Water Absorption (%)		4.6	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		243	
Dry Strength (kN)		298	
Wet/Dry Strength Variation (%)		18	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density - Coarse (t/m³)	AS 1141.6.1	2.90	
Particle Density Dry (t/m³)		2.68	
Particle Density SSD (t/m³)		2.76	
Water Absorption (%)		2.8	
Finer 75µm (%)	AS 1141.12	3	
Loss 26.5 to 19.0 mm (%)	AS 1141.24	12.2	
Loss 19.0 to 13.2 mm (%)		8.4	
Loss 13.2 to 9.5 mm (%)		16.0	
Loss 9.5 to 4.75 mm (%)		19.8	
Total Weighted Loss (%)		12.8	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07733

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07733'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:
Project No.: INFOWARA00675AA
Project Name: Material Testing
Lot No.: - TRN: -

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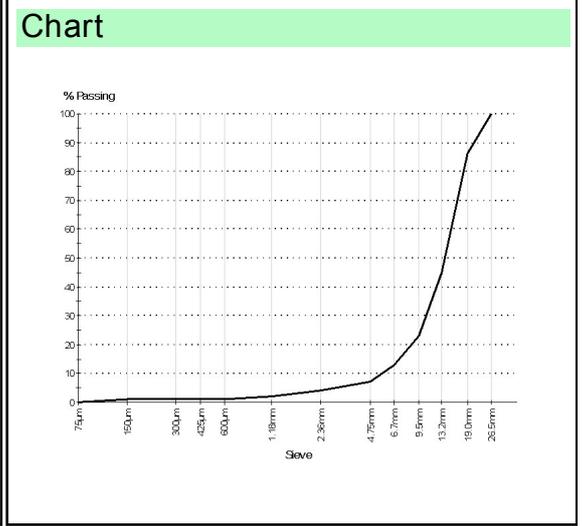
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07733
Field Sample:	00030
Date Sampled:	16/06/2010
Source:	BB
Material:	C036
Specification:	As Directed By Client
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	86	
13.2mm	45	
9.5mm	23	
6.7mm	13	
4.75mm	7	
2.36mm	4	
1.18mm	2	
600µm	1	
425µm	1	
300µm	1	
150µm	1	
75µm	0	

Other Test Results			
Description	Method	Result	Limits
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.083	
Acid Soluble Chloride Cl- (%)		0.000	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01549

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services
Project No.: INFONEWS00219AA
Project Name: INFOWARA00675AA - Materials Testing
Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01549
Client Sample: WARA10S-07733
Date Sampled: 16/06/2010
Source: Supplied
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO36

Particle Size Distribution

Method:
Drying by:
Date Tested:

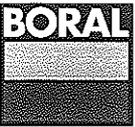
Sieve Size	% Passing	Limits
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Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	12	
Test Grading		B-25	

Chart

Comments
N/A



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coffey Information (Warabrook)
PROJECT: Quality Control – Work Order No. WARA 10 W03006
SAMPLE DESCRIPTION: Crushed Aggregate (-9.5+6.7mm)
SIZE OF AGGREGATE TESTED: -9.5+6.7mm
DATE TESTED: 12.7.10
CLIENT SAMPLE NO: 10S-07734

FILE NO: 56/10

DATE SAMPLED: Unknown
DATE RECEIVED: 23.6.10
LOCATION: Unknown
LAB. SAMPLE NO: 105307

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS1141.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W108
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	75	74
	Sample mean friction value corrected for temperature after polishing.	47	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	47	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

D. Cullen, QC File, File, Ref: 5122.Rep



Approved Signatory _____

Date 19.7.10

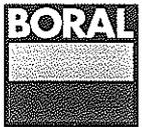
Serial No. 88053

W Komsta

Appendix 5

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NATA Accredited Laboratory
Number: **547**



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coffey Information (Warabrook)
PROJECT: Quality Control – Work Order No. WARA 10 W03006
SAMPLE DESCRIPTION: Crushed Aggregate (-9.5+6.7mm)
SIZE OF AGGREGATE TESTED: -9.5+6.7mm
DATE TESTED: 12.7.10
CLIENT SAMPLE NO: 10S-07735

FILE NO: 56/10

DATE SAMPLED: Unknown
DATE RECEIVED: 23.6.10
LOCATION: Unknown
LAB. SAMPLE NO: 105308

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS1141.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W108
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	76	74
	Sample mean friction value corrected for temperature after polishing.	50	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	50	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

D. Cullen, QC File, File, Ref: 5122.Rep



Approved Signatory _____

Date 19.7.10 Serial No. 88054

W Komsta

Appendix 5

*This document is issued in accordance with NATA's accreditation requirements.
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NATA Accredited Laboratory
Number: **547**

Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coffey Information (Warabrook)
PROJECT: Quality Control – Work Order No. WARA 10 W03006
SAMPLE DESCRIPTION: Crushed Aggregate (-9.5+6.7mm)
SIZE OF AGGREGATE TESTED: -9.5+6.7mm
DATE TESTED: 17.7.10
CLIENT SAMPLE NO: 10S-07736

FILE NO: 56/10

DATE SAMPLED: Unknown
DATE RECEIVED: 23.6.10
LOCATION: Unknown
LAB. SAMPLE NO: 105309

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS1141.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W109
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	75	74
	Sample mean friction value corrected for temperature after polishing.	47	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	47	-

The air temperature during the friction test was 23°C.

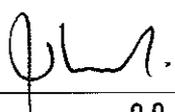
Sample submitted by client.

D. Cullen, QC File, File, Ref: 5122.Rep



Approved Signatory _____

Date 19.7.10 Serial No. 88055

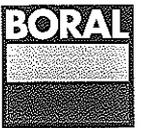


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Appendix 5

*This document is issued in accordance with NATA's accreditation requirements.
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NATA Accredited Laboratory
Number: 547



MATERIALS TECHNICAL SERVICES
BORAL RESOURCES (NSW) PTY LTD
ABN 51 000 756 507
Unit 4, 3-5 Gibbon Road
Baulkham Hills NSW 2153 Australia
PO Box 400, Winston Hills NSW 2153
Telephone 61 2 9624 9900
Facsimile 61 2 9624 9999

Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coffey Information (Warabrook)
PROJECT: Quality Control – Work Order No. WARA 10 W03006
SAMPLE DESCRIPTION: Crushed Aggregate (-9.5+6.7mm)
SIZE OF AGGREGATE TESTED: -9.5+6.7mm
DATE TESTED: 17.7.10
CLIENT SAMPLE NO: 10S-07737

FILE NO: 56/10

DATE SAMPLED: Unknown
DATE RECEIVED: 23.6.10
LOCATION: Unknown
LAB. SAMPLE NO: 105310

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS1141.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W109
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	76	74
	Sample mean friction value corrected for temperature after polishing.	50	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	50	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

D. Cullen, QC File, File, Ref: 5122.Rep



Approved Signatory

Date 19.7.10 Serial No. 88056

W Komsta

Appendix 5

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NATA Accredited Laboratory
Number: **547**

Material Test Report

Report No: MAT:WARA10S-07738

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07738'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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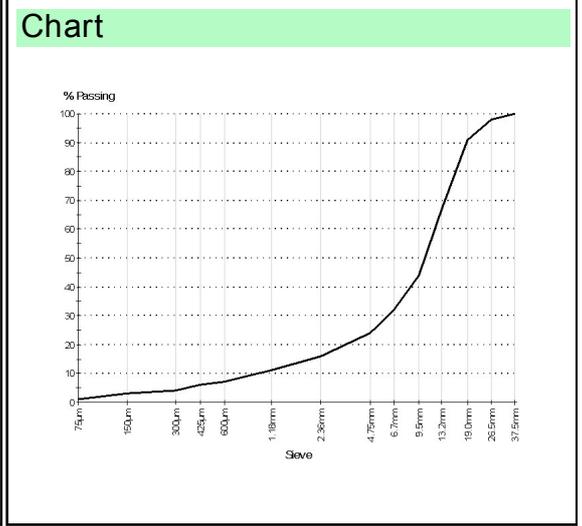
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07738
Field Sample:	00035
Date Sampled:	16/06/2010
Source:	BB
Material:	C041
Specification:	AS Grading
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	98	
19.0mm	91	
13.2mm	67	
9.5mm	44	
6.7mm	32	
4.75mm	24	
2.36mm	16	
1.18mm	11	
600µm	7	
425µm	6	
300µm	4	
150µm	3	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	20.2	
Loss 19.0 to 13.2 mm (%)		8.4	
Loss 13.2 to 9.5 mm (%)		13.6	
Loss 9.5 to 4.75 mm (%)		19.0	
Loss 4.75 to 2.36 mm (%)		38.9	
Loss 2.36 to 1.18 mm (%)		42.8	
Total Weighted Loss (%)		17.9	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		83	
Dry Strength (kN)		156	
Wet/Dry Strength Variation (%)		47	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	1.68	
Particle Density Dry (t/m ³)		1.45	
Particle Density SSD (t/m ³)		1.59	
Water Absorption (%)		9.3	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.81	
Particle Density Dry (t/m ³)		2.39	
Particle Density SSD (t/m ³)		2.54	
Water Absorption (%)		6.2	
Finer 75µm (%)	AS 1141.12	7	
Los Angeles Value	AS 1141.23	23	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.075	
Acid Soluble Chloride Cl- (%)		0.020	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07738

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07738'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:
Project No.: INFOWARA00675AA
Project Name: Material Testing
Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID: WARA10S-07738
Field Sample: 00035
Date Sampled: 16/06/2010
Source: BB
Material: C041
Specification: AS Grading
Sampling Method: Submitted by Client
Project Location: 120
Sample Location: On Site

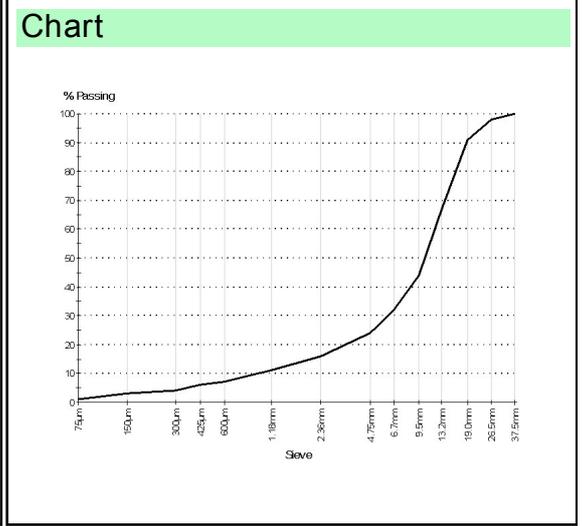
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
37.5mm	100	
26.5mm	98	
19.0mm	91	
13.2mm	67	
9.5mm	44	
6.7mm	32	
4.75mm	24	
2.36mm	16	
1.18mm	11	
600µm	7	
425µm	6	
300µm	4	
150µm	3	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	23	
Flat Particles (%)		19.6	
Elongated Particles (%)		3.1	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01550

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01550
Client Sample: WARA10S-07738
Date Sampled: 16/06/2010
Source: On site
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO41

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	23	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07739

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-07739'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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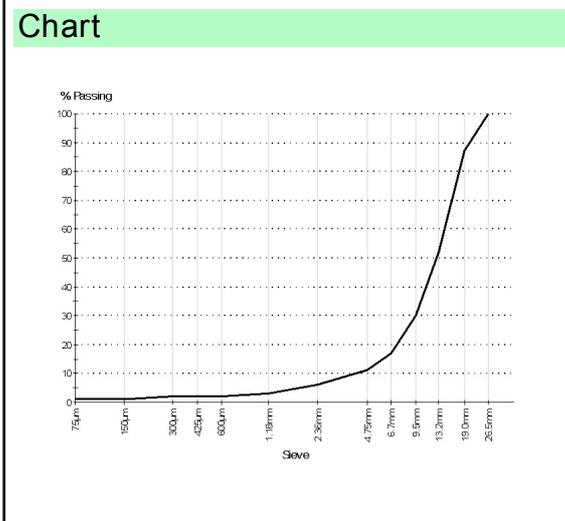
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 1/09/2010

Sample Details	
Sample ID:	WARA10S-07739
Field Sample:	00036
Date Sampled:	16/06/2010
Source:	BB
Material:	C042
Specification:	AS Grading
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	87	
13.2mm	52	
9.5mm	30	
6.7mm	17	
4.75mm	11	
2.36mm	6	
1.18mm	3	
600µm	2	
425µm	2	
300µm	2	
150µm	1	
75µm	1	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	32.3	
Loss 19.0 to 13.2 mm (%)		13.0	
Loss 13.2 to 9.5 mm (%)		20.8	
Loss 9.5 to 4.75 mm (%)		31.9	
Loss 4.75 to 2.36 mm (%)		51.7	
Total Weighted Loss (%)		23.4	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		127	
Dry Strength (kN)		192	
Wet/Dry Strength Variation (%)		34	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.75	
Particle Density Dry (t/m ³)		2.18	
Particle Density SSD (t/m ³)		2.38	
Water Absorption (%)		9.5	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.85	
Particle Density Dry (t/m ³)		2.41	
Particle Density SSD (t/m ³)		2.56	
Water Absorption (%)		6.4	
Finer 75µm (%)	AS 1141.12	9	
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.090	
Acid Soluble Chloride Cl- (%)		0.003	



Comments
We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Material Test Report

Report No: MAT:WARA10S-07739

Issue No: 3

This report replaces all previous issues of report no 'MAT:WARA10S-07739'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:
Project No.: INFOWARA00675AA
Project Name: Material Testing
Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 1/09/2010

Sample Details

Sample ID: WARA10S-07739
Field Sample: 00036
Date Sampled: 16/06/2010
Source: BB
Material: C042
Specification: AS Grading
Sampling Method: Submitted by Client
Project Location: 120
Sample Location: On Site

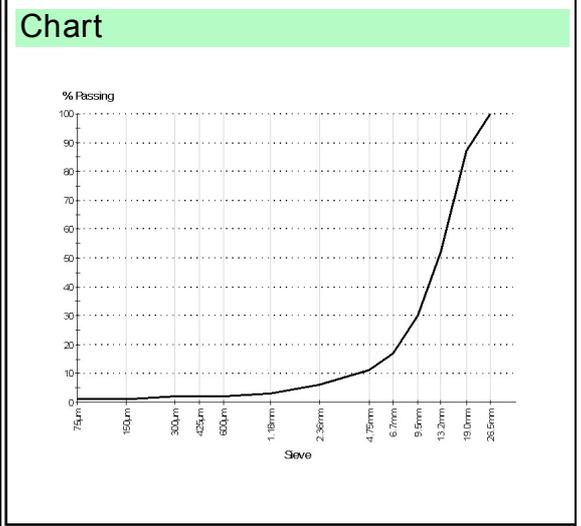
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	87	
13.2mm	52	
9.5mm	30	
6.7mm	17	
4.75mm	11	
2.36mm	6	
1.18mm	3	
600µm	2	
425µm	2	
300µm	2	
150µm	1	
75µm	1	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	21	
Flat Particles (%)		17.4	
Elongated Particles (%)		3.5	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	



Comments

We declare that the AS1141.23 & AS1012.20 were performed by NATA Endorsed laboratories (see attached reports for details)
All sample crushed prior to testing

Report No: MAT:NEWS10S-01551

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:



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Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01551
Client Sample: WARA10S-07739
Date Sampled: 16/06/2010
Source: On site
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO42

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	

Chart

Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07740

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07740'.

Client:	CQT Services Pty Ltd Level 5, 5 Elizabeth Street Sydney NSW 2000
Principal:	
Project No.:	INFOWARA00675AA
Project Name:	Material Testing
Lot No.:	-
TRN:	-

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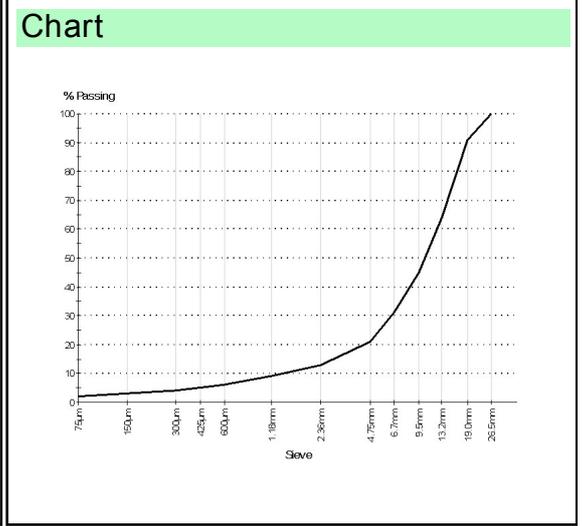
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details	
Sample ID:	WARA10S-07740
Field Sample:	00037
Date Sampled:	16/06/2010
Source:	BB
Material:	C043
Specification:	AS Grading
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

Particle Size Distribution		
Method:	AS 1141.11.1	
Drying by:	Oven	
Note:	Sample Not Washed	
Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	91	
13.2mm	64	
9.5mm	45	
6.7mm	31	
4.75mm	21	
2.36mm	13	
1.18mm	9	
600µm	6	
425µm	5	
300µm	4	
150µm	3	
75µm	2	

Other Test Results			
Description	Method	Result	Limits
Loss 26.5 to 19.0 mm (%)	AS 1141.24	1.7	
Loss 19.0 to 13.2 mm (%)		1.6	
Loss 13.2 to 9.5 mm (%)		2.0	
Loss 9.5 to 4.75 mm (%)		6.7	
Loss 4.75 to 2.36 mm (%)		8.0	
Total Weighted Loss (%)		3.7	
Nominal Sample Size (mm)	AS 1141.22	20	
Nature of Sample		Crushed Rock	
Agg Size and Crush Details		Constant Rate	
Fraction Size		-19.0 + 9.5 mm	
Wet Strength (kN)		280	
Dry Strength (kN)		285	
Wet/Dry Strength Variation (%)		2	
Breakdown Occured		No	
Cylinder Size (diameter in mm)		150	
Apparent Particle Density (t/m ³)	AS 1141.5	2.92	
Particle Density Dry (t/m ³)		2.72	
Particle Density SSD (t/m ³)		2.79	
Water Absorption (%)		2.5	
Apparent Particle Density - Coarse (t/m ³)	AS 1141.6.1	2.84	
Particle Density Dry (t/m ³)		2.80	
Particle Density SSD (t/m ³)		2.81	
Water Absorption (%)		0.5	
Los Angeles Value	AS 1141.23	15	
Test Grading		B-25	
Acid Soluble Sulphate SO ₃ ²⁻ (%)	AS 1012.20	0.100	
Acid Soluble Chloride Cl- (%)		0.000	



Comments
N/A

Material Test Report

Report No: MAT:WARA10S-07740

Issue No: 2

This report replaces all previous issues of report no 'MAT:WARA10S-07740'.

Client: CQT Services Pty Ltd
Level 5, 5 Elizabeth Street
Sydney NSW 2000

Principal:

Project No.: INFOWARA00675AA

Project Name: Material Testing

Lot No.: - TRN: -

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WORLD RECOGNISED ACCREDITATION

Approved Signatory: Alan Cullen
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 4/08/2010

Sample Details

Sample ID:	WARA10S-07740
Field Sample:	00037
Date Sampled:	16/06/2010
Source:	BB
Material:	C043
Specification:	AS Grading
Sampling Method:	Submitted by Client
Project Location:	120
Sample Location:	On Site

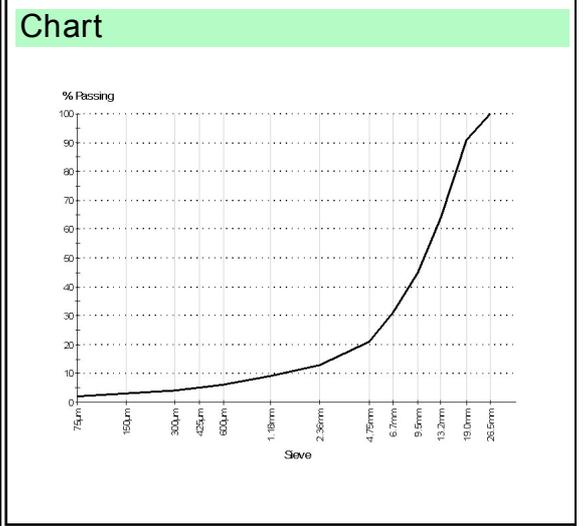
Particle Size Distribution

Method: AS 1141.11.1
Drying by: Oven
Note: Sample Not Washed

Sieve Size	% Passing	Limits
26.5mm	100	
19.0mm	91	
13.2mm	64	
9.5mm	45	
6.7mm	31	
4.75mm	21	
2.36mm	13	
1.18mm	9	
600µm	6	
425µm	5	
300µm	4	
150µm	3	
75µm	2	

Other Test Results

Description	Method	Result	Limits
Misshapen Particles (%)	AS 1141.14	18	
Flat Particles (%)		16.8	
Elongated Particles (%)		1.0	
Flat & Elongated Particles (%)		0.0	
Calliper Ratio		2:1	
Finer 75µm (%)	AS 1141.12	2	



Comments

N/A

Report No: MAT:NEWS10S-01552

Issue No: 1

Material Test Report

Client: Coffey Information (Warabrook) Pty Ltd
Lot 101, 19 Warabrook Boulevard
Warabrook NSW 2304

Principal: CQT Services

Project No.: INFONEWS00219AA

Project Name: INFOWARA00675AA - Materials Testing

Lot No.: TRN:

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WORLD RECOGNISED ACCREDITATION

Rhys Vanderkly
Approved Signatory: Rhys Vanderkly
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 13/07/2010

Sample Details

Sample ID: NEWS10S-01552
Client Sample: WARA10S-07740
Date Sampled: 16/06/2010
Source: On site
Material: Drilled Core
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: Supplied - Warabrook
Sample Location: CO43

Particle Size Distribution

Method:
Drying by:
Date Tested:

Sieve Size	% Passing	Limits

Other Test Results

Description	Method	Result	Limits
Los Angeles Value	AS 1141.23	11	
Test Grading		B-25	

Chart

Comments
N/A

SYDNEY
ANALYTICAL
LABORATORIES

Page 1 of 3

Office:
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ERMINGTON NSW 2115

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SEVEN HILLS NSW 2147
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Fax: (02) 9838 8919
A.C.N. 003 614 695
A.B.N. 81 829 182 852
NATA No: 1884

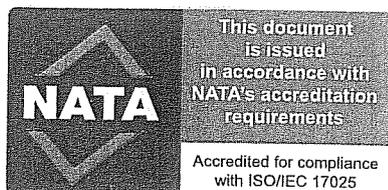
ANALYTICAL REPORT for:

COFFEY INFORMATION PTY LTD

19 WARABROOK BOULEVARD
WARABROOK 2304

ATTN: ALAN CULLEN

JOB NO: SAL22762
CLIENT ORDER: 10W01757
DATE RECEIVED: 20/04/10
DATE COMPLETED: 05/05/10
TYPE OF SAMPLES: AGGREGATES
NO OF SAMPLES: 7



LSM
.....
Issued on 11/05/10
Lance Smith
(Chief Chemist)

ANALYTICAL REPORT

JOB NO: SAL22762
CLIENT ORDER: 10W01757

SAMPLES	Cl %	SO4 %
1 WARA10S-04366	<0.001	0.064
2 WARA10S-04367	<0.001	0.041
3 WARA10S-04368	<0.001	0.021
4 WARA10S-04369	<0.001	0.016
5 WARA10S-04370	<0.001	0.051
6 WARA10S-04371	0.002	0.053
7 WARA10S-04372	<0.001	0.046
MDL	0.001	0.001
Method Code	C32	C33
Preparation	P5	P5

RESULTS ON DRY BASIS

ANALYTICAL REPORT

JOB NO: SAL22762

CLIENT ORDER: 10W01757

METHODS OF PREPARATION AND ANALYSIS

The tests contained in this report have been carried out on the samples as received by the laboratory.

P5 Sample dried, split and crushed to -150um

C32 Acid Soluble Chloride - AS1012.20

C33 Acid Soluble Sulphate - AS1012.20

**SYDNEY
ANALYTICAL
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Page 1 of 3

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NATA No: 1884

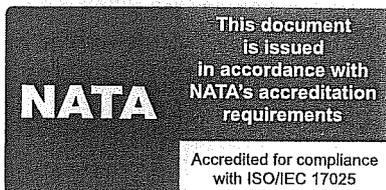
ANALYTICAL REPORT for:

COFFEY INFORMATION PTY LTD

19 WARABROOK BOULEVARD
WARABROOK 2304

ATTN: ALAN CULLEN

JOB NO: SAL22799
CLIENT ORDER: 00513AA
DATE RECEIVED: 05/05/10
DATE COMPLETED: 18/05/10
TYPE OF SAMPLES: SOILS
NO OF SAMPLES: 6



LS
.....
Issued on 21/05/10
Lance Smith
(Chief Chemist)

ANALYTICAL REPORT

JOB NO: SAL22799
CLIENT ORDER: 00513AA

SAMPLES	Cl %	SO4 %
1 WARA10S-05273	<0.001	0.090
2 WARA10S-05274	<0.001	0.097
3 WARA10S-05275	0.016	0.033
4 WARA10S-05276	<0.001	0.084
5 WARA10S-05277	<0.001	0.080
6 WARA10S-05278	<0.001	0.093
MDL	0.001	0.001
Method Code	C32	C33
Preparation	P5	P5

RESULTS ON DRY BASIS

ANALYTICAL REPORT

JOB NO: SAL22799

CLIENT ORDER: 00513AA

METHODS OF PREPARATION AND ANALYSIS

The tests contained in this report have been carried out on the samples as received by the laboratory.

- P5 Sample dried, split and crushed to -150um
- C32 Acid Soluble Chloride - AS1012.20
- C33 Acid Soluble Sulphate - AS1012.20

**SYDNEY
ANALYTICAL
LABORATORIES**

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NATA No: 1884

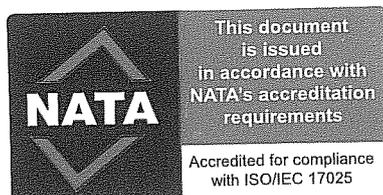
ANALYTICAL REPORT for:

COFFEY INFORMATION PTY LTD

19 WARABROOK BOULEVARD
WARABROOK 2304

ATTN: JAKE ANDREW

JOB NO: SAL22840
CLIENT ORDER: 00675AA
DATE RECEIVED: 18/05/10
DATE COMPLETED: 26/05/10
TYPE OF SAMPLES: AGGREGATES
NO OF SAMPLES: 9



.....
Issued on 01/06/10
Lance Smith
(Chief Chemist)

ANALYTICAL REPORT

**JOB NO: SAL22840
CLIENT ORDER: 00675AA**

SAMPLES	Cl %	SO4 %
1 WARA10S-05924	0.029	0.10
2 WARA10S-05925	0.002	0.063
3 WARA10S-05926	0.015	0.067
4 WARA10S-05927	<0.001	0.066
5 WARA10S-05928	0.003	0.062
6 WARA10S-05929	<0.001	0.074
7 WARA10S-05930	0.002	0.075
8 WARA10S-05931	<0.001	0.090
9 WARA10S-05932	0.001	0.079

MDL	0.001	0.001
Method Code	C32	C33
Preparation	P5	P5

**RESULTS ON DRY BASIS
CLIENT: CQT SERVICES
PROJECT: MATERIAL TESTING
LOCATION: GEORGE TOWN, TASMANIA**

ANALYTICAL REPORT

JOB NO: SAL22840

CLIENT ORDER: 00675AA

METHODS OF PREPARATION AND ANALYSIS

The tests contained in this report have been carried out on the samples as received by the laboratory.

P5 Sample dried, split and crushed to -150um
C32 Acid Soluble Chloride - AS1012.20
C33 Acid Soluble Sulphate - AS1012.20

SYDNEY ANALYTICAL LABORATORIES

Page 1 of 3

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NATA No: 1884

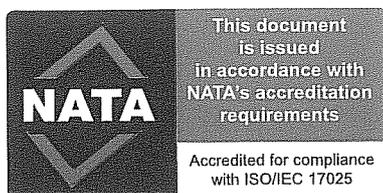
ANALYTICAL REPORT for:

COFFEY INFORMATION PTY LTD

19 WARABROOK BOULEVARD
WARABROOK 2304

ATTN: ALAN CULLEN

JOB NO: SAL22840B
CLIENT ORDER: 00675AA
DATE RECEIVED: 03/06/10
DATE COMPLETED: 15/06/10
TYPE OF SAMPLES: AGGREGATES
NO OF SAMPLES: 6



.....
Issued on 22/06/10
Lance Smith
(Chief Chemist)

ANALYTICAL REPORT

JOB NO: SAL22840B
CLIENT ORDER: 00675AA

SAMPLES	Cl %	SO4 %
1 WARA10S-06925	0.003	0.056
2 WARA10S-06926	0.002	0.061
3 WARA10S-06927	0.004	0.082
4 WARA10S-06928	0.002	0.078
5 WARA10S-06929	0.002	0.073
6 WARA10S-06930	0.002	0.075
MDL	0.001	0.001
Method Code	C32	C33
Preparation	P5	P5

RESULTS ON DRY BASIS

ANALYTICAL REPORT

JOB NO: SAL22840B
CLIENT ORDER: 00675AA

METHODS OF PREPARATION AND ANALYSIS

The tests contained in this report have been carried out on the samples as received by the laboratory.

P5 Sample dried, split and crushed to -150um
C32 Acid Soluble Chloride - AS1012.20
C33 Acid Soluble Sulphate - AS1012.20

**SYDNEY
ANALYTICAL
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Page 1 of 3

Office:
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NATA No: 1884

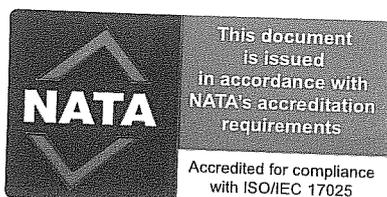
ANALYTICAL REPORT for:

COFFEY INFORMATION PTY LTD

19 WARABROOK BOULEVARD
WARABROOK 2304

ATTN: ALAN CULLEN

JOB NO: SAL22929
CLIENT ORDER: 00675AA
DATE RECEIVED: 29/06/10
DATE COMPLETED: 08/07/10
TYPE OF SAMPLES: AGGREGATES
NO OF SAMPLES: 10




.....
Issued on 12/07/10
Lance Smith
(Chief Chemist)

ANALYTICAL REPORT

JOB NO: SAL22929
CLIENT ORDER: 00675AA

SAMPLES	Cl %	SO4 %
1 WARA10S-07726	0.003	0.098
2 WARA10S-07727	0.003	0.086
3 WARA10S-07728	0.005	0.097
4 WARA10S-07729	0.003	0.084
5 WARA10S-07731	0.007	0.068
6 WARA10S-07732	0.010	0.093
7 WARA10S-07733	<0.001	0.083
8 WARA10S-07738	0.020	0.075
9 WARA10S-07739	0.003	0.090
10 WARA10S-07740	<0.001	0.10

MDL	0.001	0.001
Method Code	C32	C33
Preparation	P5	P5

RESULTS ON DRY BASIS

ANALYTICAL REPORT

JOB NO: SAL22929

CLIENT ORDER: 00675AA

METHODS OF PREPARATION AND ANALYSIS

The tests contained in this report have been carried out on the samples as received by the laboratory.

P5 Sample dried, split and crushed to -150um
C32 Acid Soluble Chloride - AS1012.20
C33 Acid Soluble Sulphate - AS1012.20

Bell Bay Dolerite Results Summary- Dolerite Results



Material Description					Initial testing							Extra Testing													
Source Location					Australian Standards	AS1141.12 (Obtained from AS1141.11)	AS1141.14	AS1141.22- Wet / Dry			AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24	AS1141.23	AS1012.20		AS1141.40, .41, .42		
					Specification Limits	<4% ³	<35%	<25%	>100kN	>150kN	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2.5%	>2.5T/m3	>2.5T/m3	>2.5T/m3	<2%	<9%	<30%	Reported ¹ > 0.01%	Reported ² > 0.01%	>44 min >48 preferred		
Drill Hole	From	To	Length	Description	Location:	Mat Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	Wet Strength (kN)	Dry Strength (kN)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m3)	Particle Density SSD (t/m3)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Chlorides	Sulphates	Polished Agg Friction Value (PAFV)		
BB10-1	36.8	74.85	38.05	dolerite (Central Resource)	C002	2.8	40	29	262	368	2.89	2.64	2.73	3.20	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	-		
BB10-3	32.6	59.5	26.9	dolerite (West Resource)	C007	4.8	21	16	283	338	2.81	2.40	2.54	6.10	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	-		
BB10-4	0	50.3	50.3	dolerite (Central Resource)	C008	2.0	40	16	257	307	2.70	2.75	2.84	1.90	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	-		
BB10-5	27.8	74.1	46.3	dolerite (Central Resource)	C009	1.1	33	12	270	305	2.78	2.82	2.90	1.50	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	-		
BB10-6	29.5	91.9	62.4	dolerite (Central Resource)	C011	2.7	18	18	267	326	3.08	3.15	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	-		
BB10-7	20.9	47.7	26.8	dolerite (Central Resource)	C013	2.2	13	1	273	276	2.28	2.24	2.26	0.90	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	-		
BB10-8	50	110.5	60.5	dolerite (East Resource)	C015	2.8	26	7	237	255	2.73	2.77	2.85	1.60	2.87	2.79	2.82	0.9	1.2	11	<0.002	0.063	-		
BB10-10	52.5	119.4	66.9	dolerite (Central Resource)	C017	2.2	21	22	219	281	2.62	2.08	2.29	9.90	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	-		
BB10-11	93	109	16	dolerite (West Resource)	C019	2.7	27	20	279	350	2.91	2.74	2.80	2.10	2.88	2.75	2.80	1.6	4.6	13	<0.001	0.074	-		
BB10-12	28.8	138.8	110	dolerite (West Resource)	C022	3.0	33	18	328	398	2.80	2.85	2.94	1.70	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	-		
BB10-13	1.5	94.9	93.4	dolerite (West Resource)	C024	2.6	24	10	309	343	2.93	2.77	2.82	1.90	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	-		
BB10-14	8.7	133.65	124.95	dolerite (West Resource)	C025	0.9	26	9	286	314	2.98	2.84	2.89	1.60	2.99	2.94	2.96	0.5	1	14	0.004	0.082	-		
BB10-16	0	119.87	119.87	dolerite (West Resource)	C026	0.4	27	9	271	299	2.96	2.85	2.89	1.30	2.83	2.78	2.80	0.6	1.5	14	0.002	0.078	-		
BB10-17	0	87.7	87.7	dolerite (West Resource)	C027	1.7	28	8	289	315	2.92	2.74	2.80	2.20	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	-		
BB10-18	33.2	82.4	49.2	dolerite (West Resource)	C029	2.1	27	17	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	0.8	1.6	11	0.003	0.098	-		
BB10-19	33.2	82.4	49.2	dolerite (West Resource)	C030	1.5	20	11	284	318	2.95	2.83	2.87	1.40	2.93	2.84	2.87	1.1	1.5	13	0.003	0.086	-		
BB10-20	93.5	117.6	24.1	dolerite (Central Resource)	C031	1.6	29	9	275	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	0.8	1.4	13	0.005	0.097	-		
BB10-21	87.5	113.2	25.7	dolerite (Central Resource)	C036	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083	-		
BB10-4	54.85	99.5	44.85	medium grained (Central Resource)	C043	1.6	18	0	284	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	0.5	3.7	15	<0.001	0.100	-		
BB10-12	104.9	122.8	17.9	fine grained (Central Resource)	C037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47		
BB10-12	57.9	116	58.1	medium grained (West Resource)	C038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50		
BB10-12	123.1	138.65	15.55	fine grained (West Resource)	C039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47		
BB10-12	123.1	138.65	15.55	fine grained (West Resource)	C040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50		
Arithmetic Max						4.80	40.00	29.00	328.00	398.00	3.08	3.15	3.32	9.90	3.00	2.95	2.96	2.80	12.80	16.00	0.01	0.10	50		
Arithmetic Min						0.40	13.00	0.00	219.00	255.00	2.28	2.08	2.26	0.90	2.83	2.68	2.76	0.50	0.70	11.00	0.00	0.04	47		
Arithmetic Average						2.21	26.32	13.16	273.21	316.42	2.84	2.70	2.78	2.62	2.92	2.83	2.86	0.97	3.26	13.42	0.00	0.08	49		
Length Weighted Avg - Note that excludes C037 to C040						1.95	26.03	12.52	275.93	316.64	2.86	2.72	2.79	2.34	2.93	2.86	2.88	0.88	2.67	13.21	0.00	0.08			
Length Weighted Standard Deviation						0.98	7.07	7.19	24.35	33.90	0.17	0.24	0.23	2.16	0.06	0.08	0.07	0.54	3.02	1.43	0.00	0.02			
Note:					1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete																			
Note:					2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m3 of concrete containing this aggregate																			
Note:					3	AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are all in coarse and fine material the 4% limit on <75µm is selected here.																			

Bell Bay Dolerite Results Summary- Estimated Resource Results



Material Description					Initial testing						Extra Testing														
Source Location					Australian Standards	AS1141.12 (Obtained from AS1141.11)	AS1141.14	AS1141.22- Wet / Dry		AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24	AS1141.23	AS1012.20		AS1141.40, .41, .42			
					Specification Limits	<4% ³	<35%	<25%	>100kN	>150kN	>2.5t/m ³	>2.5t/m ³	>2.5t/m ³	<2.5%	>2.5t/m ³	>2.5t/m ³	>2.5t/m ³	<2%	<9%	<30%	Reported ¹ > 0.01%	Reported ² > 0.01%	>44 min >48 preferred		
Drill Hole	From	To	Length	Description	Location:	Materials Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	Wet Strength (kN)	Dry Strength (kN)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m ³)	Particle Density SSD (t/m ³)	Water Absorption (%)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m ³)	Particle Density SSD (t/m ³)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Chlorides	Sulphates	Polished Agg Friction Value (PAFV)		
BB10-1	36.8	74.85	38.05	dolerite (Central Resource)	C002	2.8	40	29	262	368	2.89	2.64	2.73	3.20	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	-		
BB10-3	32.6	69.5	26.9	dolerite (West Resource)	C007	4.8	21	16	283	338	2.81	2.40	2.54	6.10	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	-		
BB10-4	0	50.3	50.3	dolerite (Central Resource)	C008	2.0	40	16	257	307	2.70	2.75	2.84	1.90	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	-		
BB10-5	50.3	125.5	75.2	dolerite (Central Resource)	C009	1.1	33	12	270	305	2.78	2.82	2.90	1.50	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	-		
BB10-5	0	27.8	27.8	weathered dolerite (Central Res.)	C010	6.8	12	87	10	77	2.29	2.53	3.00	10.30	2.61	2.25	2.39	6.2	36.8	38	0.016	0.033	-		
BB10-5	27.8	74.1	46.3	dolerite (Central Resource)	C011	2.7	18	18	267	326	3.08	3.15	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	-		
BB10-6	0	29.5	29.5	weathered dolerite (Central Res.)	C012	3.0	29	23	220	284	2.90	2.67	2.75	3.00	2.95	2.85	2.88	1.1	5.5	12	<0.001	0.080	-		
BB10-6	29.5	91.9	62.4	dolerite (Central Resource)	C013	2.2	13	1	273	276	2.28	2.24	2.26	0.90	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	-		
BB10-7	0	20.9	20.9	weathered dolerite (Central Res.)	C014	3.0	33	19	239	294	2.84	2.87	2.93	1.10	2.81	2.7	2.74	1.5	3.4	13	0.029	0.100	-		
BB10-7	20.9	47.7	26.8	dolerite (Central Resource)	C015	2.8	26	7	237	255	2.73	2.77	2.85	1.60	2.87	2.79	2.82	0.9	1.2	11	0.002	0.063	-		
BB10-8	0	110.5	60.5	dolerite (East Resource)	C017	2.2	21	22	219	281	2.62	2.08	2.29	9.90	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	-		
BB10-10	52.5	119.4	66.9	dolerite (Central Resource)	C019	2.7	27	20	279	350	2.91	2.74	2.80	2.10	2.88	2.75	2.80	1.6	4.6	13	<0.001	0.074	-		
BB10-11	93	109	16	dolerite (West Resource)	C022	3.0	33	18	328	398	2.80	2.85	2.94	1.70	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	-		
BB10-12	2.7	28.8	26.1	weathered dolerite (West Res.)	C023	0.7	27	26	270	200	2.87	2.75	2.67	4.10	2.93	2.84	2.87	1.1	15.6	16	0.003	0.056	-		
BB10-12	28.8	138.8	110	dolerite (West Resource)	C024	2.6	24	10	309	343	2.93	2.77	2.82	1.90	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	-		
BB10-13	1.5	94.9	93.4	dolerite (West Resource)	C025	0.9	26	9	286	314	2.98	2.84	2.89	1.60	2.99	2.94	2.96	0.5	1	14	0.004	0.082	-		
BB10-14	94.9	173.3	78.4	dolerite (West Resource)	C026	0.4	27	9	271	299	2.96	2.85	2.89	1.30	2.83	2.78	2.80	0.6	1.5	14	0.002	0.078	-		
BB10-14	8.7	133.65	124.95	dolerite (West Resource)	C027	1.7	28	8	289	315	2.92	2.74	2.80	2.20	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	-		
BB10-15	4	96.4	82.4	weathered dolerite (West Res.)	C028	4.4	19	16	237	293	2.89	2.71	2.78	2.30	2.96	2.81	2.86	1.9	10.8	15	0.002	0.075	-		
BB10-16	0	119.87	119.87	dolerite (West Resource)	C029	2.1	27	17	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	0.8	1.6	11	0.003	0.098	-		
BB10-17	0	87.7	87.7	dolerite (West Resource)	C030	1.5	20	11	284	318	2.95	2.83	2.87	1.40	2.93	2.84	2.87	1.1	1.5	13	0.003	0.086	-		
BB10-18	33.2	82.4	49.2	dolerite (West Resource)	C031	1.6	29	9	275	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	0.8	1.4	13	0.005	0.097	-		
BB10-19	12.5	72.6	60.1	weathered dolerite (West Res.)	C032	3.1	21	18	255	312	2.79	2.51	2.61	4.00	2.96	2.75	2.82	2.6	2.8	15	0.003	0.084	-		
BB10-20	93.5	117.6	24.1	dolerite (Central Resource)	C036	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083	-		
BB10-21	87.5	113.2	25.7	dolerite (Central Resource)	C043	1.6	18	0	284	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	0.5	3.7	15	<0.001	0.100	-		
BB10-4	54.65	99.5	44.85	medium grained (Central Resource)	C037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47		
BB10-4	104.9	122.8	17.9	fine grained (Central Resource)	C038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50		
BB10-12	57.9	116	58.1	medium grained (West Resource)	C039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47		
BB10-12	123.1	138.65	15.55	fine grained (West Resource)	C040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50		
Arithmetic Max						6.80	40.00	87.00	328.00	398.00	3.08	3.15	3.32	10.30	3.00	2.95	2.96	6.20	36.80	38.00	0.03	0.10	50		
Arithmetic Min						0.40	12.00	0.00	10.00	77.00	2.28	2.08	2.26	0.90	2.61	2.25	2.39	0.50	0.70	11.00	0.00	0.03	47		
Arithmetic Average						2.52	25.64	17.56	256.88	298.48	2.82	2.69	2.78	2.98	2.91	2.80	2.84	1.32	5.48	14.56	0.01	0.08	49		
Length Weighted Avg - Note that excludes C037 to C040						2.25	25.32	14.96	265.84	306.71	2.85	2.71	2.79	2.59	2.93	2.83	2.87	1.13	4.12	13.89	0.00	0.08			
Length Weighted Standard Deviation						1.37	7.15	16.11	57.35	59.93	0.19	0.22	0.21	2.47	0.08	0.14	0.11	1.18	7.59	5.09	0.01	0.02			
Note:					1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete																			
Note:					2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m ³ of concrete containing this aggregate																			
Note:					3	AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.																			

Bell Bay Dolerite Results Summary- All Results



Material Description				Initial testing						Extra Testing													Comments				
Source Location				Australian Standards	AS1141.12 (Obtained from AS1141.11)	AS1141.14	AS1141.22- Wet / Dry			AS1141.5 - Particle Density & Water Absorption (Fine)				AS1141.6.1 - Particle Density & Water Absorption (Coarse)				AS1141.24	AS1141.23	AS1012.20		AS1141.40, .41, .42					
				Specification Limits	<4% ³	<35%	<25%	>100kN	>150kN	>2.5T/m ³	>2.5T/m ³	>2.5T/m ³	<2.5%	>2.5T/m ³	>2.5T/m ³	>2.5T/m ³	<2%	<9%	<30%	Reported ¹ > 0.01%	Reported ² > 0.01%	>44 min >48 preferred					
Drill Hole	From	To	Length	Description	Location:	Mat Finer Than 75µm (%)	Particle Shape 2:1 (%)	Wet/Dry Strength Variation (%)	Wet Strength (kN)	Dry Strength (kN)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m ³)	Particle Density (t/m ³)	Water Absorption (%)	Apparent Particle Density (t/m ³)	Particle Density Dry (t/m ³)	Particle Density SSD (t/m ³)	Water Absorption (%)	Sodium Sulphate Soundness	LA Value	Chlorides	Sulphates	Polished Agg Friction Value (PAFV)				
BB10-1	0	36.8	36.8	fault zone (Central Fault)	C001	2.6	40	7	285	307	2.79	2.44	2.57	5.20	2.92	2.78	2.83	1.7	9.8	13	<0.001	0.064	-				
	36.8	74.85	38.05	dolerite (Central Resource)	C002	2.8	40	29	262	368	2.89	2.64	2.73	3.20	2.90	2.81	2.84	1.1	4.9	15	<0.001	0.041	-				
	74.85	164.3	89.45	sediment	C003	10.4	32	N/A	N/A	N/A	2.75	2.32	2.47	6.80	2.53	2.12	2.28	7.5	95.4	62	<0.001	0.021	-				
BB10-2	0	28	28	fault zone (Central Fault)	C004	7.0	28	9	240	264	2.80	2.32	2.49	7.30	2.92	2.83	2.86	1.1	7.5	16	<0.001	0.016	-				
	28	69.4	41.4	fault zone (Central Fault)	C005	3.0	32	42	160	274	3.19	2.59	2.78	7.20	2.83	2.7	2.75	1.6	16.3	14	<0.001	0.051	-				
BB10-3	0	32.6	32.6	fault zone (Central Fault)	C006	7.8	34	12	226	258	3.01	2.31	2.54	10.00	2.90	2.78	2.82	1.5	6.7	15	0.002	0.053	-				
	32.6	59.5	26.9	dolerite (West Resource)	C007	4.3	21	16	283	338	2.81	2.40	2.54	6.10	2.90	2.78	2.82	1.5	8.9	15	<0.001	0.046	-				
BB10-4	0	50.3	50.3	dolerite (Central Resource)	C008	2.0	40	16	257	307	2.70	2.75	2.84	1.90	2.97	2.9	2.92	0.8	4.1	14	<0.001	0.090	-				
	50.3	125.5	75.2	dolerite (Central Resource)	C009	1.1	33	12	270	305	2.78	2.82	2.90	1.50	2.99	2.95	2.96	0.5	3.1	13	<0.001	0.097	-				
BB10-5	0	27.8	27.8	weathered dolerite (Central Res.)	C010	6.8	12	87	10	77	2.29	2.53	3.00	10.30	2.61	2.25	2.39	6.2	36.8	38	0.016	0.033	-				
	27.8	74.1	46.3	dolerite (Central Resource)	C011	2.7	18	18	267	326	3.08	3.15	3.32	2.40	2.95	2.89	2.91	0.7	1.4	14	<0.001	0.084	-				
BB10-6	0	29.5	29.5	weathered dolerite (Central Res.)	C012	3.0	29	23	220	284	2.90	2.67	2.75	3.00	2.95	2.85	2.88	1.1	5.5	12	<0.001	0.080	-				
	29.5	91.9	62.4	dolerite (Central Resource)	C013	2.2	13	1	273	276	2.28	2.24	2.26	0.90	2.95	2.9	2.92	0.6	0.7	14	<0.001	0.093	-				
BB10-7	0	20.9	20.9	weathered dolerite (Central Res.)	C014	3.0	33	19	239	294	2.84	2.87	2.93	1.10	2.81	2.7	2.74	1.5	3.4	13	0.029	0.100	-				
	20.9	47.7	26.8	dolerite (Central Resource)	C015	2.8	26	7	237	255	2.73	2.77	2.85	1.60	2.87	2.79	2.82	0.9	1.2	11	0.002	0.063	-				
BB10-8	5.2	50	44.8	fault zone (East Fault)	C016	11.5	29	37	193	307	2.76	2.54	2.62	3.20	2.83	2.43	2.57	5.7	18.5	13	0.015	0.067	-				
	50	110.5	60.5	dolerite (East Resource)	C017	2.2	21	22	219	281	2.82	2.08	2.29	9.90	2.83	2.74	2.77	1.1	2.3	11	<0.001	0.066	-				
BB10-9	3	52.5	49.5	0 fault zone (East Fault)	not tested																						
	52.5	119.4	66.9	dolerite (Central Resource)	C018	10.6	18	38	151	243	1.44	2.83	2.35	26.80	2.84	2.55	2.66	4.0	26.5	19	0.003	0.062	-				
BB10-10	52.5	119.4	66.9	dolerite (Central Resource)	C019	2.7	27	20	279	350	2.91	2.74	2.80	2.10	2.88	2.75	2.80	1.6	4.6	13	<0.001	0.074	-				
	12	59.9	47.9	fault zone (Central Fault)	C020	3.8	22	37	189	298	2.72	2.43	2.54	4.30	2.85	2.71	2.76	1.9	10.8	15	0.002	0.075	-				
BB10-11	59.9	93	33.1	fault zone (Central Fault)	C021	5.5	14	42	162	280	2.25	2.43	2.74	7.90	2.80	2.47	2.59	4.7	43.0	18	<0.001	0.090	-				
	93	109	16	dolerite (West Resource)	C022	3.0	33	18	328	398	2.80	2.85	2.94	1.70	2.92	2.83	2.86	1.0	1.6	16	0.001	0.079	-				
BB10-12	2.7	28.8	26.1	weathered dolerite (West Res.)	C023	0.7	27	26	270	200	2.87	2.75	2.67	4.10	2.93	2.84	2.87	1.1	15.6	16	0.003	0.056	-				
	28.8	138.8	110	dolerite (West Resource)	C024	2.6	24	10	309	343	2.93	2.77	2.82	1.90	2.97	2.90	2.93	0.8	2.3	13	0.002	0.061	-				
BB10-13	1.5	94.9	93.4	dolerite (West Resource)	C025	0.9	26	9	286	314	2.98	2.84	2.89	1.60	2.99	2.94	2.96	0.5	1	14	0.004	0.082	-				
	94.9	173.3	78.4	dolerite (West Resource)	C026	0.4	27	9	271	299	2.96	2.85	2.89	1.30	2.83	2.78	2.80	0.6	1.5	14	0.002	0.078	-				
BB10-14	8.7	133.65	124.95	dolerite (West Resource)	C027	1.7	28	8	289	315	2.92	2.74	2.80	2.20	3.00	2.92	2.95	0.8	3.4	14	0.002	0.073	-				
	126	86.4	62.4	weathered dolerite (West Res.)	C028	4.4	19	16	237	283	2.89	2.71	2.78	2.30	2.96	2.81	2.86	1.9	10.8	15	0.002	0.075	-				
BB10-16	0	119.87	119.87	dolerite (West Resource)	C029	2.1	27	17	275	333	2.94	2.80	2.85	1.70	2.95	2.88	2.90	0.8	1.6	11	0.003	0.098	-				
	0	87.7	87.7	dolerite (West Resource)	C030	1.5	20	11	284	318	2.95	2.83	2.87	1.40	2.93	2.84	2.87	1.1	1.5	13	0.003	0.086	-				
BB10-18	0	33.2	33.2	fault zone (Central Fault)	C033																						
	33.2	82.4	49.2	dolerite (West Resource)	C031	1.6	29	9	275	303	2.88	2.78	2.82	1.20	2.84	2.77	2.80	0.8	1.4	13	0.005	0.097	-				
BB10-19	12.5	72.6	60.1	weathered dolerite (West Res.)	C032	3.1	21	18	255	312	2.79	2.51	2.61	4.00	2.96	2.75	2.82	2.6	2.8	15	0.003	0.084	-				
	0	67.2	67.2	fault zone (Central Fault)	C034	9.0	26	71	22	78	2.59	2.16	2.33	7.60	2.76	2.18	2.39	9.7	29.6	34	0.007	0.068	-				
BB10-20	67.2	93.5	26.3	fault zone (Central Fault)	C035	12.1	17	42	60	103	2.67	2.13	2.34	9.40	2.80	2.15	2.38	10.7	24.9	23	0.010	0.093	-				
	93.5	117.6	24.1	dolerite (Central Resource)	C036	3.2	29	18	243	298	2.86	2.53	2.64	4.60	2.90	2.68	2.76	2.8	12.8	12	<0.001	0.083	-				
BB10-21	0	53.4	53.4	fault zone (Central Fault)	C041	7.3	23	47	83	156	2.69	2.45	2.59	9.30	2.81	2.39	2.54	6.2	17.9	23	0.020	0.075	-				
	53.4	87.5	34.1	fault zone (Central Fault)	C042	8.9	21	34	127	192	2.75	2.18	2.38	9.50	2.85	2.41	2.56	6.4	23.4	15	0.003	0.090	-				
BB10-4	87.5	113.2	25.7	dolerite (Central Resource)	C043	1.6	18	0	284	285	2.92	2.72	2.79	2.50	2.84	2.80	2.81	0.5	3.7	15	<0.001	0.100	-				
	54.65	99.5	44.85	medium grained (Central Resource)	C037																		47				
BB10-12	104.9	122.8	17.9	fine grained (Central Resource)	C038																		50				
	57.9	116	58.1	medium grained (West Resource)	C039																		47				
BB10-12	123.1	138.65	15.55	fine grained (West Resource)	C040																		50				
Arithmetic Max						12.10	40.00	87.00	328.00	398.00	3.19	3.15	3.32	26.80	3.00	2.95	2.96	10.70	95.40	62.00	0.03	0.10	50				
Arithmetic Min						0.40	12.00	0.00	10.00	77.00	1.44	2.08	2.26	0.90	2.53	2.12	2.28	0.50	0.70	11.00	0.00	0.02	47				
Arithmetic Average						4.27	25.71	23.17	224.86	276.27	2.76	2.59	2.69	4.97	2.88	2.70	2.76	2.52	12.29	16.95	0.01	0.07	49				
Length Weighted Avg - Note that excludes C037 to C040						3.83	25.20	19.67	221.55	268.19	2.74	2.58	2.66	4.32	2.84	2.68	2.74	2.28	11.90	17.03	0.00	0.07					
Length Weighted Standard Deviation						3.26	7.19	18.43	78.59	73.30	0.30	0.25	0.23	4.76	0.10	0.23	0.18	2.67	17.50	9.32	0.01	0.02					
Note:				1	AS2758.1 specifies that Chloride ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 0.04% max limit for an aggregate combination in concrete																						
				2	AS2758.1 specifies that Sulfate ion contents in excess of 0.01% shall be reported, but this may not mean the aggregate will exceed the 5% by mass of portland cement in 1m3 of concrete containing this aggregate																						
				3	AS1141.13- material <2µm specifies that if the %material<75µm is less than 1% for coarse and less than 4% for Fine aggs no further testing is required. i.e. The risk of clay bearing minerals causing expansion to concrete is considered minimal. As the composites are an all in coarse and fine material the 4% limit on <75µm is selected here.																						