JOB NO. GE15/160 OCTOBER, 2015 AUSSIE HYDROVAC SERVICES GEOTECHNICAL INVESTIGATION PROPOSED NEW BRIDGE OVER SPRING CREEK AND APPROACH EMBANKMENTS STAGE 1 BEAUDESERT TOWN CENTRE BYPASS (BTCB) BEAUDESERT







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Job No. GE15/160 Ref: 17129 Author: Not relevant

26th October, 2015

Aussie Hydrovac Services 359 California Creek Road Cornubia QLD 4130

ATTENTION Not relevant

Email: Not relevant @aussiehydrovac.com.au

Dear Sir

RE: <u>GEOTECHNICAL INVESTIGATION – PROPOSED NEW BRIDGE OVER SPRING</u> <u>CREEK AND APPROACH EMBANKMENTS , STAGE 1, BEAUDESERT TOWN</u> <u>CENTRE BYPASS (BTCB), BEAUDESERT</u>

1.0 INTRODUCTION

This report is a factual report only which presents the results of a geotechnical investigation carried out for the proposed new bridge over Spring Creek and approach embankments as part of the Beaudesert Town Centre Bypass (BTCB), Beaudesert. The geotechnical investigation is proposed to provide sufficient geological and geotechnical information to allow the preliminary design of the road embankments, cutting, pavements, bridge and drainage structures. The work was commissioned by the Client, Not relevant from the Aussie HydroVac Services.

From the information provided, it is understood that as part of the proposed BTCB a new bridge and approach embankments is to be constructed over Spring Creek. The site investigation works consist of two (2) boreholes and ten (10) Cone Penetration Tests (CPT). The purpose of the boreholes is to identify key geological/geotechnical features at the bridge location and confirm bedrock level. The CPT's will be used to assess the strength of the subsurface material at each drainage structure, high fill embankment locations and at the bridge piers.

The geotechnical report includes the detailed results of the field work and laboratory testing, together with factual information which includes the following:-

- Subsurface conditions encountered in the boreholes including strength properties of encountered materials, depths to bedrock as well as the strength, weathering profile, defect spacing and RQD percentage of the encountered bedrock. A schematic cross section of boreholes BH1 and BH2 as well as a geotechnical model of each geological unit has also been provided.
- Groundwater depths.
- Factual report detailing findings from geotechnical investigation and containing borelogs and NATA endorsed test results.



All fieldwork including borehole drilling and sampling as well as all laboratory testing including test type and frequency of testing has been carried out in accordance with the Aurecon brief (Ref: 248297) unless advised otherwise.

2.0 METHODOLOGY

The investigation involved the drilling of two (2) boreholes with borehole BH1 being drilled on the northern side of Spring Creek and borehole BH2 being drilled on the southern side of Spring Creek. The boreholes were drilled using a MobileB40L truck mounted drilling rig. The boreholes were each auger drilled using standard hollow flight 100mm diameter augers fitted with a tungsten carbine (TC) bit to depths of 2.5m with washbore drilling techniques used beyond this depth to the refusal depths into moderately weathered (MW) rock or better. Below this depth, NMLC coring was carried out within the less weathered rock. A minimum of 5.0m of at least moderately weathered rock was recovered from boreholes BH1 and BH2 using NMLC coring techniques. Boreholes BH1 and BH2 were terminated at depths of 24.0m and 24.5m, respectively. At the completion of drilling, each borehole was temporarily left open to measure the groundwater depth. A standpipe piezometer was also installed within Borehole BH2.

It should be noted that the boreholes were drilled as close as practical to the locations requested by the Client. Levels and coordinates of the boreholes were provided by the Client.

Standard Penetration Tests (SPT) were carried out at regular depth intervals within each borehole and undisturbed U50 tube samples of the encountered clay soils were also obtained for laboratory testing. The subsurface conditions encountered in the boreholes were logged by an engineering geologist and geotechnical engineer from our Gold Coast office, who also directed all field testing and sampling as well as boxing and photographing the recovered rock core. SPT and disturbed samples of the encountered soils were obtained for Particle Size Distribution (PSD) tests, Atterberg Limits tests, Moisture Content tests, Lime Demand tests and Aggressivity tests. U50 tube samples of the insitu clay soils were also obtained for Shrink-Swell with Swell Pressure tests, Triaxial Strength Compression testing (UU and CU). Point Load Strength Index tests and Unconfined Compressive Strength (UCS) tests were also carried out on rock core samples recovered from the boreholes. A UCS with modulus was also carried out on one of the rock core samples. The Triaxial Strength Compression tests, UCS with Modulus test, Shrink-Swell with Swell Pressure tests and Lime Demand tests were carried out externally by Trilab. The Aggressivity tests were also carried out externally by ALS Environmental.

Cone Penetration Tests (CPT) were also carried out at ten (10) locations as part of the investigation. These tests comprised CPT01 to CPT10, CPT7a, CPT8a and CPT9a with CPT7a also including a Pore Pressure Dissipation test. The CPT tests were carried out by IGS.

The locations and levels of the boreholes and CPT tests for the proposed new structure over Spring Creek are shown in Table 1 below.

Borehole/CPT No.	Easting	Northing	RL (m)	Location Description
BH1	498995.3	6904497	44.459	CH41265 Mount Lindsay Highway
BH2	498977.5	6904459	44.280	CH41300 Mount Lindsay Highway
CPT01	499244.5	6905028	51.796	CH40670 Mount Lindsay Highway
CPT02	499152.5	6904834	42.305	CH40895 Mount Lindsay Highway
CPT03	499112.9	6904748	42.470	CH40985 Mount Lindsay Highway
CPT04	499073.1	6904663	42.968	CH41080 Mount Lindsay Highway
CPT05	499000.2	6904508	44.083	CH41250 Mount Lindsay Highway
CPT06	498984.9	6904474	44.446	CH41280 Mount Lindsay Highway
CPT07/CPT07a	498951.5	6904405	44.045	CH41360 Mount Lindsay Highway
CPT08/CPT08a	498925.2	6904348	43.171	CH41430 Mount Lindsay Highway
CPT09/CPT09a	498865.3	6904220	46.728	CH41570 Mount Lindsay Highway
CPT10	498728.1	6903944	41.063	CH575 Beaudesert-Boonah Road

TABLE 1 – Borehole/CPT Locations

Note: Coordinates provided by Aussie HydroVac Services Aussie HydroVac Services

A site plan showing the locations of the boreholes and CPT tests is attached to this report. The logs of the boreholes, including the SPT results are presented in Appendix A to this report. The CPT test results are contained in Appendix B. An interpreted cross section through the boreholes within the footprint of the bridge is shown in Appendix C. Results of the laboratory tests are presented in Appendix D to this report.

3.0 SITE DESCRIPTION

The site for the proposed new bridge structure which is to span Spring Creek is located within a large flat floodplain area associated with an alluvial/ flood plain environment. Spring Creek typically aligns in an east west lineation and is approximately 20m wide at this location with the water flowing towards the west. Both the northern and southern banks of the creek expose natural soil and have been eroded to form moderate sloping banks ranging between approximately 15° and 30° in surface gradient and up to approximately 2.0m in height. The base of the creek appears to be relatively shallow being typically less than 1.0m in depth.

The creek also support moderate to dense tree vegetation within both the northern and southern banks. The approached to both the northern and southern creek banks support grass.

4.0 SUBSURFACE CONDITIONS

The regional geology, local subsurface conditions and groundwater conditions are presented in Sections 4.1, 4.2 and 4.3 respectively.

4.1 Regional Geology

The regional geology of the area forms flood plain and river terrace deposits formed in the Quaternary Geological Time Period. They comprise mainly mud, silt, sand, clay and gravel. These flood plain and river terrace deposits are underlain at depth by bedrock belonging to the Lamington Group which is thought to have been formed in the Tertiary Geological Time Period. The Laminton Group is a volcanic formation which mainly comprises basalt (Moreton Geology 1:500 000, 1980).

4.2 Local Geology

Based on the results of borehole drilling, the subsurface conditions encountered in boreholes BH1 and BH2 comprise sandy clay topsoil at the surface. This topsoil is underlain by alluvial silty clay soil of high plasticity extending to depths of 12.80m and 14.00m These alluvial soils are underlain by residual silty clay soil of medium and medium to high plasticity extending to depths of 14.70m and 17.65m. This residual soil is underlain by bedrock comprising extremely weathered (XW), very low and low strength basalt and andesite which becomes moderately weathered (MW) and slightly weathered (SW) and medium and high strength with some very high strength layering with depth.

The basalt/andesite bedrock is massive with localised conglomeritic zones. It is also vesicular in areas and is moderately jointed with a typical defect spacing ranging between 30mm and 300mm. There also appears to be significant feldspar veining throughout.

A summary of the subsurface conditions encountered in the boreholes are presented in the following subsections whilst a geotechnical model of the subsurface conditions is presented in Section 5.0 of this report and a cross section through the boreholes at the bridge location presented in Appendix C.

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Topsoil: (Unit 1)	Comprising moist, very stiff, sandy clay topsoil of high plasticity extending to depths of 0.20m and 0.25m, underlain by;
Alluvial Soil: (Unit 2)	Comprising moist, very stiff and hard, silty clay of high plasticity extending to depths of 12.80m and 14.00m with some stiff and stiff to very stiff layers below a depth of approximately 5.0m, underlain by;
Residual Soil: (Unit 3)	Comprising moist, stiff to very stiff, very stiff to hard and hard, silty clay of medium and medium to high plasticity extending to depths of 14.70m and 17.65m, underlain by;
Bedrock: (Units 4 & 5)	Comprising extremely weathered (XW), very low and low strength basalt and andesite which becomes moderately weathered (MW) and slightly weathered (SW) and medium and high strength with some very high strength layering from depths of 18.60m and 19.10mm extending to to depths ranging in excess of 24.00m and 24.50m.

Boreholes BH1 and BH2 were terminated at depths of 24.00m and 24.50m, respectively, using NMLC Rock Coring techniques.

4.2.1 Geotechnical Summary of Subsurface Conditions

A tabular summary of the subsurface conditions encountered in the boreholes is presented in Table 2 below.

TABLE 2 - Summar	y of the S	Subsurface	Profile Within	Boreholes
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Darahala	Topsoil (m)	TopsoilAlluvial SoilsResidual Soils(m)(m)(m)		Volcanic Rock (m)			
No.	Sandy Clay (CH)	Silty Clay (CH)	Silty Clay (CI/CI-CH)	XW-HW Basalt/ Andesite	MW/SW Basalt/ Andesite		
BH1	0.00 - 0.25	0.25 - 12.80	12.80 - 14.70	14.70 - 18.60	18.60 - 24.00*		
BH2	0.00 - 0.20	0.20 - 14.00	14.00 - 17.65	17.65 - 19.10	19.10 - 24.50*		

*Denotes termination depth.

An interpretive cross section of the subsurface conditions through the boreholes is presented in Appendix C to this report.

4.3 Groundwater Conditions

Groundwater was encountered in all boreholes at the time of drilling. Groundwater depths and levels are presented in Table 3 below.

TABLE 3 – Groundwater Depths and Levels

Borehole	Surface RL(m)	Depth (m)	Level RL(m)
BH1	44.459	7.20	37.259
BH2	44.280	6.80	37.480

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4.2.1 Boreholes BH1 and BH2

5.0 GEOTECHNICAL MODEL

A geotechnical model of the subsurface conditions encountered in boreholes BH1 and BH2 during this investigation and the results of the field testing are presented in Table 4 below.

Geotechnical Unit	Description	Approximate Design Level to Base of Geotechnical Unit (m)	Typical Material	Typical Consistency	Typical 'N' Values
1	Topsoil	RL44.08 to RL44.21	Sandy Clay (CH)	Very Stiff	N/A (PP: 240-320kPa)
2	Alluvial Soil	RL30.28 to RL31.66	Silty Clay (CH)	Stiff/Stiff to Very Stiff/ Very Stiff/ Very Stiff to Hard/ Hard	7 to 20 (PP: 150->600kPa)
3	Residual Soil	RL26.63 to RL29.76	Silty Clay (Cl/Cl- CH)	Stiff to Very Stiff/Very Stiff to Hard/ Hard	16 to 24 (PP: 200->600kPa)
4	XW/HW Bedrock	RL25.18 to RL25.86	Basalt/Andesite	VLS/LS/LS to MS	52 to 150
5	MW/SW Bedrock	RL19.78 to RL20.46	Basalt/Andesite/ Conglomerate	MS/HS/VHS	N/A

TABLE 4 – Geotechnical Model

N/A - Not Applicable

6.0 LABORATORY TEST RESULTS

Laboratory testing was carried out on samples specified by Aurecon in boreholes BH1 and BH2. A description of the laboratory tests carried out for this investigation including the test standards are as follows:-

- Atterberg Limits (Q104D, Q105, Q106)
- Particle Size Distribution by Sieve (Q103A)
- Moisture Content (Q102A)
- Shrink-Swell with Swell Pressure (AS1289 7.1.1)
- Lime Demand (Q133)
- Soil Aggressivity (pH, Electrical Conductivity, Chloride and Sulphate ALS NATA accredited test method)
- Triaxial UU (Unconsolidated Undrained) Multi Stage (AS1289 6.4.1)
- Triaxial CU (Consolidated Undrained) Multi Stage (AS1289 6.4.2)
- UCS (Unconfined Compressive Strength on Rock Core) (AS4133 4.2.1)
- UCS with Modulus (Unconfined Compressive Strength on Rock Core) (AS4133 4.3.1)
- Point Load Strength Index on Rock Core (AS4133 4.4.1)

The results are presented in the Tables below with the NATA endorsed test certificates presented in Appendix D to this report.

Berchele/CDT	Donth	%	Material	Туре	Linear	Liquid	Plasticity	Moisture		
No.	(m)	Clay /Silt	Sand	Gravel	Shrinkage (%)	rinkage Limit (%) (%)		Content (%)	Material	
BH1	2.50-2.70	N/A	N/A	N/A	18.0	68.2	44.2	26.3	Silty CLAY (CH)	
*BH1	4.00-4.45	96	4	-	N/A	N/A	N/A	N/A	Silty CLAY (CH)	
BH1	7.00-7.45	N/A	N/A	N/A	19.4	63.8	37.2	21.4	Silty CLAY (CH)	
BH2	1.00-1.45	89	11	-	21.8	67.2	38.8	32.2	Silty CLAY (CH)	
BH2	4.00-4.45	N/A	N/A	N/A	20.6	63.2	34.6	35.6	Silty CLAY (CH)	
BH2	5.50-5.86	N/A	N/A	N/A	16.6	59.8	35.6	32.3	Silty CLAY (CH)	
CPT02	0.80-1.40	94	6	-	18.0	76.2	33.0	31.8	Silty CLAY (CH)	
CPT04	1.50-2.10	N/A	N/A	N/A	13.6	62.6	29.0	30.3	Silty CLAY (CH)	
CPT05	0.80-1.40	99	1	-	18.0	70.0	32.6	41.4	Silty CLAY (CH)	

TABLE 5 – Atterberg Limits and Particle Size Distribution Test Results

*Denotes not enough sample for Atterberg Limits test N/A - Not Applicable Aussie HydroVac Services

Borehole No.	Material Type	Depth (m)	Swell Pressure	Wet Density	Moisture Content	Shrink (%)	Swell (%)	Shrink Swell Index
DUO		0.50.0.70	(КГа)	(011)	(70)	0.7	4.4	155 (70)
BH2	SIITY CLAY (CH)	2.50-2.79	100	1.86	36.1	9.7	1.4	5.8

TABLE 6 – Shrink/Swell Test with Swell Pressure Results

Note: CPT samples could not be tested for shrink/swell as they are U40 tube samples.

TABLE 7 – Lime Demand Test Results

Borehole				E	8H1				
Depth				0.80	0-1.45				
Lime (%)	0	1	2 3 4 5 6					7	
рН	8.16	10.76	12.02	12.44	12.62	12.69	12.7	12.72	
Type and Source of Hydrated Lime					Hydrate	ed Lime fror	nCement A	ustralia	
pH of Hyd	rated Lim	ne				12	.7		
Lime Dema	Lime Demand for -2.36mm Sample (HCL)					5.0			
Borehole				E	3H2	$\langle \rangle$			
Depth				0.20	0-1.00				
Lime (%)	0	1	2	3	4	5	6	7	
рН	7.91	10.81	12.19	12.48	12.65	12.68	12.73	12.74	
Type and S	Source of	Hydrated	Lime		Hydrated Lime fromCement Australia				
pH of Hydrated Lime				12.7					
Lime Dema	and for -2	2.36mm Sa	mple (HCL)		6.0				

TABLE 8 – Soil Aggressivity Test Results (ALS)

Borehole	Depth (m)	рН	Total Soluble Salts (mg/kg)	Moisture Content (%)	Saturated Resistivity (Ohm cm)	Soluble Sulfate by ICPAES (mg/kg)	Chloride Discrete Analysis (mg/kg)
BH1	10.00-10.45	8.6	178	25.2	1680	<10	70
BH1	14.50-14.95	8.5	116	27.4	1780	<10	50
BH2	1.00-1.45	8.5	266	24.2	1220	<10	100
BH2	14.50-14.95	8.5	109	25.1	3640	<10	40

TABLE 9 - Unconsolidated Undrained Triaxial (3 Stage) Test Results

Borehole	Depth (m)	Confining Pressure (kPa)	Major Principal Stress (kPa) (σ ₁)	Minor Principal Stress (kPa) (σ ₃)	Maximum Deviator Stress (kPa)	Failure Strain (%)
		50	290	50	240	2.87
BH2	5.50-5.86	100	348	100	248	3.76
		200	459	200	259	6.29
		50	214	50	164	2.30
BH2	8.50-8.88	100	282	100	182	3.55
		200	412	200	212	5.30

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Borehole	Depth (m)	Confining Pressure (kPa)	Major Principal Stress (kPa) (σ₁)	Minor Principal Stress (kPa) (σ ₃)	Maximum Deviator Stress (kPa)	Failure Strain (%)	Cohesion (kPa)	Friction Angle (°)
		548	81	16	65	0.98		
BH1	5.5-5.8	601	182	53	129	2.69	5	28
		705	344	105	239	8.40		

TABLE 10 – Consolidated Undrained Triaxial (3 Stage) Test Results

TABLE 11 – Unconfined Compressive Strength of Rock (UCS) Test Results

Borehole No.	Sample Depth (m)	Density (kg/m³)	Compressive Strength (MPa)	Corrected UCS (MPa)	Young's Modulus (GPa)	Poisson Ratio	Failure Mode
BH1	21.30-21.48	2.13	5.92	5.92	4.96 (Tangent) 5.16 (Secant)	0.118	Shear
BH1	23.30-23.50	2.32	7.5	7.5	N/A	N/A	Multi shear Plane
BH2	20.65-20.85	2.30	16.0	16.0	N/A	N/A	Mixed Mode/ Tensile Dominated
BH2	22.70-22.87	2.40	25.5	25.5	N/A	N/A	Tensile Dominated
N/A - Not	Applicable						

 TABLE 12 – Point Load Strength Index Test Results

Comula	Davahala				Laadina	Description
Number	Number	Depth (m)	ls (MPa)	(MPa)	Direction	Term
522	BH1	18.85	0.34	0.35	Diametral	M*
523	BH1	19.25	1.35	1.37	Diametral	Н
523	BH1	19.25	1.36	1.36	Axial	Н
524	BH1	19.55	0.25	0.26	Diametral	L-M*
525	BH1	19.90	0.61	0.61	Diametral	M*
526	BH1	20.25	0.48	0.49	Diametral	М
527	BH1	21.50	0.42	0.43	Diametral	M*
527	BH1	21.50	0.92	0.89	Axial	М
528	BH1	22.35	1.84	1.87	Diametral	Н
528	BH1	22.35	1.89	1.72	Axial	Н
529	BH1	22.60	0.59	0.60	Diametral	M*
530	BH1	23.50	0.92	0.93	Diametral	M*
531	BH1	23.95	1.23	1.24	Diametral	Н
512	BH2	19.95	0.67	0.68	Diametral	M*
513	BH2	20.60	0.93	0.94	Diametral	M-H
514	BH2	21.05	1.59	1.61	Diametral	Н
515	BH2	21.70	1.29	1.31	Diametral	Н
516	BH2	22.45	2.69	2.73	Diametral	Н
517	BH2	22.70	0.67	0.68	Diametral	M*
517	BH2	22.70	3.39	3.34	Axial	VH
518	BH2	22.90	1.75	1.78	Diametral	Н
518	BH2	22.90	1.27	1.28	Axial	Н
519	BH2	23.40	1.75	1.78	Diametral	Н
519	BH2	23.40	1.65	1.55	Axial	Н
520	BH2	23.80	0.48	0.49	Diametral	М
520	BH2	23.80	0.39	0.41	Axial	М
521	BH2	24.45	4.08	4.14	Diametral	VH

EL: Extremely Low, VL: Very Low, L: Low, M: Medium, H: High, VH: Very High, EH: Extremely High *Denotes failed along defect plane

All tested samples in boreholes BH1 and BH2 are basalt/andesite.

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7.0 LIMITS OF INVESTIGATION

This Report has been prepared by Morrison Geotechnic Pty Ltd, and may include contributions from Morrison Geotechnic's officers and employees, sub-contractors, sub-consultants or agents (**Contributors**).

This Report is for the sole benefit and use of the Client, Aussie HydroVac Services, for the sole purpose of providing geotechnical advice and recommendations in respect of the proposed development at Stage 1 of the Beaudesert Bypass, Beaudesert (**Project**). The Report is only intended to address those issues expressly described in the scope of work in the Proposal Letter and this Report.

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- (b) have not verified the accuracy or reliability of this information (other than as expressly stated in this Report);
- (c) have not made any independent investigations or enquiries in respect of those matters of which it has no actual knowledge at the time of giving this Report to the Client; and
- (d) make no warranty or guarantee, expressed or implied, as to the accuracy or reliability of this information.

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- (a) cannot predict the ground conditions encountered at any untested location because the ground conditions surrounding a test sampling location (or between any two test sampling locations) may be different from the test samples we have obtained;
- (b) is not an environmental, contamination or hazardous materials assessment; may be invalid, incomplete or inaccurate (including errors in the scope of work, investigation methodology, observations, opinions and advice) where the information provided to Morrison Geotechnic was invalid, incomplete or inaccurate;
- (c) is limited to observations of those parts of the site that were accessible at the time of the field investigation and is not based on observations about areas of the site which were inaccessible to the investigation equipment (including slopes, heavily vegetated areas or service corridors); and

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(d) is not a comprehensive representation of the actual site conditions and may only show a reasonable interpretation of conditions encountered at discrete test locations along with general site observations.

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If further information becomes available, or additional assumptions need to be made, Morrison Geotechnic reserves its right to amend this Report.

If you have any queries please do not hesitate to contact our Gold Coast office.

Yours faithfully



for and on behalf of **MORRISON GEOTECHNIC PTY LIMITED**

 Encl Site Plan (Sheet 1 to 6 provided by TMR) Appendix A – Borehole Record Sheets (incl Core Photos & Defect Description sheet) Appendix B – CPT Test Results Appendix C – Cross Section through Borehole at Bridge Location (Section A) Appendix D – Laboratory Test Certificates
 Important Information About Your Geotechnical Engineering Report

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APPENDIX A

BOREHOLE RECORD SHEETS



A.B.N. 051 009 878 899 PO Box 3063, Darra, QLD 4076 Phone: (07) 3279 0900 Fax: (07) 3279 0955 **Engineering Log - Borehole**

Borehole No.: BH1

Page: 1 of 6

Ģ	EO	TECHN	C				Job	Numb	ber: G	E15/1	60		-			
		Easting:	498995.3	0	D	rilling Rig	g: Mobile B40L	Clie	ent: A	ussie l	HydroVa	c Servic	es			
		Northing:	6904497.0	0		Drille	r: Redlands Drilling	Proj	ect: P	ropose	ed Bridg	e over Sp	oring C	reek		
	Tot	RL: al Depth:	44.4 18.6	16 50	L	ogged By Date	e: 21/09/2015	- Locati	on: B	' eaude	sert Bvp	ass. Bea	audese	rt		
	Drilli	ng Infor	mation			Dat	Material Description					Te	st San	nples	٦	
rill Method	'ater		Hole Depth	oil Origin	raphic Log	assification Code		eathering	oisture	onsistency - ensity - Strength	C Test Results	Test		K		
	5	KL	(m)	٥ م	U	U U	Description	\$	Σ	00		Depth	Tests	Sample/Result		
			0.25 –	Topsoil		СН	Sandy CLAY: Very stiff, high plasticity, dark brown, fine with some medium grained sand, with root matter, moist.		M	VSt		0.1 –	– PP	– 320 kPa -	-	
th TC Bit		44.0	1.0	Alluvial		Un	Sity CLAY: Very stiff, high plasticity, dark brown with a trace of orange brown mottling, with some fine grained sand, moist.		IVI	VSI		1		-	-	
iger wi			-									}	– SPT	– 3,5,5, N-10	-	
mm Au		43.0	16									1.45	– PP	– 350 kPa	-	
100r		42.0	2.0			СН	Silty CLAY: As above but hard and dark grey brown.		М	H		2.5 -		-	-	
T.C Bit		41.0	3.0				J.C.					}	– U50	– PP > 600 kPa -	-	
ash Boring with T		-	4.0	20		СН	Silty CLAY: As above but with a trace of fine grained sand only.		M	H		4 _		-	-	
M		_40.0	4.8 -			СН	Silty CLAV-		M	st-		4.45	– SPT – PP	– 4,5,8, N=13 – 550 kPa	-	
			5.0				As above but stiff to very stiff and grey brown.			VSt						
Co	ater	ents:	Weathering	9	Consis	stency	Density Rock Strength Tes	A D Lts & Res	Authoris Date:	sed by						
	Var −on o −War √War	ter level date shown ter inflow ter outflow	XW Extre weat HW High MW oder weat SW Sligh weat	emely thered ily theredM ately thered ntly thered	VS VS F H St S VSt V H H	Very soft Soft Firm Stiff Very stiff Hard	VL Very loose ELS Extremely U50 L Loose low D MD Medium VLS Very low SP dense LS Low D Dense MS Medium PP VD Very dense HS High S VHS Very high DC EHS Extremely	Date:								

high

From AS1289-1993 Methods of Testing Soils for Engineering Purposes

D Dry M Moist W Wet

FR

Fresh

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Borehole No.: BH1

Page: 2 of 6



high

From AS1289-1993 Methods of Testing Soils for Engineering Purposes

FR Fresh

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MORRISON

Engineering Log - Borehole

Borehole No.: BH1

Page: 3 of 6



A.B.N. 051 009 878 899 PO Box 3063, Darra, QLD 4076 MORRISON Phone: (07) 3279 0900 Fax: (07) 3279 0955 **Engineering Log - Borehole**

Borehole No.: BH1

Page: 4 of 6

G	EO	TECHN	IC				Job	Num	ber: (GE15/1	60			
		Easting:	498995.3	0	Dri	ling Rig	: Mobile B40L	Clie	ent: A	ussie l	HydroVa	c Service	es	
		Northing:	6904497.0	0		Driller	r: Redlands Drilling N/R	Proj	ect: F	ropose	ed Bridge	e over Sp	oring C	reek
	То	tal Depth:	44.4 18.6	о 0	LO	јдео Бу Date	: 21/09/2015	ocati	on: E	Beaude	sert Byp	ass, Bea	udese	rt
[Drilli	ing Infor	mation	-			Material Description					Tes	st Sam	ples
Method	er		Holo Dopth	Origin	shic Log	sification Code		thering	sture	sistency - sity - Strength	Fest Results	Toot		X
Drill	Wate	RL	(m)	Soil	Grap	Clas	Description	Wea	Mois	Con: Den:	- DC -	Depth	Tests	Sample/Result
		29.0	15.5 –	Bedrock		BAS	BASALT: Very low strength, extremely weathered, orange brown and brown mottled dark grey. BASALT:	XW		VLS		5		
< Roller		28.0	16.0				.As above but low strength					¹⁶ ۍ	– SPT	– 30/60mm
Wash Boring with Rock		_ 27.0	17.0									^{17.5} }	– SPT	- 30/120mm
		_26.0	- 18.0 - -			BAS	BASALT: As above but medium strength and highly to moderately weathered	-HW MW		MS				-
C		_25.0	19.0	2	5		18.60m: BOREHOLE CONTINUED AS A COREHOLE - ROCK ROLLER REFUSAL							-
Co Wa	mm	ents:	Weathering) Imely	Consiste	ency	Density Rock Strength Tests	A C s & Res	Authori Date: .	sed by	am tube			
	Va −on −Wa	ter level date shown ter inflow ter outflow	W Extre weat HW High weat MW oder weat SW Sligh weat	hered y heredM ately hered tly hered	S So F Fi St St VSt Ve H Ha	oft rm iff ery stiff ard	VE Very losse ELS Extremely USU L Losse Iow D MD Medium VLS Very low SPT dense LS Low D D Dense MS Medium PP VD Verv dense HS High S VHS Very high DC EHS Extremely	Date: Date: lests & Results lise l50 Undisturbed 50mm diam tube. Disturbed sample. Disturbed sample. SPT Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. P Hand penetrometer estimate of unconfined compressive strength, kPa. Vane shear value kPa Dynamic Cone test, 9.09kg hammer, fall 508mm, driving 20mm, 30 deg						

high

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D Dry M Moist W Wet

Fresh

FR

A.B.N. 051 009 878 899 PO Box 3063, Darra, QLD 4076 MORRISON Phone: (07) 3279 0900 Fax: (07) 3279 0955 GEOTECHNIC Engineering Log - Cored Borehole

Borehole No.: BH1

Page:5 of 6

Ç	iFC	TECH	INIC						Job Num	ber:GE15	/160)		
		Easti	ng: 4989	95.30)	D	rilling Rig:Mobile B40L		CI	i ent: Aussi	e Hy	/droVac S	ervices	
		Northi	ng: 69044	97.00 44 46)		Driller:Redlands Drilling		Pro	ject:Propo	bsed	Bridge ov	ver Spring Creek	
	Т	otal Dep	th:	24.00)	L.	Date:21/09/2015		Loca	t ion: Beau	dese	ert Bypass	, Beaudesert	
D	rilli	ng Info	ormation				Material Description					R	ock Mass Defects	
ill Method	ater		Hole Depth	il Origin	aphic Log	ass. Code		eathering	Estimate Strength	d 1 2 0 1 S(50)	2D %	Defect Spacing (mm)	Defect Description type, inclination,planarity, roughne coating, thickness	SS,
à	Ň	RL	(m)	ŝ	ษั	ö	Description	Š	E S S S S S	ü MPa	80	30 1 30 30 1 30 30 1 30		
NMLC Coring		29.0 28.5 28.0 27.5 27.0 26.5 26.0 25.5	15.5 16.0 16.5 17.0 17.5 18.0 18.5 18.7 19.0 19.1	Bedrock	A 4 A 4	BAS BAS	COMMENCE NMLC CORING @ 18.60m BASALT: Very high strength, slightly weathered, dar (drev, vesicular (possible andesite BASALT: As above but high strength and moderately to slightly weathered, random feldspar	MS MS-MW MS-MW		0.33			-BZ 30mm -J10°, Un/Ro,Cn,C -J45°, Un/Ro,Cn,O -J10°, Un/Ro,Cn,C	
Co	nm	25.0 24.5	19.24 - 19.3 - 19.5 19.84 - 20.0			BAS BAS BAS	Veining throughout BASALT: As above but with no feldspar veining. BASALT: As above but feldspar veining throughout. BASALT: As above but with minor feldspar veining. CONGLOMERATE: High strength, moderately weathered, dark grey.	MW WS MS-MW		1.36/1.3 0.26 0.6	15%		-VN5°, Feldspar -S210°, 10mm V5°, Plw,Ro,Cn,O V5°, Plw,Ro,Cn,O, feldspar 1mm V10°, Un/Ro,Vr,O some VLS -J65°, Un/Ro,Vr,O Random Feldspar veining, 60mm -S215° 20mm -S215° 20mm -S240mm some VLS ,BZ 30mm -J20°, Pl/Ro, Cn,O J40°, Pl/Sm,Cn,O	
									А	uthorised	by: .			
										ato.				
	1-			142	d		0 mml			alt			D-(- :	
Wa	ter Wa 	tter level date sho tter inflov	wn v ow	Weat XW HW MW SW	thering Extrem Highly Moder Slightl	nely wea weather ately we y weathe	Consistency December 2000 athered VS Very soft VL S Soft L red F Firm MI St Stiff December 2000 December 2000 eathered VSt Very stiff D H Hard VE ered Moisture	ensity Ver Loo D Meo den Der D Ver	y loose se dium se use y dense	Roc ELS LS MS HS VHS	k Stre Extr low Very Low Mec High Very	ength remely y low dium h y high	Defects Refer to Attached Defect Description Sheet	

high

D Dry M Moist W Wet

FR Fresh

A.B.N. 051 009 878 899 PO Box 3063, Darra, QLD 4076 MORRISON Phone: (07) 3279 0900 Fax: (07) 3279 0955 GEOTECHNIC

Engineering Log - Cored Borehole

Borehole No.: BH1

Page:6 of 6

Ģ	EC	TECH	INIC						Job	Numbe	r:GE15/	/160)	
		Easti	ng: 4989	95.30)	D	illing Rig:Mobile B40L			Clien	t:Aussie	e Hy	/droVac S	ervices
		Northi	ng: 69044	97.00)		Driller:Redlands Drilling			Projec	t:Propo	sed	Bridge ov	ver Spring Creek
	Т	ו otal Dep	∢∟: th:	24.00))	L	Date:21/09/2015			Location	1:Beauc	lese	ert Bypass	. Beaudesert
D	rilli	ng Info	ormation	Γ	-		Material Description						R	ock Mass Defects
							•		E	stimated			Defect	Defect Description
thod				gin	: Log	Code		rinc	5	Strength			Spacing (mm)	type, inclination,planarity, roughness, coating, thickness
Drill Me	Water	RL	Hole Depth (m)	Soil Ori	Graphic	Class. (Description	Weathe	ELS	LS MS VHS EHS	IS ₍₅₀₎ MPa	RQD %	30 300 3000 3000 3000	
ing			20.05 -		Λ V	BAS	BASALT/ANDESITE:	3						CZ 50mm
Cor					Δ,	BAS	weathered, dark grey.				0.49			Η.
IMLO		24.0	20.3 -		νA	BAS	BASALT/ANDESITE:	3	-					-BZ 300mm
2		24.0	20.5		Δ.			<u>ج</u>						+
					A V		As above but no feldspar veining, vesicles	2	<u> </u>			8%		–J5°, Un/Ro,Cn,O –J15°, Un/Ro,Cn,O
					v A		present and lenses of feldspar.	NS-N	5			~	L)	-CZ 20mm -SZ40°, 20mm
		23.5	21.0		Δ '			Ň					רי	CJ5°, Un/Ro, Cn, O V10°, Un/Ro, Cn, O V50°, Pl/Ro, Cn, O
			21 -		νv	BAS	BASALT/ANDESITE:	N)	J40°, Un/Ro,Cn,O
			_		Δ.		As above but high strength and slightly weathered.	0.	,					–J5°, PI/Ro,Cn,O
		00.0			V A									I H
		23.0	21.5		v A									J35°, PI/Ro,Ct,C, Cly 7mm
			- 01.7		Δ 1						0.43*/0.89			-BZ 50mm
			21.7 -		νν	BAS	BASALT/ANDESITE:	Ň						
		22.5	22.0		A .	1	As above but high strength.	0.				.2%		
					~ A							2	וו	-J15 ⁻ , Un/Ro,Cn,O
			_		νA						4 07/4 70			I H
			-		Δ.						1.87/1.72			I H
		22.0	22.5		V A									,J30°, Un/Sm,Cn,O
			22.55 -		V N	BAS	BASALT/ANDESITE:	3	:		0.60*		5	J5°, Pl/Ro,Cn,O
					Δ,		As above but with feldspar veining	0.	, I		0.00		\Box	Random feldspar veining, 260mm
		21.5	23.0		V A		inoughout						1	J5°, PI/Ro,Cn,O /Random feldspar veining, 20mm
			20.0		v A								لع	√J5°, PI/Ro,Cn,C √J5°, PI/Ro,Cn,C
					Δ 1							. 0	7	-J15°, Un/Ro,Cn,O -J30°, Un/Ro,Cn,O
			-		V A							57%	רו	VN5°, Feldspar J15°, Un/Ro.Cn.C
		21.0	23.5		U A								5	LJ5°, PI/RO,CN,C
			_		Δ.						0.93*		1	–J10°, Pl/Ro,Cn,O /VN10°, Feldspar, some VLS
			-		A V								5	VN10°, Feldspar J10°, Pl/Ro,CN,O Random feldspar voining 50mm
		20.5	24.0		Δ.						1.01		Η,	-J60°, Un/Ro,Vr,O, VLS 4mm
			24.0		VΛ		24 00m; BOREHOLE				1.24		-	\J15°. Un/Ro.Cn.O
							TERMINATED							
														H H
		20.0	24.5											I H
														I III
			-											I H
		19.5	25.0											
	6	-	25.0											
Coi	nm	ents:												
										Auth	orised b	ру: .		
										Date	:			
Wa	ter			Wea	thering		Consistency De	nsity			Rock	Stre	ength	Defects
	W a	iter level		XW	Extrem	nely wea	thered VS Very soft VL S Soft I	Ve	ery loos	e	ELS	Extr	emely	Refer to Attached Defect
-	-on	date sho	wn	нw	Highly	weather	ed F Firm MD	D M	edium		VLS	Ver	y low	Description oneer
	—Wa	ter inflov	v	мw	Moder	atelv we	St Stiff athered VSt Verv stiff	de Dé	ense ense		LS MS	Low	lium	
1	1//~	iter outfl	w				H Hard VD	v Ve	ery den	se	HS	High	יייי ו	
1	•••	asi uuul		SW	Slightly	y weathe	Moisture				VHS EHS	Very	y high emelv	
1				FR	Fresh		D Dry M Moist W Wet					hiah	- 2	

Job Number: GE15/160 Client: Aussie HydroVac Services Project: Beaudesert Town Centre Bypass, Stage 1 - Bridge Over Spring Creek Location: Lot 1 on RP7503, Helen Street, Beaudesert Borehole: BH1 Depth Range: 18.60m to 24.00m





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Borehole No.: BH2

Page: 1 of 6

(GEC	TECHN	IC					Jo	ob Nu	mber:	GE	15/16	60				
		Easting:	498977.5	0	Dr	illing Rig	: Mobile B40L		C	Client:	Aus	sie ł	HydroVa	ac Servic	es		
		Northing:	6904459.0	0		Drille	r: Redlands Drilling		Pr	oject	Pro	pose	d Bridg	e over Sp	oring C	creek	
	Тс	otal Depth:	19.1	0	2.	Date	e: 22/09/2015		Loc	ation	Bea	audes	sert Byp	ass, Bea	audese	ert	
	Drill	ling Infor	mation				Material D	Description						Te	st San	nples	
Drill Method	Water	RL	Hole Depth (m)	Soil Origin	Graphic Log	Classification Code	Des	scription		Weathering	Moisture	Consistency - Density - Strength	DC Test Results	Test Depth	Tests	Sample/Result	
		1 1		soil		СН	Sandy CLAY:			М	1	/St					
		44.0	0.2 –	Tops	,	СН	Very stiff, high plasticity, d grained sand, with root ma	Jark brown, fine to medium atter, moist.		м		/St		0.2	– PP	– 240 kPa	Н
Sit				Alluvial		Сн	Silty CLAY: Very stiff, high plasticity, d to medium grained sand, r	dark brown, with a trace of fir moist.	ne	M		VSt			– D	-	-
er with TC E		43.0	1.0												– SPT	– 4,6,7, N=13	
00mm Aug			-											1.45 _	– PP	– 310 kPa	-
-		42.0	1.8 – 2.0			СН	Silty CLAY: As above but dark grey br	rown/black.		M		/St		2 –	– PP	– 240 kPa	
Bit		41.0	3.0											2.5	– U50	– PP: 340 kPa	-
ring with T.C B			3.5 -	.0		СН	Silty CLAY: As above but dark grey br mottling and with some fin	rown with minor orange brow ne grained sand.	vn	M		/St					
Wash Bo		40.0	4.0											4	– SPT – PP	– 3,5,6, N=11 – 250-270 kPa	
			5.0														
Co	omm	nents:								Auth Date	orise	d by:	·				
	ater Wa on Wa	ater level date shown ater inflow ater outflow	Weathering XW Extre weat HW High weat MW oder weat SW Sligh weat	g emely hered ly heredM ately hered tly hered	Consis VS VS F F St S VSt V H F Moistu	tency Very soft Soft Tirm Stiff Very stiff lard	Density VL Very loose L Loose MD Medium dense D Dense VD Verv dense	Rock Strength Total ELS Extremely U low D VLS Very low S LS Low MS MS Medium P HS High S VHS Very high D EHS Extremely D	ests & J50 U D D SPT S SP H SP V DC D DC L	Results Indisturbed tandard 00mm w land per ane she lynamic aper con	ed 50n sampl Penetr vith a 6 petrome ar valu Cone t e fitted	nm dia le. ration 3.6kg eter es le kPa lest, 9. I to rod	am tube. Test, N = r hammer fa timate of u 09kg hami Is of smalle	number of bl alling 762mn Inconfined o mer, fall 508 er section.	lows to d n. compress Bmm, driv	rive 50mm sampler sive strength, kPa. ⁄ing 20mm, 30 deg	

high

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D Dry M Moist W Wet

FR

Fresh

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MORRISON

FR Fresh **Engineering Log - Borehole**

Borehole No.: BH2

Page: 2 of 6



high

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Engineering Log - Borehole

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Borehole No.: BH2

Page: 3 of 6



high

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Engineering Log - Borehole

Borehole No.: BH2

Page: 4 of 6

G	EO	TECHN	IC				Job	Numb	er: 0	GE15/10	60			
		Easting:	498977.5	D	Dri	lling Rig	: Mobile B40L	Clie	ent: A	ussie I	HydroVa	c Service	es	
		Northing:	6904459.0	0		Drille	r: Redlands Drilling	Proje	ect: F	ropose	ed Bridge	e over Sp	oring C	reek
	То	tal Depth:	19.1	0	LO	Date	e: 22/09/2015	ocatio	on: E	Beaude	sert Byp	ass, Bea	udese	rt
0	Drilli	ing Infor	mation				Material Description					Tes	st Sam	ples
						e				_				
Drill Method	Water	RL	Hole Depth (m)	Soil Origin	Graphic Log	Classification Coc	Description	Weathering	Moisture	Consistency - Density - Strength	DC Test Results	Test Depth	Tests	Sample/Result
				al		CI	Sandy CLAY:		м	VSt-H				
		29.0	-	Residu			Very stiff to hard, medium plasticity, orange brown mottled grey, fine to medium grained sand, with some fine sized gravel, moist.							-
			-			CI	Sandy CLAY: As above but hard and with a trace of fine sized gravel		м	н				H
		28.0	16.0				oniy.					16 -	– SPT	- 8.11.13. N=24
		- 2010												5,11,10,1121
Rock Roller			17.0									16.45 –	– PP	– 380-400 kPa –
Boring with		27.0	- 17.0											
Wash			17.65 – 18.0	Bedrock	V A V A	BAS	BASALT: Very low strength, extremely weathered, dark grey mottled orange brown.	xw		VLS		17.5	– SPT	– 19,30/150mm
		26.0	-											
			18.6 –		VA	BAS	BASALT: As above but low strength and extremely to highly	XW- HW		LS				H
			19.0		v A		weathered.							H
			19-		v A	BAS	BASALT: As above but medium strength and highly to moderately weathered.	MW-		MS		¹⁹	– SPT	– 30/100mm (HB)
		25.0	0				19.10m: BOREHOLE CONTINUED AS A COREHOLE					·		-
	5													H
			20.0											
Co	mm	ents:						A	uthori ate: .	sed by	:			
Wa	ter Wa on Wa	ter level date shown ter inflow ter outflow	Weathering XW Extre weat HW Highl weat MW Mode weat SW Sligh weat	g mely hered y heredM erately hered tly	Consiste VS Ve S So F Fi St St VSt Ve H Ha Moisture	ency ery soft oft rm iff ery stiff ard e	Density Rock Strength Test VL Very loose ELS Extremely U50 L Loose low D MD Medium VLS Very low SPT dense LS Low D D D Dense MS Medium PP VD Verv dense HS High S VHS Very high DC EHS Extremely	s & Res Undis Distur Stand 300m Hand Vane Dynar taper	ults sturbed rbed sa lard Pe m with penetro shear v mic Con cone fit	50mm dia mple. netration a 63.6kg pometer es value kPa ne test, 9. tted to roc	am tube. Test, N = r hammer fa stimate of u 09kg hami ds of smalle	number of bl Iling 762mm Inconfined c ner, fall 508 er section.	ows to d ı. ompress mm, driv	rive 50mm sampler ive strength, kPa. ing 20mm, 30 deg

high

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D Dry M Moist W Wet

FR

Fresh

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Δ

vΛ

Δ

Ω.

BAS Δ

BASALT:

feldspar veining.

20.0

24.5

19.55

Engineering Log - Cored Borehole Borehole No.: BH2

Page:5 of 6

G	EOT	ECH	NIC						Job Numbe	r:GE15/	/160)	
		Eastin	ig: 4989	77.50)	D	rilling Rig:Mobile B40L		Clien	t:Aussie	e Hy	droVac S	ervices
	N	Northin R	ig: 69044	59.00 44.28) 2		Driller:Redlands Drilling		Projec	t:Propo	sed	Bridge ov	er Spring Creek
	Tota	al Dept	h:	44.20 24.50	,)		Date:22/09/2015		Locatio	n:Beauc	lese	ert Bypass	, Beaudesert
Dr	illing	g Info	rmation				Material Description					R	ock Mass Defects
ethod				igin	c Log	Code		ering	Estimated Strength			Defect Spacing (mm)	Defect Description type, inclination,planarity, roughness coating, thickness
Drill Me	Water	RL	Hole Depth (m)	Soil Or	Graphi	Class.	Description	Weathe	ELS VLS LS MS HS VHS EHS	IS ₍₅₀₎ MPa	RQD %	30 300 3000 3000	
	2	9.0											\sim
	2	8.5	15.5										
		-	16.0										-
	_2	28.0	16.5										-
	2	27.5	17.0										-
	2	27.0	17.5				20						
	2	6.5	18.0										
	2	26.0	18.5										-
	2	25.5	19.0		Q		COMMENCE NMLC CORING @ 19.10m						-
NMLC Coring	2	25.0	19.5	Bedrock	A A A A	BAS	BASALT: Medium strength, moderately weathered, dark grey, highly fractured to fragmented, vesicular (possible andesite).	MW			%		HFZ 250mm CZ 30mm /VN5°, Feldspar /CZ 20mm /J5°Un/Ro.Cn.O.

CZ 30mm VN5°, Feldspar CZ 20mm J5°Un/Ro,Cn,O, J20°, Un/Ro,Cn,O CZ 20mm J5°, Un/Ro,Cn,O BZ 90mm VN15°, Feldspar J5ºUn/Ro,Cn,O

%6

Comments:							Authorised Date:	by:	
Water	Wea	thering	Con	sistency	Den	sity	Roc	k Strength	Defects
	XW	Extremely weathered	VS	Very soft	VL	Very loose	ELS	Extremely	Refer to Attached Defect
Water level			S	Soft	L	Loose		low	Description Sheet
on date shown	HW	Highly weathered	F	Firm	MD	Medium	VLS	Very low	·
		• •	St	Stiff		dense	LS	Low	
Water inflow	MW	Moderately weathered	VSt	Very stiff	D	Dense	MS	Medium	
			н	Hard	VD	Very dense	HS	High	
Water outflow	SW	Slightly weathered	Mois	sture		·	VHS	Very high	
	FR	Fresh	DD	ry M Moist W Wet			End	high	

MW-SW

As above but high strength, moderately to

slightly weathered, fractured and with minor

A.B.N. 051 009 878 899 PO Box 3063, Darra, QLD 4076 MORRISON Phone: (07) 3279 0900 Fax: (07) 3279 0955

Engineering Log - Cored Borehole

Borehole No.: BH2

Page:6 of 6

G	EO	TECH	INIC						Job Numbe	r:GE15	/16()	
		Easti	ng: 4989	77.50)	D	illing Rig:Mobile B40L		Clier	nt:Aussi	e H	ydroVac S	ervices
		Northi	ng: 69044	59.00)		Driller:Redlands Drilling		Projec	:t:Propo	sed	I Bridge ov	ver Spring Creek
	т	l otal Den	RL: th:	44.28 24.50	3	L	Date:22/09/2015		Locatio	n:Beau	dese	ert Bypass	s. Beaudesert
D	rillir	na Info	ormation		, 		Material Description					R	ock Mass Defects
		<u> </u>						Γ	Estimated			Defect	Defect Description
po				۲	6o-	qe		Бu	Strength			Spacing (mm)	type, inclination,planarity, roughness, coating, thickness
rill Meth	Vater	ы	Hole Depth	oil Origi	iraphic I	lass. Co	Description	Veatheri	H S S S S S S S S S S S S S S S S S S S	IS ₍₅₀₎	QD %	00000	
	\$	KL	(m)	S	0	0	Description	5	mm <tr<<td>mmmmmm<tr<td>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td>m<tr<tr>m<tr<td< td=""><td>wira</td><td>~</td><td>0-0-0</td><td></td></tr<td<></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<tr></tr<td></tr<td></tr<<td>	wira	~	0-0-0	
MLC Coring		24.0			A A A A	BAS	BASALT: As above but high strength, moderately to slightly weathered, fractured and with minor .feldspar veining	MW-SW			%6		- 710 01/20,01,0 VN5 Feldspar, SZ 30mm - 55 01/20,00,0 V5 Pl/Ro,Cn,C, V5 Pl/Ro,Cn,C,
~			20.5 - 20.5 -		Ϋ́Λ,	BAS	BASALT: As above but high strength, slightly	SW		0.94		2	J5°PI/Ro,Cn,O , BZ 70mm
		23.5	21.0		ν Λ Λ		weathered, with felspar veining.					H	VN35°Feldspar , Random feldspar veining, 30mm
		23.0			V V V V					1.61		5	J15°UnRo,Cn,O, VI15°Feldspar, V240mm J25°UnRo,Cn,O,
		-	21.5		V V							2	033 01//R0,C1,C , >VN15 ⁶ Feldspar , ∠J5 [°] Un/R0,Cn,O , CZ 50mm , V1,0 [°] //K0,Ct,O ,
		22.5	21.65 -		A A	BAS	BASALT: As above but with feldspar veining	SW		1.31	%	Γ.	N10*0n/Ro,Cn,O , BZ 20mm V10*PI/Ro,Cn,O , V5*PI/Ro,Cn,O , Random felspar veining, 70mm
			22.0 22 -		V V	BAS	throughout. BASALT:	SW			63	ſ	–J5°Un/Ro,Cn,O , –J25°Un/Ro,Cn,O ,
		22.0			V A	210	As above but with no leidspar veining.					E	-HFZ 50mm -J10⁰PI/Ro.Cn.O , -J5 PI/Ro,Cn.O , -VFZ 90mm
			22.5		A A A A	BAS	BASALT: As above but very high strength and with feldspar veining throughout.	SW		2.73		_	Random felspar veining, 150mm
		21.5	23.0		v v					0.68*/3.34			N15 ^⁰ Un/Ro,Cn,C, Random feldspar veining, 150mm J5 ^⁰ Un/Ro,Cn,O, J5 ^⁰ Un/Ro,Cn,O,
		21.0	23.1 -		A V V	BAS	BASALT: As above but high strength and with no	SW					-J10°Un/Ro,Cn,C , HFZ 130mm
			23.5 23.5		V A	BAS	feldspar veining.	>		1.78/1.55			–J5°PI/Ro,Cn,O , –BZ 20mm
		20.5	23.8 -		A V A A	CON	As above but with vesicles present.	/ s/		0.49/0.41		ļ	–J5°Un/Ro,Cn,O , –J5°PI/Ro,Cn,C ,
			24.0		00	CON	dark grey.	MM		0.43/0.41	61%		–J15°Un/Ro,Čn,Ŏ ,
		20.0	24.2 -		A A	BAS	BASALT/ANDESITE: High to very high strength, moderately weathered, grey brown, with vesicles	MW				Π	–J10°Un/Ro,Cn,C , ∖J10°Un/Ro,Cn,O ,
			- 24.3		VA		24.50m: BOREHOLE			4.14			
		19.5	25.0				TERMINATED						E E
Coi	nme	ents:											
									Autr	norised e:	oy:		
Wa	ter			Weat	thering		Consistency Dens	sity		Rock	Stre	ength	Defects
	Wa - on o	ter level date sho	wn	XW HW	Extrem	nely wea weather	thered VS Verysoft VL S Soft L ed F Firm MD St Stiff	Very Loo Mec	y loose se lium se	ELS VLS LS	Extr low Ver Low	remely y low	Refer to Attached Defect Description Sheet
	_ Wa	ter outflo	w	MW SW	Moder Slightly	ately we / weathe	athered VSt Very stiff D H Hard VD red Moisture	Den Very	ise / dense	MS HS VHS EHS	Meo Hig Ver Exti	dium h y high remely	

high

D Dry M Moist W Wet

FR Fresh

Job Number: GE15/160 Client: Aussie HydroVac Services Project: Beaudesert Town Centre Bypass, Stage 1 - Bridge Over Spring Creek Location: Lot 43 on RP7501, Helen Street, Beaudesert Borehole: BH2 Depth Range: 19.10m to 24.50m



	MORRISON GEOTECHNIC	ABN: 51 009 878 899 Unit 1/5 Brendan Drive Nerang 4211 Ph: 5596 1599 Email: goldcoastlab@morrisongeo.com.au Fax: 5527 2027		Map Description:	Core Photo - Borehole BH2: 19.10m to 24.50m				
				Client :	Aussie HydroVac Services				
\sim		Engineers:		Project :	Geotechnical Investigation - Beaudesert Town Centre Bypass, Stage 1, Bridge Over Spring Creek				
		Laboratory:	RTI 135/06103 - File 1 - Page 31 of	⁸⁵ Project No:	GE15/160	Date: 24/9/15	Scale :	Not to Scale	

Defect Description Sheet

Discon	tinuity Description: Refer to AS:	1726-1993 <i>,</i> 1	able /	A10.	•					
Anisotropic Fabric		Roughne	Roughness (e.g. Planar, Smooth is abbreviated Pl / Sm) Class					Other		
BED	Bedding				Rough or irregular (Ro)	(Ro) I			Clay	
FOL	Foliation	Stepped	Stepped (Stp)		Smooth (Sm)			Fe	Iron	
LIN	Mineral lineation				Slickensided (Sl)	I		Со	Coal	
Defect Type					Rough (Ro)	IV		Carb	Carbonaceous	
LM	Lamination Parting	Undulating (Un)		n)	Smooth (Sm)	V		Sinf	Soil Infill Zone	
BP	Bedding Parting				Slickensided (Sl)	VI		Qz	Quartz	
CLV	Cleavage / Foliation Parting				Rough (Ro)	V	II	CA	Calcite	
J, Js	Joint, Joints	Planar (Pl)			Smooth (Sm)	VIII		Chl	Chlorite	
SZ	Sheared Zone				Slickensided (Sl)	I)	(Рy	Pyrite	
CZ	Crushed Zone	Infilling	Infilling			Aperture		Int	Intersecting	
ΒZ	Broken Zone	Clean	Cn	No visible coating or infill		Closed	С	Inc	Incipient	
HFZ	Highly Fractured Zone	Stain	St	Surfaces discoloured by mineral		Open	0	DI	Drilling Induced	
AZ	Alteration Zone	Veneer	Vr	Visible mineral or soil infill <1mm		Filled	F	Н	Horizontal	
VN	Vein	Coating	Ct	Visible mineral or soil infill >1mm		Tight	Т	V	Vertical	

Note: Describe 'Zones' and 'Coatings' in terms of composition and thickness (mm).

Discontinuity Spacing: On the geotechnical borehole log, a graphical representation of defect spacing Vs depth is shown. This representation takes into account all the natural rock defects occurring within a given depth interval, excluding breaks induced by the drilling / handling of core. Refer to AS1726-1993, BS5930-1999.

Defect Spacing			Bedding Thick (Sedimentary Rock St	ness tratification)	Defect Spacing in 3D		
Spacing/Width (mm)	Descriptor	Symbol	Descriptor Spacing/Width (mm)		Term	Description	
			Thinly Laminated	< 6	Blocky	Equidimensional	
<20	Extremely Close	EC	Thickly Laminated	6-20	Tabular	Thickness much less than length or width	
20 - 60	Very Close	VC	Very Thinly Bedded	20-60	Columnar	Height much greater than cross section	
60 - 200	Close	С	Thinly Bedded	60 - 200			
200 - 600	Medium	М	Medium Bedded	200 - 600	D	efect Persistence	
600 - 2000	Wide	W	Thickly Bedded	600 - 2000		(areal extent)	
2000 - 6000	Very Wide	VW	Very Thickly Bedded	> 2000	tracolong	h of defect given in metres	
>6000	Extremely Wide	EW			trace lengt	in of defect given in metres	

Symbols: The list below provides an explanation of terms and symbols used on the geotechnical borehole, test pit and penetrometer logs.

PIPlasticity Indexc'Effective CohesionLLLiquid LimitcuUndrained CohesionSPTStandaLILiquidity Indexc'RResidual CohesionCONECONEDDDry Density\$\phi'Effective Angle of Internal FrictionPANDAVariabWDWet Density\$\phi'Effective Angle of Internal FrictionPPPockeLSLinear Shrinkage\$\phi'RResidual Angle of Internal FrictionU100UndistidiameMCMoisture Content\$c_vCoefficient of ConsolidationU100UndistidiameOCOrganic Content\$m_vCoefficient of Secondary CompressionPmPressuWLSWeighted Linear Shrinkage\$\phi'cvConstant Volume Friction AngleDSTDirectApp Apparent Particle Density\$q_t / \$q_c\$Piezocone ResistanceTip / Sleave)PRPenetit\$uUnconfined Compressive Strength\$l_{5(50)}\$Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I			Test Results					Test Symbols			
LLLiquid LimitcuUndrained CohesionSPTStandaLILiquidity Indexc'RResidual CohesionCPTuCone IDDDry Densityφ'Effective Angle of Internal FrictionPANDAVariabWDWet Densityφ'Undrained Angle of Internal FrictionPPPocketLSLinear Shrinkageφ'RResidual Angle of Internal FrictionU100UndistMCMoisture ContentcvCoefficient of ConsolidationU100UndistOCOrganic ContentmvCoefficient of Secondary CompressionUCSUnaixiWISWeighted Inear ShrinkageeVoids RatioFSVField SDoSDegree of Saturationφ'cvConstant Volume Friction AngleDSTDirectAPDApparent Particle DensityqtqPANDA Cone ResistanceAPoint Load Strength IndexquUnconfined Compressive StrengthIs(50)Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		PI	Plasticity Index	c'	Effective Cohesion		DCP	Dynamic Cone Penetrometer			
LILiquidity Indexc'RResidual CohesionCPTuCone I TestDDDry Density ϕ' Effective Angle of Internal FrictionPANDAVariabWDWet Density ϕ_u Undrained Angle of Internal FrictionPPPocketLSLinear Shrinkage ϕ'_R Residual Angle of Internal FrictionU50Undist diameMCMoisture Content c_v Coefficient of ConsolidationU100Undist diameOCOrganic Content m_v Coefficient of Volume CompressibilityUCSUnaixi diameWPIWeighted Plasticity Index $c_{\alpha e}$ Coefficient of Secondary CompressionPmPressuMLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturation ϕ'_{cv} Constant Volume Friction AngleDSTDirectAPDApparent Particle Density q_t q_c Piezocone ResistanceAPoint I s_u Unconfined Compressive Strength $l_{s(50)}$ Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		LL	Liquid Limit	Cu	Undrained Cohesion		SPT	Standard Penetration Test			
DDDry Densityφ'Effective Angle of Internal FrictionPANDAVariableWDWet DensityφuUndrained Angle of Internal FrictionPPPocketLSLinear Shrinkageφ'RResidual Angle of Internal FrictionU100Undist diametMCMoisture ContentcvCoefficient of ConsolidationU100Undist diametOCOrganic ContentmvCoefficient of Secondary CompressionUCSUnaist diametWLSWeighted Plasticity Indexcat catCoefficient of Secondary CompressionPMPressuWLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturationφ'cvConstant Volume Friction AngleDSTDirectAPDApparent Particle Densityqt / qcPiezocone Resistance (Tip / Sleave)PRPenettsuUnconfined Compressive Strengthls(50)Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		LI	Liquidity Index	c' _R	Residual Cohesion	CPTu PANDA PP		Cone Penetrometer (Piezocone) Test			
WDWet DensityφuUndrained Angle of Internal FrictionPPPocketLSLinear Shrinkageφ'RResidual Angle of Internal FrictionU50UndistMCMoisture ContentcvCoefficient of ConsolidationU100UndistOCOrganic ContentmvCoefficient of Volume CompressibilityUCSUnaixiWPIWeighted Plasticity Indexcoefficient of Secondary CompressionPmPressuWLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturationφ'cvConstant Volume Friction AngleDSTDirectAPDApparent Particle Densityqt / qcPiezocone Resistance (Tip / Sleave)PRPenettsuUnconfined Compressive Strengthla(50)Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		DD	Dry Density	φ'	Effective Angle of Internal Friction			Variable Energy DCP			
LSLinear Shrinkageφ' _R Residual Angle of Internal FrictionU50Undist diameMCMoisture ContentcvCoefficient of ConsolidationU100Undist diameOCOrganic ContentmvCoefficient of Volume CompressibilityUCSUniaxi diameWPIWeighted Plasticity IndexcccCoefficient of Secondary 		WD	Wet Density	φu	Undrained Angle of Internal Friction			Pocket Penetrometer Test			
MCMoisture Contentc_vCoefficient of ConsolidationU100Undisticianted diameOCOrganic Contentm_vCoefficient of Volume CompressibilityUCSUniasiWPIWeighted Plasticity IndexcαεCoefficient of Secondary CompressionPmPressuWLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturation\$\psi'_{cv}\$Constant Volume Friction AngleDSTDirectAPDApparent Particle Density\$\psi_t\$ / \$\psi_c\$Piezocone Resistance (Tip / Sleave)PRPenetu\$\mathbf{s}_u\$Unconfined Compressive Strength\$l_{s(50)}\$Point Load Strength IndexDPoint Index\$\mathbf{r}_u\$Total Core Recovery\$\mathbf{R}QD\$Rock Quality DesignationLPoint Index		LS	Linear Shrinkage	ф′ _R	Residual Angle of Internal Friction		U50	Undisturbed Sample 50 mm diameter			
OCOrganic ContentmνCoefficient of Volume CompressibilityUCSUniaxiWPIWeighted Plasticity Index $c_{\alpha E}$ Coefficient of Secondary CompressionPmPressuWLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturation ϕ'_{cv} Constant Volume Friction AngleDSTDirectAPDApparent Particle Density q_t / q_c Piezocone Resistance (Tip / Sleave)PRPenett s_u Unconfined Shear Strength q_d PANDA Cone ResistanceAPoint I q_u Unconfined Compressive Strength $I_{s(50)}$ Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I	-	MC	Moisture Content	Cv	Coefficient of Consolidation		U100	Undisturbed Sample 100mm diameter			
WPIWeighted Plasticity Indexc αεCoefficient of Secondary CompressionPmPressuWLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturationφ' cvConstant Volume Friction AngleDSTDirectAPDApparent Particle Densityqt / qcPiezocone Resistance (Tip / Sleave)PRPenettsuUndrained Shear StrengthqdPANDA Cone ResistanceAPoint IquUnconfined Compressive StrengthIs(50)Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		ос	Organic Content	m _v	Coefficient of Volume Compressibility		UCS	Uniaxial Compressive Strength			
WLSWeighted Linear ShrinkageeVoids RatioFSVField SDoSDegree of Saturation ϕ'_{cv} Constant Volume Friction AngleDSTDirectAPDApparent Particle Density q_t / q_c Piezocone Resistance (Tip / Sleave)PRPenetr s_u Undrained Shear Strength q_d PANDA Cone ResistanceAPoint I q_u Unconfined Compressive Strength $I_{s(50)}$ Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		WPI	Weighted Plasticity Index	Cαε	Coefficient of Secondary Compression		Pm	Pressuremeter			
DoSDegree of Saturation ϕ'_{cv} Constant Volume Friction AngleDSTDirectAPDApparent Particle Density q_t / q_c Piezocone Resistance (Tip / Sleave)PRPenetro s_u Undrained Shear Strength q_d PANDA Cone ResistanceAPoint I q_u Unconfined Compressive Strength $I_{s(50)}$ Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		WLS	Weighted Linear Shrinkage	е	Voids Ratio		FSV	Field Shear Vane			
APD Apparent Particle Density qt / qc Piezocone Resistance (Tip / Sleave) PR Penetric su Undrained Shear Strength qd PANDA Cone Resistance A Point I qu Unconfined Compressive Strength Is(50) Point Load Strength Index D Point I R Total Core Recovery RQD Rock Quality Designation L Point I		DoS	Degree of Saturation	φ' _{cv}	Constant Volume Friction Angle	Γ	DST	Direct Shear Test			
s_uUndrained Shear Strengthq_dPANDA Cone ResistanceAPoint Iq_uUnconfined Compressive StrengthI_s(50)Point Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		APD	Apparent Particle Density	q_t/q_c	Piezocone Resistance (Tip / Sleave)		PR	Penetration Rate			
quUnconfined Compressive StrengthIsologicalPoint Load Strength IndexDPoint IRTotal Core RecoveryRQDRock Quality DesignationLPoint I		Su	Undrained Shear Strength	q _d	PANDA Cone Resistance		А	Point Load Test (axial)			
R Total Core Recovery RQD Rock Quality Designation L Point I		q _u	Unconfined Compressive Strength	/ _{s(50)}	Point Load Strength Index		D	Point Load Test (diametral)			
		R	Total Core Recovery	RQD	Rock Quality Designation		L	Point Load Test (irregular lump)			

Groundwater Symbols:

Groundwater level on the date shown 28/11/13

Water Inflow

Water Outflow

APPENDIX B

CPT TEST RESULTS



CONE PENETROMETER TEST RESULT



RTI 135/06103 - File 1 - Page 34 of 85

CONE PENETROMETER TEST RESULT



CONE PENETROMETER TEST RESULT



RTI 135/06103 - File 1 - Page 36 of 85


RTI 135/06103 - File 1 - Page 37 of 85





RTI 135/06103 - File 1 - Page 39 of 85





PORE PRESSURE DISSIPATION TEST RESULT

Aussie Hydrovac Beaudesert Bypass Beaudesert QLD

Job No: G15-09-07

Cone: S15CFIIP.S11105

CPT-07a Depth: -2.6m



Pore Pressure (kPa)

RTI 135/06103 - File 1 - Page 42 of 85



RTI 135/06103 - File 1 - Page 43 of 85



RTI 135/06103 - File 1 - Page 44 of 85





RTI 135/06103 - File 1 - Page 46 of 85



APPENDIX C

CROSS SECTION A



INFERRED CROSS SECTION A





APPENDIX D

LABORATORY TEST CERTIFICATES





WWW	.mo	rris	onge	0.C	om	.au
-----	-----	------	------	-----	----	-----

		Pai	rticle Size Distribut	ion Report			
Client : Address : Project Name Project Numbe Location:	Client : AUSSIE HYDROVAC SERVICES Address : 359 CALIFORNIA CREEK ROAD, CORNUBIA, QLD, 41 Iroject Name : BEAUDESERT BYPASS - STAGE 1 Project Number : GE15/160 Augustantian BEAUDESERT		OVAC SERVICES NIA CREEK ROAD, CORNUBIA, OLD, 4130 BYPASS - STAGE 1	Report Number: GE15-160.1/1 Report Date : 07/10/2015 Order Number : 07/10/2015 Test Method : Q103A Page 1 of 1 0103A			
Sample Numb	or :	211608		SAMPI	FLOCATION		
Sampling Meth	er.	211090		SAWFL	BH 1		
Sampled By ·		N/R		4.0	0 - 4.45m		
Date Sampled		21/09/2015		г) (SPT)		
Date Tested ·		07/10/2015					
Material Type		0771072010		Test Number ·			
Material Sourc	e ·			Lot Number :			
Remarks ·	0.			Specification Number			
	Deres			spoonication ramber .			
AS Sieve Size(mm)	Percent Passing	Specification Limits					
100	5						
75			-101		Υ.		
/5			¢				
63			90				
53							
37.5			m				
26.5							
19.0							
16.0			70				
13.2							
9.5			3.80 				
6.7			De la companya de la				
4.75			a 50				
2.36	100		eut				
1.18			0 0 40				
0.600							
0.425	100						
0.300		1	30				
0.150							
0.075	96		20				
			10				
			0				
-			0.075	0 425 AS Sieve Size(mm)	2 36		
				APPROV	ED SIGNATORY		
NATA ACCREDIGNISED		Accredi	ited for compliance with ISO/IEC 17025.	Not relevant (Gold Coa NATA Accre	st) - GOLD COAST MANAGER editation Number 1169		



Client :	AUSSIE HYDROVAC SERVIC	ES	Report Number:	GE15-160.3/1
Address :	359 CALIFORNIA CREEK RO	AD, CORNUBIA, QLD, 4130	Report Date :	07/10/2015
Project Name :	BEAUDESERT BYPASS - STA	GE 1	Order Number :	
Project Number :	GE15/160		Test Method :	Q104D
Location:	BEAUDESERT		Page	e 1 of 1
Sample Number :	211699			
Test Number :				
Date Sampled :	21/09/2015			
Date Tested :	02/10/2015			
Sampled By :	N/R			
Sampling Method :	-			
Material Source :				
Material Type :				
Sample Location :	BH 1		2	
	7.0 - 7.45m			
	D (SPT)			
Lot Number :				
Moisture Method :	Q102A			
Sample History :				
Sample Preparation :	Dry			
Notes :	cracking and curling			
Mould Length (mm) :	150.0			
Liquid Limit (%) :	63.8			
Plastic Limit (%) :	26.6			
Plasticity Index (%) :	37.2			
Linear Shrinkage (%) :	19.4			
SPECIFICATION DETAILS		1	1	1
Specification Number :				
Liquid Limit - Max :				
Plasticity Index - Max :				
Linear Shrinkage - Max :				
Remarks :	-			l

NATA	Accredited for compliance with ISO/IEC 17025.	Not relevant	APPROVED SIGNATORY Not relevant (Gold Coast) - GOLD COAST MANAGER	
WORLD RECOGNISED		NATA Accreditation Number :		
	RTI 135/06103 - File 1 - Page 524	ot 85	Document Code RF026-6	



			Qu	ality of Ma	aterials	Report			
Client : Address : Project Name Project Numb Location:	: er:	AUSSIE HYDR 359 CALIFORI BEAUDESERT GE15/160 BEAUDESERT	OVAC S	SERVICES EEK ROAD, CORNUBI, S - STAGE 1	A, QLD, 4130	Report Number: Report Date : Order Number : Test Method :	Page 1	GE15- 14/1 Q I of 1	160.5/1 0/2015 103A
Sample Numb Sampling Met Sampled By : Date Sampled Date Tested :	er : hod : :	211945 - N/R 22/09/2015 12/10/2015	1			SAMPLE LOCATION BH 2 1.0 - 1.45m D			
Material Source	```	INSITU				Lot Number :			
Remarks :		Mario				Specification Nu	mber :		
AS Sieve Size(mm)	Percent Passing	Specification Limits							
100			100+						
75.0									
63.0			90-						
53.0						-			
37.5			80						
26.5			70						
19.0									
16.0			(%)						
13.2			ssing						
9.5			-05 Da						
6.7			901 0 40						
4.75									
2.36	100		30						
1.18									
0.600			20-						-
0.425	98		10-			4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.			
0.300									
0.150			0	075		0.425			2.36
0.075	89					AS Sieve Size(mm)			
				Test Method	Results			Results	Specification
Liquid Limit (9	%):			Q104D	67.2	2 Weighted PI : 3802		3802	
Plastic Limit (%):			Q105	28.4	LS x % Passing	0.425mm	2136	
Plasticity Inde	× (%):			Q105	38.8	Ratio of % Passi	ng (0.075 / (0.91	
Linear Shrinka	age (%) :			Q106	21.8				



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Client :	AUSSIE HYDROVAC SERVIC	ES	Report Number:	GE15-160.6/1
Address :	359 CALIFORNIA CREEK RC	DAD, CORNUBIA, QLD, 4130	Report Date :	14/10/2015
Project Name :	BEAUDESERT BYPASS - STA	AGE 1	Order Number :	
Project Number :	GE15/160		Test Method :	Q104D
Location:	BEAUDESERT		Pag	e 1 of 1
Sample Number :	211946			
Test Number :				
Date Sampled :	22/09/2015			
Date Tested :	08/10/2015			
Sampled By :	N/R			
Sampling Method :	-			
Material Source :	INSITU			
Material Type :	DISTURBED			
Sample Location :	ВН 2		2	
	4.0 - 4.45m			
	D			
Lot Number :				
Moisture Method :	Q102A			
Sample History :				
Sample Preparation :	Dry			
Notes :	curling			
Mould Length (mm) :	150.0			
Liquid Limit (%) :	63.2			
Plastic Limit (%) :	28.6			
Plasticity Index (%) :	34.6			
Linear Shrinkage (%) :	20.6			
SPECIFICATION DETAILS		1	1	1
Specification Number :				
Liquid Limit - Max :				
Plasticity Index - Max :				
Linear Shrinkage - Max :				
Remarks :	-	1	1	

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WORLD RECOGNISED			NATA Accreditation Number :	
ADDREDNATION	PTI 135/06103 - File 1 - Page 54	of 85	1169	
	1411 100/00 100 - 1 IIC 1 - Faye 04	0100	Document Code RFO26-6	_



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Client	Morrison (Geotechnic I	Pty Ltd		Report No		15100186-/	AL .	
Project	GE15/160 Beaudese	- Geotech I rt Bypass	nvestigation ·	- Bridge,	Test Date Report Da	te	14/10/15-26 27/10/2015	4/10/15-26/10/15 27/10/2015	
Sample No.		15100186	15100188	-	-	-			
Client ID		BH 1	BH 2	-	-	-	-		
Depth (m)		2.50-2.70	5.50-5.86	-	-	-).	-	
Liquid Limit (%)	68.2	59.8	-	-		-		
Plastic Limit	(%)	24.0	24.2	-	-	-	-		
Plasticity Inde	ex (%)	44.2	35.6	-		-	-		
Linear Shrink	age (%)	18.0	16.6	-	-	-	-		
Moisture Con	tent (%)	26.3	32.3	-	-	-	-		
Sample No.		-		<u>.</u>	-	-	-]	
Sample No.		-		-	-	-	-	-	
				-			-		
Depth (m)		-	-	-	-	-	-	-	
Liquid Limit (%)		-	-	-	-	-	-	
Plastic Limit	(%)		-	-	-	-	-	-	
Plasticity Inde	ex (%)	-	-	-	-	-	-	-	
Linear Shrink	age (%)	-	-	-	-	-	-	-	
Moisture Con	tent (%)	-	-	-	-	-	-		
TES/REMARKS:	The sample	s were tested o	oven dried, dry s	sieved and in	a 125-250mm m	nould.			
mple/s supplied by	the client		* Crumbling oc	curred	+ Curling occu	irred	Page 1 of 1	REP04702	
Accredited f The results of the tests in this document are	or compliance with s, calibrations, and/ traceable to Austra	ISO/IEC 17025. or measurements alian/National Star	included ndards.	Authorised	Signatory		Ň		
Tested	at Trilab Brisbane	Laboratory.	ν				co	EIENGE	

Trilab Pty Ltd ABN 25 065 630 506 RTI 135/06103 - File 1 - Page 55 of 85



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			Qu	ality of Ma	aterials	s Rep	ort		
Client : AUSSIE HYDROVAC SERVICES Address : 359 CALIFORNIA CREEK ROAD, CORNUBIA, QLI Project Name : BEAUDESERT BYPASS - STAGE 1 Project Number : GE15/160 Location: BEAUDESERT		A, QLD, 4130	Report I Report I Order N Test Me	Number: Date : umber : thod : Page 1	GE15- 30/1 Q 1 of 1	GE15-160.8/1 30/10/2015 Q103A			
Sample Numb	er :	212612					SAMPLE LO	OCATION	
Sampling Met	hod :	- N/R					СРТ	02	
Sampled By :		IN/IX					0.8 -	1.4m	
Date Sampled	l :	12/09/2015					U4	40	
Date Tested :		30/10/2015							
Material Type	:	U40				Test Nu	mber :		
Material Source	ce :	INSITU				Lot Num	nber :		
Remarks :	r					Specifica	ation Number :		
AS Sieve Size(mm)	Percent Passing	Specification Limits							
100			1001					_	
75.0				į.					
63.0			90						
53.0									
37.5			80						
26.5			70-						
19.0									
16.0			(%)						
13.2			ssing						
9.5			-05 Du						
6.7			eoued 40-						
4.75									
2.36	100		30-			-	4 4 4 4 4 4 4 4 4		
1.18							6 6 6 8 6 8		
0.600			20				2 4 4 4 4 4 4 4 4		
0.425	100		10-						
0.300									
0.150			0	075		0.	425		2.36
0.075	94					AS Sieve	Size(mm)		
				Test Method	Results			Results	Specification
Liquid Limit (%	%):			Q104D	76.2	Weighte	d PI :	3300	
Plastic Limit (%):			Q105	43.2	LS x % Passing 0.425mm		1800	
Plasticity Inde	× (%):			Q105	33.0	Ratio of % Passing (0.075 / 0		0.94	
Linear Shrinka	age (%) :			Q106	18.0				



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	NATA Accreditation Number
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	Atte	rberg Limits	Report	
Client : Address : Project Name : Project Number : Location:	AUSSIE HYDROVAC SERVIC 359 CALIFORNIA CREEK RC BEAUDESERT BYPASS - STA GE15/160 BEAUDESERT	ES DAD, CORNUBIA, QLD, 4130 AGE 1	Report Number: Report Date : Order Number : Test Method : Pa	GE15-160.10/1 30/10/2015 Q104D Ige 1 of 1
Sample Number :	212613			
Test Number :				
Date Sampled :	12/09/2015			
Date Tested :	30/10/2015			
Sampled By :	N/R			
Sampling Method :	-			
Material Source :	INSITU			
Material Type :	U40			
Sample Location .	1.5 - 2.1m U40	6		
Lot Number :				
Moisture Method :	Q102A			
Sample History :				
Sample Preparation :	Dry			
Notes :	cracking and curling			
Mould Length (mm) :	150.0			
Liquid Limit (%) :	62.6			
Plastic Limit (%) :	33.6			
Plasticity Index (%) :	29			
Linear Shrinkage (%) :	13.6			
SPECIFICATION DETAILS			•	
Specification Number :				
Liquid Limit - Max :				
Plasticity Index - Max :				
Linear Shrinkage - Max :				
Remarks :	-	1	1	1





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			Quality of Ma	terials	s Report		
Client : Address : Project Name Project Numbe Location:	: er:	AUSSIE HYDR 359 CALIFORM BEAUDESERT GE15/160 BEAUDESERT	OVAC SERVICES NIA CREEK ROAD, CORNUBIA BYPASS - STAGE 1	A, QLD, 4130	Report Number: Report Date : Order Number : Test Method : Page	GE15 30/ 1 of 1	-160.9/1 10/2015 103A
Sample Numb Sampling Meth Sampled By : Date Sampled Date Tested :	er : nod : :	212614 - N/R 12/09/2015 30/10/2015			SAMPLE CF 0.8	LOCATION PT 05 - 1.4m J40	
Material Type Material Sourc Remarks :	: e :	U40 INSITU			Lot Number : Specification Number :		
AS Sieve Size(mm)	Percent Passing	Specification Limits			2	L	
75.0 63.0 53.0 37.5 26.5 19.0 16.0 13.2 9.5 6.7 4.75 2.36 1.18	100		100 1 C				
0.600 0.425 0.300 0.150 0.075	100 99		20 10 0 0075		0.425 AS Sieve Size(mm)		2.38
Liquid Limit (9 Plastic Limit (9 Plasticity Inde	6) : %) : x (%) :		Test Method Q104D Q105 Q105	Results 70.0 37.4 32.6	Weighted PI : LS x % Passing 0.425mm Ratio of % Passing (0.075 /	Results 3260 1800 0.99	Specification
Linear Shrinka	ige (%) :		Q106	18.0			



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	Moist	ure Content	Report		
Client : Address : Project Name : Project Number : Location:	AUSSIE HYDROVAC SERVICES 359 CALIFORNIA CREEK ROAD, CORNUBIA, QLD, 4130 me : BEAUDESERT BYPASS - STAGE 1 mber : GE15/160 BEAUDESERT		Report Number: Report Date : Order Number : Test Method :	Page 1	GE15-160.2/1 07/10/2015 Q102A of 1
Sample Number :	211699				
Test Number :					
Sampling Method :	-				
Date Sampled :	21/09/2015				
Date Tested :	30/09/2015				
Material Type :					
Material Source :					
Lot Number :					
Sample Location :	BH 1				
	7.0 - 745m				
	D (SPT)				
Oven Temperature (°C) :					
Soil Description :		N.			
Moisture Content (%) :	21.4				
Remarks :					



610000



Moisture Content Report				
Client :	AUSSIE HYDROVAC SERVICE	S	Report Number:	GE15-160.4/1
Address :	359 CALIFORNIA CREEK ROA	D, CORNUBIA, QLD, 4130	Report Date :	14/10/2015
Project Name :	BEAUDESERT BYPASS - STAG	E 1	Order Number :	
Project Number :	GE15/160		Test Method :	Q102A
Location:	BEAUDESERT	BEAUDESERT		age 1 of 1
Sample Number :	211945	211946		
Test Number :				
Sampling Method :	-	-		
Date Sampled :	22/09/2015	22/09/2015		
Date Tested :	08/10/2015	08/10/2015		
Material Type :	DISTURBED	DISTURBED		
Material Source :	INSITU	INSITU		

Material Source :	INSITU	INSITU		
Lot Number :				
Sample Location :	BH 2	BH 2		
	1.0 - 1.45m	4.0 - 4.45m		
	D	D		
Oven Temperature (°C) :				
Soil Description :		N.		
Moisture Content (%) :	32.2	35.6		
Remarks :			·	

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NATA	Accredited for compliance with ISO/IEC 17025.	N/R (Gold Coast) - GOLD COAST MANAGER
		NATA Accreditation Number 1169
L	RTI 135/06103 - File 1 - Page 60	Document Code RFO120-9



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	Mois	sture Content	Report				
Client : Address : Project Name : Project Number : Location:	AUSSIE HYDROVAC SERVICESReport Number:359 CALIFORNIA CREEK ROAD, CORNUBIA, QLD, 4130Report Date :BEAUDESERT BYPASS - STAGE 1Order Number :GE15/160Test Method :BEAUDESERTPage		AUSSIE HYDROVAC SERVICESReport Number:359 CALIFORNIA CREEK ROAD, CORNUBIA, QLD, 4130Report Date :BEAUDESERT BYPASS - STAGE 1Order Number :GE15/160Test Method :BEAUDESERTPage 1 of		AUSSIE HYDROVAC SERVICESRep359 CALIFORNIA CREEK ROAD, CORNUBIA, QLD, 4130RepBEAUDESERT BYPASS - STAGE 1OrdGE15/160TesBEAUDESERTOrd		GE15-160.7/1 30/10/2015 Q102A 1 of 1
Sample Number :	212612	212613	212614				
Test Number :							
Sampling Method :	-	-	-				
Date Sampled :	12/09/2015	12/09/2015	12/09/2015				
Date Tested :	30/10/2015	30/10/2015	30/10/2015				
Material Type :	U40	U40	U40				
Material Source :	INSITU	INSITU	INSITU				
Lot Number :							
Sample Location :	CPT 02	CPT 04	СРТ 05				
	0.8 - 1.4m	1.5 - 2.1m	0.8 - 1.4m				
	U40	U40	U40				
Oven Temperature (°C) :							

30.3

41.4

Soil Description :

Remarks :

Moisture Content (%) :

31.8

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NATA	Accredited for compliance with ISO/IEC 17025.	Not relevant Gold Coast) - GOLD COAST MANAGER
	BTI 125/06102 Eile 1 Borg 61	NATA Accreditation Number 1169
	R 11 135/00103 - File 1 - Page 01	Document Code RFO121-5



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	SHRINK SV	Test Method AS 1289 7.	EST REPORT		
Client	Morrison Geotechnic Pty Lto	1	Report No. 1510	00185-ISS	
Project	GE15/160 - Geotech Investi Beaudesert Bypass	gation - Bridge,	Test Date 14/1	0/2015	
Description	scription SILTY CLAY-dark brown		0/2013		
Sample No.			15100185		
Client ID			BH 2		
Depth (m)			2.50-2.79		
	RE	SULTS OF TES	STING		
	*	SWELL SPECIM	EN		
Swell Press	sure (kPa)		100		
Wet Density (t/m³)			1.86		
Initial Moisture Content (%)			36.2		
Final Moisture Content (%)			39,0		
Swell (%)			1.4		
÷	C		MEN		
Extent of C	rumbling	MANAGE SPECI	Nil	Terrene and a second	
Extent of C	racking		Hiah		
Moisture (%	(1)		36.1		
molotaro (/	Shrinkage (%)		0.7		
				angan sejangan kanan	
SHRINK	SWELL INDEX (Iss) (%)	5.8		
otes/Remarks:	Shrinkage measured using steel p	pins inserted into the sid	e of the specimen. Inert inclusio	ns as	
ample/s supplied b	y client Te	sted as received		Page: 1 of 1 REP02303	
Accre The results of the 1	edited for compliance with ISO/IEC 17025. ests, calibrations, and/or measurements inc are traceable to Australian/National Standa	cluded in this Irds.	Authorised Signatory Not relevant	NATA	



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		рН		DEMAN	D TEST	REPOI	RT			
	Te	st method : D	epartment of	Transport & N	lain Roads - C	133 : Lime D	emand of So	il		
ent	WOMSON	Geolechn					Report	No.	15100183-LD	
iect	e Beaude	sert Bypass		Tast Data		22/40/2045				
joor	o, Douddo	oon Dypuo	0	Penert	Doto	23/10/2015				
							кероп	Dale	20/10/2015	
Sample No.					15100183					
Client ID					BH 1					
Depth (m)					0.80-1.45					
Lime (%)	0	1	2	3	4	5	6	7		
рН	8.16	10.76	12.02	12.44	12.62	12.69	12.70	12.72		
Type and Sou	rce of Hydra	ted Lime	1	1	Hydrated Lime from Cement Australia.					
pH of Hydrate	d Lime						12.7			
Lime Demand	for -2.36mn	n Sample (H	LC)				5.0			
							Ť			
Sample No.		15100184								
Client ID					BH 2					
Depth (m)					0.20-1.00					
Lime (%)	0	1	2	3	4	5	6	7		
рН	7.91	10.81	12.19	12.48	12.65	12.68	12.73	12.74		
Type and Sou	rce of Hydra	ted Lime			Hydrated Lime from Cement Australia.					
pH of Hydrate	d Lime				12.7					
Lime Demand	for -2.36mn	n Sample (H	LC)	>			6.0			
	1									
Sample No.					-					
Client ID										
Depth (m)	5				-					
Lime (%)	0	1	2	3	4	5	6	7	+	
рн	<u> </u>		-	-	-	-	-	-		
Type and Sou	rce of Hydra	ted Lime					-			
pH of Hydrate	d Lime						-			
Lime Demand	for -2.36mn	n Sample (H	LC)				-			
/REMARKS:	Tested with	n distilled wa	ter at 22°C	at 5:1 Water	/Soil Ratio u	sing Hydrat	ed Lime			
						0 ,				
e/s supplied by t	he client								Page 1 of 1 REP16	
he results of the tes	Accredited for c	ompliance with and/or measure	ISO/IEC17025 ements included	d in this docum	ent are	Auth Not releva	norised Signat	ory		
	traceable to A	ustralian/Natior	al Standards.							
	Tested at T	rilah Brishane I	aboratory			$\boldsymbol{\mu}$			COMPETENC	



CERTIFICATE OF ANALYSIS

Work Order	EB1531174	&'(%) * Ā+ ,ĀĂ
123%4/) MORRISON GEOTECHNIC PTY LIMITED	-'.+#'/+#0) 5463#+47%4/'2Ā836393+4Ā:#39.'4%
1+4/';/	Not relevant	1+4/';/) 1\$9/+7%#Ā?%#63;%9Ā5:
ABB#%99) &@Ā:@CĀÄ!**	ABB#%99) ÄĀ:0/JĀ?/#%%/Ā?/',,+#BĀE-8ĀA\$9/#'23'ĀI!KL
	>5=A>DĀE-8FĀAG?"=A-HAĀIÀ**		
5M7'32) N/R N7+##39+4(%+ ;+7 '\$	5M7'32) A-?5463#+ :#39.'4%N'29(2+.'2 ;+7
"%2%OJ+4%) PQ*Ā!RĀLÄRS!S!!	"%2%OJ+4%) PQ*MRMLÄILĀRÄÄÄ
T';93732%) PQ*Ā!RĀLÄRS!SKK	T';93732%) PQ*MRMLÄILĀRÄ*U
&#+V%;/) :%'\$B%9%#/Ā:0O'99MĀ:#3B(%Ā@6%#Ā?O#34(Ā1#%%W	E1Ā-%6%2) >5&<ĀÄ!*LĀĀ?;J%B\$2%Ā:XLYĀ'4BĀA-?ĀE1?LĀ#%Z\$3#%7%4/
@#B%#Ā4\$7.%#) A*QURÄ	8'/%Ā?'7O2%9Ā=%;%36%B) *ÄM@:/MÄ!*KĀ*!)!!
1M@M1Ā4\$7.%#) MMMM	8'/%ĀA4'20939Ā1+77%4;%B) *IM@;/MÄ!*K
?'702%#	Not relevant	H99\$%Ā8'/%) Ä!M@:/MÄ!*KĀ*I)LR
?3/%) MMMM		
		>+ Ā+,Ā9'7O2%9Ā#%;%36%B)]
E\$+/%Ā4\$7.%#) MMMM	>+ Ā+,Ā9'7O2%9Ā'4'209%B)1
"J39Ā#%O+#/Ā9\$O%#9%E	3%9Ā'40ĀO#%63+\$9Ā#%O+#/X9Y ā kī Jākījā, Jākā kā (36#2%ā /+Ā/J%Ā9'7O2%.	X9YĀ'9Ā9\$.73//%B ĀĀ	
"J39Ā1%#/3,3;'/%Ā+,ĀA4'2 D%4%#'2Ā1+77%	20939Ā;+4/'349Ā/J%Ā,+22+[34(Ā <i>3</i>)4,+#7'/3+4 4/9		

• A4'20/3;'2Ā=%9\$2/9

~	>A"AĀA;;#%B3/%BĀ-'.+#'/+#0ĀUÄK	Signatories "J39Ā B+;\$7%4/Ā J'9Ā .%%4 '##3%Bā+\$/ā34ā++7023'4*8	4Ā%2%;/#+43;'22 9ā (4%ΒĀ0Ā /J%Ā'\$/J+#3\%ΒĀ93(4'/+≉ ☆Āſ3/ IĀ∩#+·%₽\$#%9ā9∩%·3 3%₽₩ āā āā`à*ā1T=ā&	#3%9Å4B3;'/%BÅ%2+[Å 52%;/#+43;À3(434(ÅJ'9Å .%%4
NATA	H?@]H51Ā*R!ÄK	Signatories	Position	Accreditation Category
WORLD RECOGNISED		N/R	?%43+#ĀH4+#('43;Ā1J%739/ ?%43+#ĀH4+#('43;Ā1J%739/	:#39.'4%ĀA;3BĀ?\$2OJ'/%Ā?+329 :#39.'4%ĀH4+#('43;9



General Comments

"J%Ā'4'20/3;'2Ā O#+;%B\$#%**\$ē**%BĀ0Ā /J%Ā5463#+47%4/'2&36393+4Ā 6%Ā%%4ĀB%6%2+O%#AT %9/'.239J%BĀ4/%#4'/3+4'22#Ā;+(43\%BĀ#+;%B\$#%9Ā;JĀ '9Ā /J+9%ĀO\$.239J%BĀĀ /J%ĀG?5&AFĀA&_AFĀA?Ā '4BĀ >5 &< Ā H4ĀJ+\$9%Ā B%6%2+O%BĀO#+;%B\$#%9Ā'#%Ā%7O2+0%BĀ34Ā/J%Ā'.9%4;%**#[4]BB\$\$**\$%44**/**3#%Z\$%9/

^J%#%Ā7+39/\$#%ĀB%/%#734'/3+4ĀJ'9Ā.%%4ĀO%#,+#7%BF**Ā#%#9\$@B9Ā*#%ĀB\$%**DĀ[%3(J/Ā.'939

^J%#%Ä[;]Ä#%O+#/%BÄ2%99Ä/J'4ÄXaYÄ#%9\$2/Ä39ÄJ3(J%**#ÄधÄ472)å%%Ä@%%Ä@%%Ä**#ÄO#37'#0Ä9'7O2%Ä%b/#';/JB3(%9/'/%Ä**B3#\$%3+9%**,'**&**B%4/Ä9'7O2%Ä,+#Ä'4'20939

^J%#%Ä/J%Ä-@=Ä+,Ä'Ä#%O+#/%BÄ#%9\$2/ÄB3,,%#9Ä,#+7Ä**309B7#BÄ.@X#7%**%Ä/+ÄJ3(JÄ7+39/\$#%Ä;+4/%4/FÄ349\$,,3;3%**48%%%D**#**M**%X

e%0Ā) 1A?Ā>\$7.%#ĀcĀ1A?Ā#%(39/#0Ā4\$7.%#Ā,#+7ĀB'/'.'9%Ā7'34/'34%BĀ**JĀ**\$12ĀA.9/#';/9Ā?%#63;%9 Ā"J%Ā1J%73;'2ĀA.9/#';/9Ā?%#63**B**\$**63B\$639ā,4**Ā+,Ā/J%ĀA7%#3;'4Ā1J%73;'2Ā?+;3%/0 -@=ĀcĀ-373/Ā+,Ā#%O+#/34(^ĀcĀ"J39Ā#%9\$2/Ā39Ā;+7O\$/%BĀ,#+7Ā34B363B\$'2Ā'4'20/%**ĀB##?%**#**63%A**\$**9%**Ā2%6%2Ā+,Ā#%O+#/34(dĀcĀA-?Ā39Ā4+/Ā>A"AĀ';;#%B3/%BĀ,+#Ā/J%9%Ā/%9/9

Analytical Results

?\$.M<'/#3b: SOIL (<'/#3b: SOIL)		Clie	ent sample ID	BH1: 10.00-10.45m	BH1: 14.50-14.95m	BH2: 1.00-1.45m	BH2: 14.50-14.95m	
	Cl	lient samplii	ng date / time	!SM@;/MÄ!*KĀ!U)!!	!SM@;/MÄ!*KĀ!U)!!	!SM@;/MÄ!*KĀ!U)!!	!SM@;/MÄ!*KĀ!U)!!	MMMM
Compound	CAS Number	LOR	Unit	EB1531174-001	EB1531174-002	EB1531174-003	EB1531174-004	
				=%9\$2/	=%9\$2/	=%9\$2/	=%9\$2/	=%9\$2/
EA002 : pH (Soils)								
pH Value	MM	MM!*	O_ĀG43/	8.6	8.5	8.5	8.5	
EA014 Total Soluble Salts								
fĀ Total Soluble Salts	MM	мм к	7(]W(178	116	266	109	
EA055: Moisture Content								
fĂ Moisture Content (dried @ 103°C)	MM	MM *	g	25.2	27.4	24.2	25.1	
EA084: Saturated Resistivity								
fĀ Resistivity at 25°C	MM	MM *!	+J7Ā;7	1680	1780	1220	3640	
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	*IU!UMRSM	U *!	7(]W(a*!	a*!	a*!	a*!	
ED045G: Chloride by Discrete Analyser								
Chloride	*QUURM‼M	Q *!	7(]W(70	50	100	40	



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		Test Method: AS12	39.6.4.1		
Client	Morrison Geot	echnic Pty Ltd	Report No.	15100188- UU	
Project GE15/160 - G Beaudesert By Client ID BH 2		eotech Investigation - Bridge, /pass	Test Date Report Date	14/10/2015	
			Depth (m)	5.50-5.86	
Description	SILTY CLAY-c	lark brown/grey	Sample Type Single Individual Undisturbed Specimen		
CLIEN	NT:	Morrison Geotechnic	Pty Ltd		
PROJ	ECT:	GE15/160 - Geotech	AF	TER TEST	
LADO	AMDLE N.	Investigation - Bridge	DUTT	hale	
LAB S	AMPLE No.	15100188	DATE:	1/10/15	
BORE	HOLE:	BH 2	DEPTH:	5.50-5.80	
otes/Remarks: aph not to scale	e	F	Photo not to scale Tested as received	Page 3 of 3 REP2	
Notes/Remarks: Graph not to scale The results of	e Accredited for complian of the tests, calibrations, ument are traceable to <i>L</i>	F nce with ISO/IEC 17025. and/or measurements included in this ustralian/National Standards	Photo not to scale Tested as received Authorised Signator Not relevant	Page 3 of 3	

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Client Morrison Geotechnic Pty Ltd Report Project GE15/160 - Geotech Investigation - Bridge, Beaudesert Bypass Test Da Report Client ID BH 2 Depth (Description CLAYEY SILTY SAND-brown/grey Sample Type CLIENT: Morrison Geotechnic Pty Ltd PROJECT: GE15/160 - Geotech Investigation - Bridge, LAB SAMPLE No. DAT BOREHOLE: BH 2 DEP	o. 15100189- UU			
Project GE15/160 - Geotech Investigation - Bridge, Beaudesert Bypass Test Da Report Client ID BH 2 Depth (Description CLAYEY SILTY SAND-brown/grey Sample Type CLIENT: Morrison Geotechnic Pty Ltd PROJECT: GE15/160 - Geotech Investigation - Bridge, LAB SAMPLE No. 15100189 DAT BOREHOLE: BH 2 DEP				
Client ID BH 2 Depth (Description CLAYEY SILTY SAND-brown/grey Sample Type 3 CLIENT: Morrison Geotechnic Pty Ltd PROJECT: GE15/160 - Geotech Investigation - Bridge, LAB SAMPLE No. 15100189 DAT BOREHOLE: BH 2 DEP	e 16/10/2015			
CLIENT: Morrison Geotechnic Pty Ltd PROJECT: GE15/160 - Geotech Investigation - Bridge, DAT BOREHOLE: BH 2 DEP	A 8 50-8 88			
CLIENT: Morrison Geotechnic Pty Ltd PROJECT: GE15/160 - Geotech Investigation - Bridge. DAT BOREHOLE: BH 2 DEP	Sample Type Single Individual Undisturbed Specimen			
PROJECT: GE15/160 - Geotech Investigation - Bridge, LAB SAMPLE No. 15100189 DAT BOREHOLE: BH 2 DEP				
LAB SAMPLE No. 15100189 DAT BOREHOLE: BH 2 DEP	AFTER TEST			
BOREHOLE: BH 2 DEP	16/10/15			
	H: 8.50-8.88			
Ites/Remarks: Photo not to scale aph not to scale Tested as received				
Accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations, and/or measurements included in this document are traceable to Australian/National Standards.	Page 3 of 3 REP2			

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Tested at Trilab Brisbane Laboratory.

Laboratory Number 9926

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Tested at Trilab Brisbane Laboratory.





Laboratory Number 9926

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ABN 25 065 630 506



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				VK I	
		Test Metho	od: AS1289.6.4.2		
lient:	Morrison Geotechnic	Pty Ltd	Report No	.: 15100187 - CU	
roject:	GE15/160 - Geotech	Investigation -	Test Date	: 14/10/2015	
	Bridge, Beaudesert E	sypass	Report Date	: 26/10/2015	
lient Id.:	BH 1		Depth (m)	: 5.50-5.80	
escriptio	n: SANDY CLAYEY SIL	T-dark brown			
	CLIENT:	Morrison Geote	chnic Pty Ltd		
	PROJECT:	GE15/160 - Geo	tech	AFTED TEST	
		Investigation - B	Bridge,	AFTER TEST	
	LAB SAMPLE No.	15100187		DATE: 22/10/15	
	BOREHOLE:	BH 1		DEPTH: 5.50-5.80	
			0		
Imple Type: Imple/s sunnlied	Single Individual Undisturbed Spe	cimen	Remarks: Tested as Note: Graph not to scale	Received	Page 5
Imple Type: Imple/s supplied The results of docu	Single Individual Undisturbed Speet by the client Accredited for compliance with IS f the tests, calibrations, and/or me ment are traceable to Australian/N	cimen O/IEC 17025. asurements included in this lational Standards.	Remarks: Tested as Note: Graph not to scale	Received seed Signatory.	Page 5 REP03001

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9926



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RT12935906903 - FileBN-29262 98 5985



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Client	nic Pty Ltd		Report No. 151002	76-MOD		
Project GE15/160 - Geotechnical Investigation Bridge			or New	Test Date 23/10/20 Report Date 26/10/20	015	
Client ID	BH1 - 508			Depth (m) 21.30-2	1.48	
Descriptio	n Insitu					
Sample Ty	/pe Single Indiv	vidual Rock Core Speci	men			
	Uniaxial Com	oressive Strength	5.92 M	Pa		
Average Sa	ample Diameter (mm)	51.6	Moisture	Content (%) 17	7.7	
Sample He	eight (mm)	141.3	Wet Den	sity (t/m^3) 2.	17	
Duration of	Test (min)	4.20	Dry Dens	sity (t/m ³) 1.	84	
Rate of Loa	ading (MPa/min)	1.41	Bedding	(°) N	Nil	
Mode of Fa	ailure	Shear	Test App	aratus Kelba 1	000kN Load Cell	
	PROJECT: LAB SAMPLE No.	GE15/160 - Geotech Investigation for No 15100276	inical w Bridge	lge AFTER TEST		
	LAB SAMPLE No.	15100276		DATE: 23/10/15		
0	30.00				*	
lotes/Remarks	<u>:</u>					
ample/s supplie	ed by client Gra	uph not to scale	Tested as rece	eived.	Page 2 of 2 REP03603	
The results this doc	Accredited for compliance with ISC of the tests, calibrations, and/or m cument are traceable to Australian,	D/IEC 17025. easurements included in /National Standards.	Auth	norised Signatory y		
					COMPETENCE	

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UNIAXIAL COMPRESSION REPORT - Rock Core

Client	Aussie Hydrovac Ser	rvices	Report No:	GE15 - 160 - 7		
Job No.	GE15 - 160		Report Date:	22/10/2015		
Project:		11	NVESTIGATION			
Location	BEAUD	BEAUDESERT BYPASS BRIDGE - BEAUDESERT				
Laboratory ID No.	509		S.			
Borehole No:	BH 1		100	and the second sec		
Depth Of Specimen(m):	23.30 - 23.50		· JAMA	Carl Carl		
Date of Compression:	21/10/2015	- 12	Astron			
Date of Coring:	22/09/2015		aller the			
Test Duration: (min:sec)	9:46					
Failure Type:	Multi Shear Plane					
Rock Classification:	DW-SW Bassalt					
Height & Diameter of Specimen (mm):	156.0 x 51.7					
Height to Diameter Ratio: (x:1)	3.02					
Rate of Displacement:	0.05mm/min					
Correction Factor	NA					
Density (t/m³):	2.320					
COMPRESSIVE STRENGTH (MPa)	7.5					
CORRECTED MPa	7.5					
Remarks:	Rate of Displacement to 0.09mm/min to fail	t was 0.0 ure.	05mm/min to 5mi	nutes, rate then increased		





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UNIAXIAL COMPRESSION REPORT - Rock Core

Client	Aussie Hydrovac Services		Report No:	GE15 - 160 - 8	
Job No.	GE15 - 160		Report Date:	22/10/2015	
Project:	INVESTIGATION				
Location	BEAUD	ESERT I	BYPASS BRIDGE - BE	AUDESERT	
Laboratory ID No.	510	1	-	Carlos V	
Borehole No:	BH 2	1		A-122	
Depth Of Specimen(m):	20.65 - 20.85				
Date of Compression:	21/10/2015	Tool -	the second second	A C	
Date of Coring:	22/09/2015		Contraction of the second		
Test Duration: (min:sec)	10:40	L	A Carlos		
Failure Type:	Mixed Mode/ Tensile dominated				
Rock Classification:	DW-SW Bassalt			All 1	
Height & Diameter of Specimen (mm):	103.4 x 51.7		March M		
Height to Diameter Ratio: (x:1)	2.00		C THE		
Rate of Displacement:	0.05mm/min	2			
Correction Factor	NA	1.00	Heil		
Density (t/m³):	2.300				
COMPRESSIVE STRENGTH (MPa)	16.0	16.0			
CORRECTED MPa	16.0		C.C.		
Remarks:	Rate of Displacemen to 0.09mm/min to fail	t was 0. ure.	.05mm/min to 5min	utes, rate then increase	





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UNIAXIAL COMPRESSION REPORT - Rock Core

Client	Aussie Hydrovac Ser	vices	Report No:	GE15 - 160 - 9	
Job No.	GE15 - 160		Report Date:	22/10/2015	
Project:	INVESTIGATION				
Location	BEAUD	ESERT E	BYPASS BRIDGE - E	BEAUDESERT	
Laboratory ID No.	511				
Borehole No:	BH 2				
Depth Of Specimen(m):	22.70 - 22.87			and a second	
Date of Compression:	21/10/2015	No. or all	- NA I	P. S.M. Tolah	
Date of Coring:	22/09/2015				
Test Duration: (min:sec)	13:28				
Failure Type:	Tensile Dominated				
Rock Classification:	DW-SW Bassalt			- and the	
Height & Diameter of Specimen (mm):	143.0 x 51.8				
Height to Diameter Ratio: (x:1)	2.76				
Rate of Displacement:	0.05mm/min				
Correction Factor	NA				
Density (t/m³):	2.400				
COMPRESSIVE STRENGTH (MPa)	25.5				
CORRECTED MPa	25.5				
Remarks:	Rate of Displacement to 0.09mm/min to failu	t was 0.0 ure.	05mm/min to 5mi	nutes, rate then increased	





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		POINT LO	AD TEST - AS	4133 4.1				
Client: Aussie H	Hydrovac Serv	ices		Job Number: GE15/160				
Project: Geotec	hnical Investig	gation for Bridge		Lab Sample Number: 512 to 531				
Location: Sprin	g Creek, Beau	desert Bypass, B	eaudesert	Date: 21/10/2015				
Sample Number	Borehole Number	Depth (m)	ls (MPa)	ls(50) (MPa)	Loading Direction	Descriptive Term		
522	BH1	18.85	0.34	0.35	Diametral	M*		
523	BH1	19.25	1.35	1.37	Diametral	Н		
523	BH1	19.25	1.36	1.36	Axial	Н		
524	BH1	19.55	0.25	0.26	Diametral	L-M*		
525	BH1	19.90	0.61	0.61	Diametral	M*		
526	BH1	20.25	0.48	0.49	Diametral	М		
527	BH1	21.50	0.42	0.43	Diametral	M*		
527	BH1	21.50	0.92	0.89	Axial	М		
528	BH1	22.35	1.84	1.87	Diametral	Н		
528	BH1	22.35	1.89	1.72	Axial	Н		
529	BH1	22.60	0.59	0.60	Diametral	M*		
530	BH1	23.50	0.92	0.93	Diametral	M*		
531	BH1	23.95	1.23	1.24	Diametral	Н		
512	BH2	19.95	0.67	0.68	Diametral	M*		
513	BH2	20.60	0.93	0.94	Diametral	M-H		
514	BH2	21.05	1.59	1.61	Diametral	Н		
515	BH2	21.70	1.29	1.31	Diametral	Н		
516	BH2	22.45	2.69	2.73	Diametral	Н		
517	BH2	22.70	0.67	0.68	Diametral	M*		
517	BH2	22.70	3.39	3.34	Axial	VH		
518	BH2	22.90	1.75	1.78	Diametral	Н		
518	BH2	22.90	1.27	1.28	Axial	Н		
519	BH2	23.40	1.75	1.78	Diametral	Н		
519	BH2	23.40	1.65	1.55	Axial	Н		
520	BH2	23.80	0.48	0.49	Diametral	М		
520	BH2	23.80	0.39	0.41	Axial	М		
521	BH2	24.45	4.08	4.14	Diametral	VH		

Remarks:

All tested samples comprised Argillite which is typically Moderately Weathered (MW) and Slightly Weathered (SW)

*Denotes failed along defect plane.

EL: Extremely Low, VL: Very Low, L: Low, M: Medium, H: High, VH: Very High, EH: Extremely High





Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

 the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- · composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk*.

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenviron-mental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures*. If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the express purpose of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road/Suite G106, Silver Spring, MD 20910 Telephone: 301/565-2733 Facsimile: 301/589-2017 e-mail: info@asfe.org www.asfe.org

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IIGER06085.0MRP

A.						Conformance Report
and and and Analysia					J518-1: Bea	udesert Town Centre Bypass
Civil—	2010) 2010) 					Lot: EM006
Lot:	EM006			Work Type:	EM	Area:
Description:	Road Embankmen Zone 1 (North) MC20 CH 170-371 MC10 CH 40480-4 Helen St to Cut/Fil	nt 0530 I Line				
	<u>Other Details:</u>	Not relevant		Key Dates:		
	Raised By:	Not relevant		Opened:	08 Feb 2017	Closed: 28 Feb 2017
	Conformed By:			Work St:	08 Feb 2017	Work End: 28 Feb 2017
	Testing Level:	Normal	Reduced	Guaranteed:		Conformed: 15 Mar 2017
<u>Geometry:</u>	No geometry defi	ned.				
Quantities:						
3301.02	Road embankmer	nt (Class B) (Mi	RS04 Oct 14)		Meas. Qty 3,132.8	Eff. Qty 3,132.8 m3
QVCs:						
Embankment, General Fill	Road Embankme Zone 1 (North) MC20 CH 170-37 MC10 CH 40480- Helen St to Cut/F	ent 1 40530 ill Line				
NCRs:						
ATPs:						
<u>Related Lots:</u> Variations:						

Signed: Print Name:		Date:
Approved by (signature): Print Name:	Not relevant	Date: 15/03/17

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	Lot Quantity Report J518-1: Beaudesert Town Centre Bypass Lot: EM006			
Lot: EM006 Description: Road EmbankmentZone 1 (North)MC20 CH 30-371MC10 CH Geometry:	Work Type: EM 40480-40530Helen St to Cut/Fill Line	Area:		
Schedule Item	Actual Qty	Eff. Qty Approved?		
3301.02: Road embankment (Class B) (MRS04 Oct 14) (m3)	3,132.8	3,132.8 Feb Revious EOM		
3301.02: Road embankment (Class B) (MRS04 Oct 14) (m3)	422.1	422.1 MAR FOM Yes claim		
Signature:	Approvide the Approvide the Approvide the Approvide the Approvide the Approximation of the Ap	oved By: (March Claim)		

Brisbane St MC20 (opposite calter)

see	J518-1: Bea	Lot Quantity Report audesert Town Centre Bypass
Civil EM006 escription: Road EmbankmentZone 1 (North)MC20 CH 170-371MC10 Ch	Work Type: EM H 40480-40530Helen St to Cut/Fill L	Lot: EM006 Area:
chedule Item	Actual Qty	Eff. Qty Approved?
01.02: Road embankment (Class B) (MRS04 Oct 14) (m3)	3,132.8	0
Signature:	Not relevant	proved By:
Print Name:	Not relevant	Date: 1/3/17
¥Enbankunt ontsile lin	it of works	о С -
to he reco	ACILIA I'M	March.

Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0405Embankment, General Fill

<u>_ot:</u>	EM006 Zone 1 MC20 C MC10 C Helen S	Road Embankment (North) H 170-371 H 40480-40530 St to Cut/Fill Line	
Date	Open: 08 Feb	2017 Date Work Starts: 08 Feb 2017 Date Compl:	
	Check Type:	Description:	Check Verify Appr. NCR
1	Check Item	Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.	
2	Check Item	Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 2000m ³ .	ST33 m3 Lot Size
3	Check Item	Embankment Material MRTS04 Clause 14.2.1 Responsibility: Project Engineer General fill material used for the construction of road embankments shall be sourced from general excavations on site or from borrow. The material shall comply with the requirements stated in Table 14.2.2 & additional requirements in MRTS04.1 Clause 10.1	All tests pass.
		TEST - Material Properties Particle Size Distribution, CBR, Atterberg Limits Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - >7% WPI - <1200 Single Point Soaked CBR - 10%	Test Frequency as per attached spreadshee i.e. 2 per 1925m ³
		Test Frequency - All testing at 1 per 2000m ³ .	
4	Check Item	Construction MRTS04 Clause 14.3.1 Responsibility: Works Supervisor Embankments shall be constructed to the shapes, zones and other requirements shown on the drawings or otherwise as specified.	
5	Check Item	Compacted Layer Method of Construction MRTS04 Clause 15.3 Responsibility: Works Supervisor / Project Engineer Embankment compacted to required density (by characteristic Value)	
		Refer to Table 15.3-B MRTS04 for more information. Fill material placed uniformly in layers. Uncompacted layer thicknesses; - General fill material in road embankment 150 to 300 - Subgrade 100 to 200	All tests pass
		TEST - Sand Replacement Required Standard - 95% RDD Test Frequency - 1 per 500m ³ , Min 4 per Lot	3=133 m ³ Lot Size 2 test per 323 m ³

Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0405Embankment, General Fill

<u>Lot:</u>		EM006 Zone 1 MC20 C MC10 C Helen S	Road I (North H 170 H 404 H 404	Embankment i) -371 80-40530 ut/Fill Line					
Date	e Open:	08 Feb	2017	Date Work Starts:	08 Feb 2017	Date Compl:			
	Check	Type:	Des	cription:			Check Verify	Appr.	NCR
6	Check	Item	Mois MRT Resp The withi	sture Content S04 Clause 15.3 consibility: Works Supe embankment material in ranges specified in t	ervisor shall be placed a table 15.3C	and compacted at a moisture content	Some moist Compaction	re content Achieved	-> 80%
7	Check	Item	Geo MRTS Resp Whe withi	metric Tolerances S04 Clause 6.3 ionsibility: Works Supe re emankment constru- in tolerances specified	ervisor / Surveyor uction is near sub in table 6.3.1	r ograde zone, ensure embankment is	for a	yer Th	ickness

Item No.	Description	Qty

Comments

Signature:	Responsible Officer		Verifying Authority	
Print Name:	Not relevant	Date: 15/63/17		Date:



EMBANKMENT FILL MATERIAL PROPERTY TESTING SUMMARY						
Lot Number	Test Request No.	Date Sampled	CBR	РІ	% Passing 0.075	
EM001	TR8	2/02/2017	12	15.2	18	
EM004	TR17	8/02/2017	19	23.8	23	
EM005	TR20	9/02/2007	11	21.8	29	
EM006	TR30	13/02/2017	11	21.8	25	
EM002	TR35	14/02/2017	14	16	18	
EM004	TR48	16/02/2017	12	23	20	
EM005	TR41	16/02/2017	14.1	23.2	23	
EM003	TR62	18/02/2017	12	22.8	25	
EM003	TR14	20/02/2017	18	12	29	
EM003	TR81	23/02/2017	10	21.8	26	
EM003	TR97	25/02/2017	20	26.2	24	
EM007	TR111	28/02/2017	17	22.2	15	
Total Volu	me of Lots EM0	01-EM007				
24892.1m ³						
Total Num	ber of Material	Property Test	ts Perform	ed		
13						
Test Frequ	ency					
1 per 1915	m³					

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ASCT - Brisbane South PO Box 1232, Park Ridge QLD 4125 4/31 Tradelink Road Hillcrest Q 4118 Telephone ^{Not relevant} Email: brisbane.south@asct.com.au A.B.N: 73 193 500 470





Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant

Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470

Density Report - Sand Replacement

Client: See Civil Pty Ltd Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Project: Beaudesert Town Centre Bypass Project

Component: MC20

Lot No: EM-006

Report No: 79 Report Date: 10/02/2017 Tested By: ^{N/R}

Job No: 115

Test Date: 9/02/2017

Test Request No: TR-024

Sample No.:	4208				
Material Source:	Cryna Quarry	-			•
Material Type:	General Fill	-		•	
Client Reference:	TR-024	•		-	-
Control Line / Road:	MC20			•	
Chainage:	252	-	•	-	•
Offset:	11	•	•	•	
Test Level:	Layer 1	·	-	•	-
Test Depth:	200	- 77		-	-
Compactive Effort:	Standard	-	-	-	
Oversize Sieve Size (mm):	37.5	-	-	-	-
Percentage of Oversize Dry (%):	-		-	-	-
Density of Oversize (t/m3)	-	-	-	-	-
Field Dry Density (t/m3)	2.024	•	-	-	•
Field Moisture Content (%)	6.9	-	-	-	-
Assigned Value Report No:	-				
Assigned Value Report Date:					
Maximum Dry Density (t/m3)	2.032	-		-	•
Adjusted Maximum Dry Density (t/m3)		-	•	-	-
Optimum Moisture Content (%)	9.4	-	•	-	-
APD Sample No. / Date:		-	-	-	-
Apparent Particle Density (t/m3)	-	-	-	-	-
Moisture Ratio (%)	74		•	-	•
Moisture Ratio Specification (If any):	- /	-	-	<u> </u>	+
Density Ratio % :	99.6	-	-	-	-
Density Ratio Required % :	95.0				
Degree of Saturation % :	-	-	-	=	•
Characteristic Value (Density) % :	•				
Characteristic Value (D.O.S) % :	•				
Sampling Procedures:	Q050 , Q061			٦ ٦	Page 1 of 1
Test Procedures:	Q102A , Q140A , Q141B ,	Q142A , Q143 ,	Not relevan	nt	
			/		
Nata Accreditation No:	19902		$\langle \rangle$		· .
Laboratory:	Brisbane South			Not relevant	
Accredited for compliance w	with ISO/EC 17025. The In this document are			A	
TECHNICAL COMPETENCE	onsi stendarda.			Approved Signatory ASCT Doc No. Q63 Rev:1,	21/09/2016



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Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant

Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470

Density Report - Sand Replacement

Client: See Civil Pty Ltd

Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Project: Beaudesert Town Centre Bypass Project

Component: MC20

Lot No: EM-006

Report No: 82 Report Date: 14/02/2017 Tested By: N/R Test Date: 10/02/2017 Test Request No: TR-027

Job No: 115

Sample No.: 4244 4245 Material Source: **Cryna Quarry** Cryna Quarry . . -Material Type: Embankment Fill Embankment Fill . . Client Reference: TR-027 TR-027 . . _ Control Line / Road: MC20 MC20 . Chainage: 213 297 . . • Offset 9 5 -. -Test Level: Layer 2 Layer 2 . . . Test Depth: 200 200 . _ Compactive Effort: Standard Standard Oversize Sieve Size (mm) 37.5 37.5 . . -Percentage of Oversize Dry (%) -- . ---Density of Oversize (t/m3) -Field Dry Density (t/m3) 1.934 1.931 . -_ Field Moisture Content (%) 9.5 10.0 -Assigned Value Report No: • Assigned Value Report Date: _ Maximum Dry Density (t/m3) 1.980 1.967 -. Adjusted Maximum Dry Density (t/m3) ---. Optimum Moisture Content (%) 12.2 12.7 • -APD Sample No. / Date: ----_ Apparent Particle Density (t/m3) -. . -_ Moisture Ratio (%) 78 79 . --Moisture Ratio Specification (If any): **Density Ratio %**: 97.7 98.2 . • Density Ratio Required % 95.0 95.0 Degree of Saturation % . • . . Characteristic Value (Density) % 97.7 Characteristic Value (D.O.S) % : Page 1 of 1

Sampling Procedures: Q050, Q061

Test Procedures: Q102A, Q140A, Q141B, Q142A.Q143.

ΝΑΤΔ COMPETENCE

Nata Accreditation No: 19902

Laboratory: Brisbane South

Accredited for compliance with ISO/EC 17025. The results of the tests included in this document are traceable to Australian/national standards.

Not releva Not relevant

> Approved Signatory ASCT Doc No. Q63 Rev:1, 21/09/2016



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Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant Email: brisbane.south@asct.com.au

Email: phsballe.south@asct.com

A.B.N.: 73 193 500 470

Density Report - Sand Replacement

Client: See Civil Pty Ltd Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Project: Beaudesert Town Centre Bypass Project

Component: MC20

Lot No: EM-006

Report No: 85 Report Date: 15/02/2017 Tested By: ^{N/R} Test Date: 13/02/2017 Test Request No: TR-030

Job No: 115

Sample No.:	4262	4263	4264	4265	4266
Material Source:	Cryna Quarry	Cryna Quarry	Cryna Quarry	Cryna Quarry	Сгупа Quarry
Material Type:	General Fill	General Fill	General Fill	General Fill	General Fill
Client Reference:	TR-030	TR-030	TR-030	TR-030	TR-030
Control Line / Road:	MC20	MC20	MC20	MC20	MC20
Chainage:	193	217	228	261	273
Offset:	29	9	5	6	2
Test Level:	Layer 4	Layer 5	Layer 6	Layer 3	Layer 3
Test Depth:	200	200	200	200	200
Compactive Effort:	Standard	Standard	Standard	Standard	Standard
Oversize Sieve Size (mm):	37.5	37.5	37.5	37.5	37.5
Percentage of Oversize Dry (%):	4	9	2	6	6
Density of Oversize (t/m3)	2.668	2.690	2.710	2.649	2.667
Field Dry Density (t/m3)	2.003	2.017	1.979	1.987	2.010
Field Moisture Content (%)	8.2	8.0	8.4	8.3	8.3
Assigned Value Report No:	AV25	T			
Assigned Value Report Date:	15/02/2017	1	I		
Maximum Dry Density (t/m3)	2.000	2.000	2.000	2.000	2.000
Adjusted Maximum Dry Density (t/m3)	2.022	2.046	2.011	2.030	2.031
Optimum Moisture Content (%)	10.9	10.4	11.2	10.7	10.7
APD Sample No. / Date:		-		-	
Apparent Particle Density (t/m3)	•			· ·	-
Moisture Ratio (%)	72	70	74	73	73
Moisture Ratio Specification (If any):	•	н		+	-
Density Ratio % :	99.1	98.6	98.4	97.9	99.0
Density Ratio Required % :	95.0	95.0	95.0	95.0	95.0
Degree of Saturation % :	. /	·	•	· _	
Characteristic Value (Density) % :	98.2	1	1		
Characteristic Value (D.O.S) % :		1			
Sampling Procedures:	Q050 , Q061		1		Page 1 of 1
Test Procedures: C	2102A , Q140A , Q141B ,	Q142A, Q143,		\frown	
			Not rel	evant	
All.					
Nata Accreditation No: 1	19902				
Laboratory: F	Brisbane South			Not relevant	
Accredited for compliance w	th ISO/EC 17025. The			Notioiovant	

TECHNICAL traceable to Acctration/netional standards.

Approved Signatory ASCT Doc No. Q63 Rev:1, 21/09/2016

AUSTRAL SOIL AN CONC TEST	IAN ID RETE FING See Civil Pty Ltd 24A Ozone Street, T Beaudesert Town Co	RI weed Heads, NSW, 24 entre Bypass Project	ASCT Brisbane South Pty PO Box 1232 Park Ric 4/31 Tradelink Road H Email: brisbane.south(EPORT OF F	Ital Ige QLD 4125 iillcrest Q 4118 @asct.com.au	ITY	Telephone ^{Not relevant} Mobile ^{Not relevant} A.B.N: 73 193 500 47 REPORT NO: LOT NO: REQUEST NO:	0 268 EM-006 TR-155	
JOB No.: LOCATION:	115 MC20					MATERIAL: MATERIAL SOURCE:	General Fill Cryna Quarry	
TESTED BY: N	N/R 10/03/2017					REPORTED BY: DATE REPORTED:	V/R 14/03/17	
SAMBLE No.	4969	4970						
SAMPLE INC.	4303	231				-		-
	MC20	MC20			-	-	-	
OFFSET (m)	21	89	_			-	_	-
(EVELOE TEST (m)/R(1))	Laver 7	Laver 7	. .		-	-	_	-
TEST DEPTH (mm)	200	200	_		_	-		-
OVERSIZE IEVE SIZE (mm)	37.5	37.5			-	-	-	-
« AVERGIZE	11	13			_	-	-	_
DENSITY OF OVERSIZE (1/m3)	2 685	2 698		-	_	-		
MOISTURE RATIO (K)	2.005	79				-	_	_
EIELD DRY DENS(TY (Im 3)	2.081	2 131			_	-		.
EELD MOIST/IPE CONTENT (%)	10.1	88			_	-		
COMPACTION SAMPLE No.	4969	4970		-	-	-	-	-
DATED MDD AND OMC TESTED	13/03/2017	13/03/2017	· · ·	-	•	-	-	-
MAXIMUM DRY DENSITY (Vm3)	1.982	1.994				-		-
ADJUSTED MAXIMUM DRY DENSITY (Vm3)	2.039	2.063	-	-	-	-	-	-
OPTIMUM MOISTURE CONTENT (%)	13.4	12.8	-	-	-	-		-
ADJUSTED OPTIMUM MOISTURE CONTENT (%)	12.0	11.2		<u> </u>	-	-		
DENSITY RATIO: (%)	102.1 /	103.3	-	I,				
CHARACTERISTIC VALUE OF DENSITY RATIO: (%)	102.0 V							nek ne me ne provinsi su per. Ne su su su su su su su
TEST PROCEDURES: CALIBRATION DETAILS: DATE 0144A ASSIGNED:	TEST METHÓDS Q020, Q0: C4-2-Cryna N/A	50, Q061, Q140A, Q143, Q141	A, Q142A		Not relevant			
LAYER DEPTH (nim)	200			Authorised Signatory		_		
Accredited for compliance with ISO/IEC 1 included in this document are traceable to standards.	7025. The results of the to Australian/national	ESIS TECHNICAL			NATA Accreditation Numbe Laboratory Name: ASCT B	r: 19902 risbane South		

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Conformance Report

J518-1: Beaudesert Town Centre Bypass

Lot: EX004

Lot:	EX004			Work Type:	EX	Area:	
Description:	<i>Road Excavation Zone 1 (Brisbane Sti MC10 CH 40191-404 Stage 1 (RHS)</i>	reet) 100					
	<u>Other Details:</u>			Key Dates:			
	Raised By:	Not relevant		Opened:	23 Feb 2017	Closed:	21 Apr 2017
	Conformed By:			Work St:	23 Feb 2017	Work End:	21 Apr 2017
	Testing Level:	Normal	Reduced	Guaranteed:		Conformed:	21 Apr 2017

Geometry: No geometry defined.

Quantities:

		Meas. Qty	Eff. Qty
2515.03	Supply and installation of geotextile, Strength Class [C], Filtration Class [IV] (MRS03 Apr 16)	542.3	542.3 m2
3109.01P	Excavation and disposal of Unsuitable Material with individual excavation > 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14)	186.5	186.5 m3
3201.01	Road excavation, all materials (MRS04 Oct 14)	895.7	895.7 m3
VO005	Omitted Item Class A & B Unsuitable Replacement	186.5	186.5 m³
3106.01	Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14)	119.3	119.3 m3
2515.03	Supply and installation of geotextile, Strength Class [C], Filtration Class [IV] (MRS03 Apr 16)	356.2	356.2 m2
3106.01	Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14)	141.7	141 <i>.</i> 7 m3
3201.01	Road excavation, all materials (MRS04 Oct 14)	114.6	114.6 m3
2106.01	Removal or demolition of concrete kerb and channel including kerb crossings (MRS03 Apr 16)	96.88	96 .88 m
2108.01	Removal or demolition of gullies (MRS03 Apr 16)	3.0	3.0 each

<u>QVCs:</u>

Road Road Excavation Excavation Zone 1 (Brisbane Street) MC10 CH 40191-40400 Stage 1 (RHS)

NCRs:

NCR: 6

Description:

Pavement excavation works on Brisbane Street have not been carried out as per the design. There is an area of asphalt overlay (Pavement Type C) which has been profiled to a depth of 300mm, rather than 50mm (as shown on the design detail).

ATPs:

Related Lots: Variations:

Conformance Report

J518-1: Beaudesert Town Centre Bypass

Lot: EX004

This lot conforms in all respects with the standards and requirements specified in the contract documents, the lot verification records are complete and any non conformances have been dispositioned in accordance with the contract requirements

Sign	ed:	
Print Na	me:	Date:
• · · · · · • • • • • • • • • • • • • •	Not relevant	
Approved by (signatur	Not relevant	21/4/7
	me:	Date: <u>~ (70+/1 /</u>



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EX004

Lot Quantity Report

J518-1: Beaudesert Town Centre Bypass

Area:

Lot: EX004

Description: Road ExcavationZone 1 (Brisbane Street)MC10 CH 40191-40400Stage 1 (RHS)

Geometry:

Lot:

Schedule Item	Actual Qty	Eff. Qty	Approved?
2515.03: Supply and installation of geotextile, Strength Class [C], Filtration Class [IV] (MRS03 Apr 16) (m2)	542.3	0	-1
3109.01P: Excavation and disposal of Unsuitable Material with individual excavation > 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14) (m3)	186.5	0	۲
3201.01: Road excavation, all materials (MRS04 Oct 14) (m3)	895.7	0	7
VO005: Omitted Item Class A & B Unsuitable Replacement (m ³)	186.5	0	7
3106.01: Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14) (m3)	119.3	0	7

Work Type: EX

	Signature:	Not relevant	Approved By:	
	Print Name:	Not relevant	Da	te: <u>7/4/1</u> 7
Revz- elue to	Incorre	ed daim	of sub	grade

SE		J518-1: Beaud	Lot Quantity Report esert Town Centre Bypass Lot: EX004
Lot:	EX004 Wo	ork Type: <i>EX</i>	Area:
Description <u>Geometry</u>	Road ExcavationZone 1 (Brisbane Street)MC10 CH 40191-40400Sta	age 1 (RHS)	
Schedule I	ltem	Actual Qty	Eff. Qty Approved?
2515.03: Suj [IV] (MRS0	pply and installation of geotextile, Strength Class [C], Filtration Class 3 Apr 16) (m2)	542.3	0 Mar Eom
3109.01P: Ex excavation >	xcavation and disposal of Unsuitable Material with individual 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14) (m3)	186.5	0 Mar EoM
3201.01: Roa	ad excavation, all materials (MRS04 Oct 14) (m3)	895.7	o Mar EoM
VO005: Omil	tted Item Class A & B Unsuitable Replacement (m ³)	186.5	0 Mar Eom
3106.01 : Gro Intersection	ound surface treatment, special (cubic metres) (Northern - remove and replace with Class B material) (MRS04 Oct 14) (m3)	119.3	· Mar Eom
2515.03: Suj [IV] (MRS0	pply and installation of geotextile, Strength Class [C], Filtration Class 3 Apr 16) (m2)	356.2	o Yes April
106.01 : Gro Intersection	ound surface treatment, special (cubic metres) (Northern - remove and replace with Class B material) (MRS04 Oct 14) (m3)	141.7	o Yes*
3201.01: Roi	ad excavation, all materials (MRS04 Oct 14) (m3)	114.6	0 Yes
- (Not re	Appro	oved By:
	Signature:	vant	Date: <u>28.4.1</u> 7

r prenous q fys processed as unsuitable are to be corrected to be 657 special where applicable

SEE	J518-1: Bea	Lot Quantity Report udesert Town Centre Bypass Lot: EX004
Lot: EX004 Work Ty Description: Road ExcavationZone 1 (Brisbane Street)MC10 CH 40191-40400Stage 1	vpe: EX (RHS)	Area:
Geometry:		
Schedule Item	Actual Qty	Eff. Qty Approved?
2515.03: Supply and installation of geotextile, Strength Class [C], Filtration Class [IV] (MRS03 Apr 16) (m2)	542.3	· N/A
3109.01P: Excavation and disposal of Unsuitable Material with individual excavation > 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14) (m3)	186.5	· NIA
3201.01: Road excavation, all materials (MRS04 Oct 14) (m3)	895.7	o NA
/O005: Omitted Item Class A & B Unsuitable Replacement (m ³)	186.5	o NIA
B106.01: Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14) (m3)	119.3	· MIA
2515.03: Supply and installation of geotextile, Strength Class [C], Filtration Class [IV] (MRS03 Apr 16) (m2)	356.2	· MA
B106.01: Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14) (m3)	141.7	0 N/14
3201.01: Road excavation, all materials (MRS04 Oct 14) (m3)	114.6	0 NIA
2106.01: Removal or demolition of concrete kerb and channel including kerb crossings (MRS03 Apr 16) (m)	96.88	o Yes
2108.01: Removal or demolition of gullies (MRS03 Apr 16) (each)	3	· Yes

Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0407Road Excavation

<u>Lot:</u>		EX004 R Zone 1 (I MC10 CH Stage 1 (oad Excavation Brisbane Street) 40191-40400 RHS)			
<u>Date (</u>	<u>Open:</u>	23 Feb 2	017 <u>Date Work Starts:</u> 23 Feb 2017 <u>Date Compl;</u>			
	Check	Туре:	Description:	Check Y	Verify	Appr. NCR
1	Check I	tem	Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.	٦ ال		
ý	Check I	tem	Lot Size MRT504.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 500 lineal meters.	209		
3	Check]	item	Construction MRTS04 Clause 13.3.1 Responsibility: Works Supervisor Excavations shall be constructed to the shapes, lines, dimensions and other requirements shown on the drawings. Material within the lines of cuttings which is identified as unsuitable shall not be used in the construction of embankments.	BU Refe For pave	I s to over enent	Althoched NCROG excavation of type.
4	Hold Po	bint	Bottom of Excavation HOLD POINT 5 MRTS04 Clause 13.3.2.1 Responsibility: Administrator / Works Supervisor / Project Engineer When the level of excavation has reached subgrade level plus 100mm, the Contractor shall notifiy the Administrator and cease excavation until the subgrade treatment type has been determined.	⊡ Res=	ER T Puo	NR 9/03/17 To SKETCHED UP TO/S.
5	Check	Item	Unsuitable Material Below the Lines of Cuttings MRTS04 Clause 13.3.2.2 Responsibility: Works Supervisor Material below the finished lines and levels of cuttings, which is Unsuitable Material in accordance with Clause 9.2, shall be removed and disposed in accordance with Clause 9.3 Where unsuitable material has been removed, the excavation shall be backfilled to the finished surface level with appropriate fill material.	۳		
6	Check	Item	Disposal of Surplus and Unsuitable Material MRTS04 Clause 11.3 Responsibility: Works Supervisor All material excess to project requirements and Unsuitable Materials shall be disposed of off site, unless approved otherwise. All disposed material shall be in accordance with all relevant Statuatory Requirements.	Bel	r fo	Lot Excol

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Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0407Road Excavation

EX004 R Zone 1 (MC10 C Stage 1	oad Excavation Brisbane Street) I 40191-40400 (RHS)	
pen: 23 Feb 2	017 <u>Date Work Starts:</u> 23 Feb 2017 <u>Date Compl:</u>	
Check Type:	Description: Check Verify	Appr. NCR
Check Item	Backfill to Unsuitable Excavations MRTS04 Clause 19.3.1 Responsibility: Works Supervisor / Project Engineer The excavation shall be backfilled with general fill material Class A or B and placed in layers with a maximum loose layer thickness of 300mm to achieve a minimum RDD of 95%. TEST - Compaction Required Standard - 95% RDD Evenuency:	o Subgrade Lo 004
	Lot Size < 500m ³ - 1 per 50m ³ Lot Size 500m ³ to 2000m ³ - 1 per 150m ³ Lot Size > 2000m ³ - 1 per 250m ³	
Check Item	Finishing Batters MRTS04 Clause 16 Responsibility: Works Supervisor	
	Batters shall be free of loose material and shall be trimmed neatly to the shapes specified. No portion of a batter shall project beyond the shape specified by more than 300mm or one-third of the height of the batter, whichever is the lesser.	
Check Item	Survey MRTS04 Clause 6.3.1 Responsibility: Works Supervisor / Surveyor The top of the insitu material below subgrade in cuttings shall be neatly trimmed and surveyed. The specified tolerance is +/- 25mm. Excavation quantity shall also be captured by survey.	Subgrade Loi 004
Item No.	Description	Qty
ments		
		<u></u>
Signature:	Responsible Officer Verifying Authority Not relevant	
Drint Name:	Not relevant Date: 5/03/17)ate:
	EX004 R Zone 1 (MC10 Cr Stage 1) pen: 23 Feb 2 Check Type: Check Item Check Item Check Item	EXO04 Read Excavation Zone I (RHS) Pen: 23 Feb 2017 Date Work Starts: 23 Feb 2017 Date Compl: Check Type: Description: Check Verify MCIO 01 40191-10400 Stage I (RHS) Pen: 23 Feb 2017 Date Work Starts: 23 Feb 2017 Date Compl: Check Item Backfill to Unsuitable Excavations MRTSO Clause 19.3.1 Responsibility: Works Supervisor / Project Engineer Check Item Finishing Batters MRTSO Clause 15 Responsibility: Works Supervisor Batters shall be free of loose material and shall be trimmed nextly to the shapes specified. Check Item Survey MRTSO Clause 6.3.1 Responsibility: Works Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Excavation quantity shell also be captured by survey. Item No. Description Responsibile: Work Supervisor / Surveyor MRTSO Clause 6.3.1 Responsibile: Work Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Responsibile: Work Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Responsibile: Work Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Responsibile: Work Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Responsibile: Work Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Responsibile: Work Supervisor / Surveyor Mentson Clause 6.3.1 Responsibile: Work Supervisor / Surveyor Responsibile: Work Supervisor / Surveyor The top of the indu material below subgrade in cultings shall be nextly trimmed and surveyed. Responsibile: Work Supervisor / Surveyor Nextlem Responsibile: Work Supervisor / Surveyor Responsibile: Work Supervisor / Surveyor Responsibile: Work Super

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			NCR Report
		J518-	: Beaudesert Town Centre Bypass
Civil-			NCR: 6
ICR No.	6 Raised By Not relevant	Date Raised Sat, 22 A	pr 2017
	Lot:Description:EX004Road ExcavationZone 1 (Bristing)	bane Street)MC10 CH 40191-40400Stage	e 1 (RHS)
ocation	Brisbane Street (MC10 CH 40191-40256).		
everity	Incidental Minor Major	Related Parties:	
action:	Retest Replace/Reconstruct	Use as is	3rd Party Approval Req'd?
	Repair/Rectify Reject	Other (refer to disposition)	No Yes
escription of	f Non Conformance		
'avement exca 'ype C) which	vation works on Brisbane Street have not been ca has been profiled to a depth of 300mm, rather the	arried out as per the design. There is an a an 50mm (as shown on the design detail	area of asphalt overlay (Pavement).
Corrective Act	tion: (What immediate action will be take	en to correct the work)	
orrective actio	on as per proposal provided in RFI-028 and subsec	quent response provided in SI017.	
in the second second by the second			
taised By - Si NR pproval Com $1 + S \propto$ $S \ll$	ignature Internally Approv Pr iments: 150 Noted one see	ved (sign.) Not relevant Not relevant Not relevant Not relevant	Date: 22/04/17
Raised By - Si NR 1) - S 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	ignature Internally Approv	ved (sign.) Not relevan rint Name: Not relevant Jhog Sector Jhog Sector <td>Date: 22/04/17</td>	Date: 22/04/17
Aaised By - Si NR Deproval Com Diffs Q NCR Appr NCR Appr	ignature Internally Approv Pr ments: 150 Noted one see 500 m. roved Approval Sig Approved Print	Not releval rint Name: Not relevant Model Model Not relevant Image: Image: Not relevant	Date: 22/04/17 Jed to gdgdh - Date: 2-5-12
Raised By - Si NR IJ-S Q NCR Appr NCR Appr NCR Not J	ignature Internally Approv Pr iments: 150 Noted SME SEE 500 mm. roved Approval Sig Approved Print	ved (sign.) Not relevant nint Name: Not relevant Mot relevant Not relevant Not relevant	Date: 22/04/17 Jod ha gdgdh Date: 2-5-1?
Raised By - Si NR Approval Com	ignature Internally Approv Pr iments: 150 Nofed SNE SEE 500-00 roved Approval Sig Approved Print	ved (sign.) Not relevan Not relevant Not relevant Not relevant Not relevant Not relevant t Name:	Date: 22/04/17 Jed ha gdgdh Date: 2-5-12
Raised By - Si NR Approval Com	ignature Internally Approv Pr iments: ISO NOTED SME SEE COMMAN Approved Approval Sig Iments: Closeout S	ved (sign.) Not relevant Not relevant Mod relevant Mod relevant Mot relevant Mot relevant Not relevant Mot relevant Signature:	Date: 22/04/17
Raised By - Si NR Approval Com	ignature Internally Approv Pr ments: ISO NOTED ONE SEE COMMANDE Approval Sig Approved Print Iments: Closeout S	ved (sign.) Not relevan Int Name: Not relevant Not relevant Not relevant Int Name: Not relevant Int Name:	Date: 22/04/17




J518-1: Beaudesert Town Centre Bypass

Lot: EX005

Lot:	EX005			Work Type:	EX	Area:		
Description:	<i>Road Excavation Zone 1 (Brisbane S MC20 CH 31-120 Stage 1 (LHS)</i>	Street)						
	Other Details:			Key Dates:				
	Raised By:	Not relevant		Opened:	23 Feb 2017	Closed:	15 Mar 2017	
	Conformed By:			Work St:	23 Feb 2017	Work End:	15 Mar 2017	
	Testing Level:	✓ Normal	Reduced	Guaranteed:		Conformed:	15 Mar 2017	
<u>Geometry:</u>	No geometry defii	ned.						

Quantities:

Quantities:			
		Meas. Qty	Eff. Qty
3106.01	Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14)	113.5	113.5 m3
3201.01	Road excavation, all materials (MRS04 Oct 14)	639.4	639.4 m3
2108.01	Removal or demolition of gullies (MRS03 Apr 16)	2.0	2.0 each
OVCs:			

Road	Road Excavation
Excavation	Zone 1 (Brisbane Street)
	MC20 CH 31-120
	Stage 1 (LHS)

NCRs:

ATPs:

Related Lots: Variations:

This lot conforms in all respects with the standards and requirements specified in the contract documents, the lot verification records are complete and any non conformances have been dispositioned in accordance with the contract requirements

Signed:		
Print Name:	<u> </u>	Date:
	Not relevant	
Approved by (signature):		
Print Name:	Not relevant	Date: 15/03/17

			Lot Quantity Report
SE		J518-1: Beaud	esert Town Centre Bypass
-Civ	/il		Lot: EX005
.ot:	EX005 Wor	rk Type: EX	Area:
<u>Geometr</u>	n: Road ExcavationZone 1 (Brisbane Street)MC20 CH 31-120Stage 1 (A	LHS)	
Schedule 1	Item	Actual Qty	Eff. Qty Approved?
106.01: Gro ntersection	ound surface treatment, special (cubic metres) (Northern - remove and replace with Class B material) (MRS04 Oct 14) (m3)	113.5	0 4
201.01: Ro	ad excavation, all materials (MRS04 Oct 14) (m3)	639.4	0 7
	Materia	Appro	oved By:
	Signature:		1 1
	Print Name:	anı	Date: 7/4/17
R	PUZ - du la incorrect	t claim a	g support
to	· eatinent as unsaila	Ide.	

	Lot Quantity Repo J518-1: Beaudesert Town Centre Bypa Lot: EX00		
Work Type: Stage 1 (LHS)	ΕΧ	Area:	
	Actual Qty	Eff. Qty	Approve
3)	113.5	0	NIA
	639.4	0	NIA
	2	0	Yes
	Work Type: Stage 1 (LHS) 3) Not relevant Not relevant	J518-1: Be	J518-1: Beaudesert Town Cen L Work Type: Ex Area: Stage 1 (LH5) Actual Qty Eff. Qty 3) 113.5 0 639.4 0 639.4 0 2 0 Approved By: Not relevant Not relevant Date:

Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0407Road Excavation

<u>Lot:</u>		EX005 Road Excavation Zone 1 (Brisbane Street) MC20 CH 31-120 Stage 1 (LHS)							
<u>Date</u>	<u>Open:</u>	23 Feb 2	017 <u>Date Work Starts:</u> 23 Feb 2017 <u>Date Compl:</u>						
	Check	Туре:	Description:	Check	Verify	Appr. NCR			
1	Check I	tem	Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.	B					
٦	Check I	tem	Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 500 lineal meters.	ලින ද	0 39m				
3	Check I	tem	Construction MRT504 Clause 13.3.1 Responsibility: Works Supervisor Excavations shall be constructed to the shapes, lines, dimensions and other requirements shown on the drawings. Material within the lines of cuttings which is identified as unsuitable shall not be used in the construction of embankments.	B					
4	Hold Po	int	Bottom of Excavation HOLD POINT 5 MRTS04 Clause 13.3.2.1 Responsibility: Administrator / Works Supervisor / Project Engineer When the level of excavation has reached subgrade level plus 100mm, the Contractor shall notifiy the Administrator and cease excavation until the subgrade treatment type has been determined.	Sze plan	⊡ attack s and	NR 7/03/17. ned Marked up photos. 09/03/17			
5	Check I	tem	Unsuitable Material Below the Lines of Cuttings MRTS04 Clause 13.3.2.2 Responsibility: Works Supervisor Material below the finished lines and levels of cuttings, which is Unsuitable Material in accordance with Clause 9.2, shall be removed and disposed in accordance with Clause 9.3 Where unsuitable material has been removed, the excavation shall be backfilled to the finished surface level with appropriate fill material.	۵ B					
6	Check I	tem	Disposal of Surplus and Unsuitable Material MRTS04 Clause 11.3 Responsibility: Works Supervisor All material excess to project requirements and Unsuitable Materials shall be disposed of off site, unless approved otherwise. All disposed material shall be in accordance with all relevant Statuatory Requirements.	B) Refe	□ tol	of Exor			

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Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0407Road Excavation

<u>ot:</u>	EX005 R Zone 1 (MC20 C- Stage 1	oad Excavation Brisbane Street) I 31-120 (LHS)		
Date Open:	23 Feb 2	017 Date Work Starts: 23 Feb 2017 Date Compl:		
Check	Type:	Description:	Check Veri	fy Appr. NCR
7 Check I	Item	 Backfill to Unsuitable Excavations MRTS04 Clause 19.3.1 Responsibility: Works Supervisor / Project Engineer The excavation shall be backfilled with general fill material Class A or B and placed in layers with a maximum loose layer thickness of 300mm to achieve a minimum RDD of 95%. TEST - Compaction Required Standard - 95% RDD Frequency: Lot Size < 500m³ - 1 per 50m³	□ B Refes SG	to Subgrade Lot 005
		Lot Size 500m ³ to 2000m ³ - 1 per 150m ³ Lot Size > 2000m ³ - 1 per 250m ³		
8 Check I	Item	Finishing Batters MRTS04 Clause 16 Responsibility: Works Supervisor	```	
		Batters shall be free of loose material and shall be trimmed neatly to the shapes specified. No portion of a batter shall project beyond the shape specified by more than 300mm or one-third of the height of the batter, whichever is the lesser.		
Check I	Item	Survey MRTS04 Clause 6.3.1 Responsibility: Works Supervisor / Surveyor The top of the insitu material below subgrade in cuttings shall be neatly trimmed and surveyed. The specified tolerance is +/- 25mm. Excavation quantity shall also be captured by survey.	B) [] Refer sc	to Subgrude Lot 1005
Item f	No.	Description		Qty
	0			
ommente				
Johnnencs				
Sign	ature:	Responsible Officer Verifying Auth	ority	
Print l	Name:	Date: 15/63/17		Date:
rinted on We	d 15 Mard	n 2017 RTI 185%69033 Fite/21/2012 28 of 110		Page 2 o

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J518-1: Beaudesert Town Centre Bypass

Lot: EX010

Lot:	EX010			Work Type:	EX	Area:	
Description:	Road Excavati Brisbane Street MC10 CH 4019	on • (Stage 2A) 1-40450 (LHS)					
	Other Detail:	51		Key Dates:			
	Raised By:	Not relevant		Opened:	25 May 2017	Closed:	05 Oct 2017
	Conformed E	iy:		Work St:	25 May 2017	Work End:	30 Jun 2017
	Testing Leve	I: 🔽 Normal	Reduced	Guaranteed		Conformed	I: 05 Oct 2017
Geometry:	No geometry de	fined.					
Quantities					Maar	Otu	Eff Ohr
3201.0	1 Road	excavation, all mat	erials (MRS04 C	Oct 14)	2,4	QLY 11.3	2,411.3 m3
3106.0	1 Groun Inters 14)	d surface treatmen ection - remove an	it, special (cubic d replace with Cl	metres) (Northern ass B material) (MRS04 Oc	31 t	57.5	367.5 m3
3109.0	1P Excava excava 14)	ation and disposal ation > 10 m3 (Pro	of Unsuitable Ma visional Quantity	terial with individual as directed) (MRS04 Oct		96.8	96.8 m3
VO005	VO005 Omitte		Item Class A & B Unsuitable Replacement			96.8	96.8 m³
2106.0	2106.01 Remov crossir		molition of concrete kerb and channel including kerb (\$03 Apr 16)		2	214.2	
2108.0	1 Remo	val or demolition of	gullies (MRS03	8 Apr 16)		3	3 each
3106.0	1 Groun Inters 14)	d surface treatmen ection - remove an	it, special (cubic d replace with Cl	metres) (Northern ass B material) (MRS04 Oc	t	24.2	24.2 m3
3109.0	1P Excav excav 14)	ation and disposal ation > 10 m3 (Pro	of Unsuitable Ma visional Quantity	terial with individual as directed) (MRS04 Oct		52.3	62.3 m3
VO005	Omitte	ed Item Class A & I	B Unsuitable Repl	lacement		52.3	62.3 m ³
2101.0	1 Remo	val or demolition of	culverts, comple	ete (MRS03 Apr 16)		0.1	0.1 lump sum
2106.0	1 Remo crossi	val or demolition of ngs (MRS03 Apr 1	f concrete kerb a .6)	nd channel including kerb		47	47 m
2108.0	1 Remo	val or demolition of	gullies (MRS03	8 Apr 16)		2	2 each
9207.0	1P Filling flowal (Refer	of abandoned culv ble fill [various loca to Supplementary	ert, pipe, or conc tions] (Provisiona Specification: SC	duit with al Quantity if ordered) RSS04)		4	4 m3
2107.0	Remo	val or demolition of	f concrete slabs	(MRS03 Apr 16)	51	0.69	510.69 m2
Checklists:							
Road E	excavation	Roa	ad ExcavationBris	bane Street (Stage 2A)MC	10 CH 40191-4045	0 (LHS)	

This lot conforms in all respects with the standards and requirements specified in the contract documents, the lot verification records are complete and any non conformances have been actioned in accordance with the contract requirements

Signed:

Print Name:

Date:

Civi

J518-1: Beaudesert Town Centre Bypass

Lot: EX010

Date: 05/10/17



Not relevant

Not relevant

Approved by (signature):

Print Name:

1	4	B	J518	3-1: Beaudeser	Checkli t Town Centre Bypa	ist
	-Civ	il —		QVC: ITP	0407Road Excavati	ion
<u>ot</u>		EX010 F Brisband MC10 C	Road Excavation e Street (Stage 2A) H 40191-40450 (LHS)			
Dat	<u>e Open:</u>	25 May	2017 Date Work Starts: 25 May 2017 Date Compl:			
	Check	Type:	Description:	Check Verify	Appr.	N
1	Check	Item	Safety Management Responsibility: Works Supervisor / Project Engineer			
			Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.			
2	Check	Item	Lot Size MRTS04.1 Clause 1.2			-
			Responsibility: Project Engineer The maximum lot size shall not exceed 500 lineal meters.	259	m	
3	Check	Item	Construction MRTS04 Clause 13.3.1 Responsibility: Works Supervisor			
			Excavations shall be constructed to the shapes, lines, dimensions and other requirements shown on the drawings. Material within the lines of cuttings which is identified as unsuitable sh all not be used in the construction of embankments.			
4	Hold P	oint	Bottom of Excavation HOLD POINT 5 MRTS04 Clause 13.3.2.1 Responsibility: Administrator / Works Supervisor / Project Engineer		N/R	
			When the level of excavation has reached subgrade level plus 100mm, the Contractor shall notifiy the Adminstrator and cease excavation until the subgrade treatment type has been determined.	see allo instruc	tions	
5	Check	Item	Unsuitable Material Below the Lines of Cuttings MRTS04 Clause 13.3.2.2 Responsibility: Works Supervisor			
			Material below the finished lines and levels of cuttings, which is Unsuitable Material in accordance with Clause 9.2, shall be removed and disposed in accordance with Clause 9.3			
			Where unsuitable material has been removed, the excavation shall be backfilled to the finished surface level with appropriate fill material.)		
6	Check	Item	Disposal of Surplus and Unsuitable Material MRTS04 Clause 11.3 Responsibility: Works Supervisor			
			All material excess to project requirements and Unsuitable Materials shall be disposed of off site, unless approved otherwise. All disposed material shall be in accordance with all relevant Statuatory Requirements.			

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Checklist

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0407Road Excavation

Lot: EX010 Road Excavation Brisbane Street (Stage 2A) MC10 CH 40191-40450 (LHS)					
ate Open:	25 May	2017 Date Work Starts: 25 May 20	17 Date Compl:		
Check	Туре:	Description:		Check Verify	Appr. NCR
Check 1	ltem	Backfill to Unsuitable Excavations MRTS04 Clause 19.3.1 Responsibility: Works Supervisor / Proje The excavation shall be backfilled with	ect Engineer general fill material Class A c	or B and placed Refer to	Lot SGO14
		In layers with a maximum loose layer th RDD of 95%. TEST - Compaction Required Standard - 95% RDD Frequency: Lot Size < 500m ³ - 1 per 50m ³ Lot Size < 500m ³ to 2000m ³ - 1 per 150m Lot Size > 2000m ³ - 1 per 250m ³	nickness of 300mm to achieve	e a minimum	
Check I	ltem	Finishing Batters MRTS04 Clause 16 Responsibility: Works Supervisor			
		Batters shall be free of loose material a specified. No portion of a batter shall project beyo 300mm or one-third of the height of the	nd shall be trimmed neatly to ond the shape specified by m e batter, whichever is the les	o the shapes ore than ser.	
Check I	tem	Survey MRTS04 Clause 6.3.1 Responsibility: Works Supervisor / Surve	eyor		
		The top of the insitu material below sub and surveyed. The specified tolerance is Excavation quantity shall also be captur	ograde in cuttings shall be ne s +/- 25mm. red by survey.	atly trimmed	
Item N	lo.	Description		T	01-1
					Qty
	(2			
omments	0				
0					
		Responsible Officer	Ver	ifying Authority	
Sign	ature:				
Print N	lame:	Date:		Date	2:
	04 Juno	0017	wicion: 2 - 12/01/2017		

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RTI 135/06103 - File 2 - Page 34 of 110

From: Sent: To: Cc: Subject: Attachments: Not relevant

Tuesday, 30 May 2017 3:28 PM Not relevant @tmr.qld.gov.au>

FW: Site Instruction - Brisbane St LHS (Unsuitable south of Mill St) (1) Brisbane St LHS - Unsuitable South of Mill St (1).pdf

N/R

Please see the attached site instruction for your information.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

 36-38 Cotton St | Nerang Qld 4211

 PO Box 442 | Nerang Qld 4211

 M:

 Not relevant

 E:
 Not relevant

 W:
 www.tmr.qld.gov.au

 From: Not relevant

 Sent: Tuesday, 30 May 2017 2:33 PM

 To: Not relevant
 @tmr.qld.gov.au>

 Cc: Not relevant
 @tmr.qld.gov.au>

 Subject: Site Instruction - Brisbane St LHS (Unsuitable south of Mill St) (1)

Not relevant

Please see the attached photo/sketch (this is for the first section removed only. I will send through subsequent sections as they are removed).

carried out a pre-GST Proof Roll on Brisbane St LHS, south of Mill St this morning. Soft material with ground water running out of it was identified, typically for approximately 7m from the existing kerb & channel in towards the centreline.

I instructed SEE Civil to remove the unsuitable material to a maximum depth of 500mm below subgrade, and replace with general fill. The need for geofabric under the general fill backfill will be assessed case by case as each section is removed.

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: Not relevant E Not relevant W: www.tmr.qld.gov.au





BRISBANE ST LNS -UNSVITABLE (1) 30 May 2017, 13:22

RTI 135/06103 - File 2 - Page 36 of 110

lot relevant	
From:	Not relevant
Sent:	Thursday, 1 June 2017 8:30 AM

@tmr.qld.gov.au>

Sent: To: Cc: Subject: Attachments:

FW: Site Instruction - Brisbane St LHS Subgrade Treatment/Unsuitable (Section 2) Brisbane St LHS - Subgrade Treatment & Unsuitable South of Mill St (2).pdf

N/R

FYI Below and Attached.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

 36-38 Cotton St | Nerang Old 4211

 PO Box 442 | Nerang Qld 4211

 M: Not relevant

 E: Not relevant

 W: www.tmr.qld.gov.au

From: Not relevant
Sent: Wednesday, 31 May 2017 4:03 PM
To: Not relevant
@tmr.qld.gov.au>
Cc: Not relevant
@tmr.qld.gov.au>
Subject: Site Instruction - Brisbane St LHS Subgrade Treatment/Unsuitable (Section 2)

Not relevant

Please see the attached photo/sketch.

This is the second section from yesterday's GST proof roll. It is noted that this area (and yesterday's area) falls within the area that provides for the special subgrade treatment, up to 1.0m below finished level.

As I have instructed for additional removal and replacement of existing to 500mm below subgrade, the upper 200mm will be "subgrade treatment" and the lower 300mm will be "unsuitable".

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team **Program Delivery and Operations** | Department of Transport and Main Roads

36-38 Colton St | Nerang Old 4211 PO Box 442 | Nerang Old 4211 M. Not relevant E: Not relevant W: www.tmr.qld.gov.au W: www.tmr.qld.gov.au

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South = evaluen





RTI 135/06103 - File 2 - Page 38 of 11

lav 2017.12.235

From:	Not relevant @tmr.qld.gov.au>
Sent:	Wednesday, 12 July 2017 2:19 PM
То:	Not relevant
Cc:	Not relevant
Subject:	FW: Site Instruction (Unsuitable Subgrade north of Brisbane St / Mill St Intersection)
Attachments:	Brisbane St LHS - Unsuitable north of Mill St.pdf

N/R

Please see the Site Instruction below and attached.

This shall be treated as GST (Geotechnical Treatment) for the top 200mm and unsuitable for the remaining 300mm.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: Not relevant E Not relevant @tmr.qld.gov.au W: www.tmr.qld.gov.au

From: Not relevant
Sent: Wednesdav. 12 July 2017 11:50 AM
To:
@tmr.qld.gov.au>
Cc: Not relevant
@tmr.qld.gov.au>
Subject: Site Instruction (Unsuitable Subgrade north of Brisbane St / Mill St Intersection)

Not relevant

Please see the attached photo/sketch.

Unsuitable subgrade was identified just north of the Brisbane St/Mill St intersection.

I instructed SEE Civil to remove and replace with general fill to a depth of 500mm below subgrade.

An inspection of the floor of the box identified that geofabric was not required prior to backfilling.

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: E Not relevant W: www.tmr.gld.gov.au



From: Sent: To: Cc: Subject: Attachments:

 Not relevant
 @tmr.qld.gov.au>

 Thursday, 13 July 2017 1:36 PM

 Not relevant

 Not relevant

 FW: Site Instruction (Brisbane St LHS northern end - Subgrade Treatment)

 Brisbane St LHS - Subgrade Treatment North of Mill St.pdf

N/R

Please see the site instruction below and attached.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: ^{Not relevant} E: ^{Not relevant} W: www.tmr.qld.gov.au

From: Not relevant

 Sent: Thursday, 13 July 2017 7:27 AM

 To: Not relevant
 ?tmr.qld.gov.au>

 Cc: Not relevant
 @tmr.qld.gov.au>

 Subject: Site Instruction (Brisbane St LHS northern end - Subgrade Treatment)

Not relevant

Please see the attached photo/sketch.

A proof roll on the subgrade north of Mill St identified an area (approx. 37m x 2m Av) of unsuitable (Subgrade Treatment).

I instructed SEE Civil to remove 300mm and replace with General Fill. (Approx 23m3)

Geofabric was not required.

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team **Program Delivery and Operations** | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: Not relevant E ^{Not relevant} @tmr.qld.gov.au W: www.tmr.qld.gov.au



From:

Sent:

To:

Cc:

Not relevant @tmr.qld.gov.au> Friday, 14 July 2017 2:03 PM Not relevant Not relevant Subject: FW: Site Instruction (Subgrade Treatment - Brisbane St north of Mill St) **Attachments:** Brisbane St LHS - Subgrade Treatment North of Mill St (2).pdf

N/R

Please see the Site instruction below and attached for your information.

Please note that the change in backfill from general fill to unbound type 2.3 was requested for the convenience of SEE Civil.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 I Nerang Qld 4211 M: E: Not relevant @tmr.gld.gov.au W: www.tmr.qld.gov.au

From: Not relevant Sent: Friday, 14 July 2017 12:41 PM To: Not relevant @tmr.qld.gov.au> Cc: Not relevant @tmr.qld.gov.au> Subject: Site Instruction (Subgrade Treatment - Brisbane St north of Mill St)

Not relevant

Please see the attached photo / sketch.

A subgrade proof roll this morning identified another area of unsuitable (approx. 59m2).

I instructed SEE Civil to remove and replace with general fill to a depth of 300mm (approx.. 18m3).

SEE Civil requested changing the backfill material from general fill to unbound 2.3. I indicated to SEE Civil that I was OK with this.

No geofabric was required on the floor prior to backfilling.

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: Not relevant E: ken.w.cowan@tmr.gld.gov.au W: www.tmr.qld.gov.au



RTI 135/06103 - File 2 - Page 44 of 110

J518-1: Beaudesert Town Centre Bypass

Lot: EX013

Lot:	EX013			Work Type:	EX	Area:	
Description:	Road Excavation Brisbane Street (St MC20 CH 30-110 (tage 2B) RHS)					
	Other Details:			Key Dates:			
	Raised By:	Not relevant		Opened:	06 Jul 2017	Closed:	05 Oct 2017
	Conformed By:			Work St:	06 Jul 2017	Work End:	28 Jul 2017
	Testing Level:	Normal	Reduced	Guaranteed:		Conformed:	05 Oct 2017
<u>Geometry:</u> <u>Quantities:</u>	No geometry define	rd.			Meas.	Oty E	iff. Oty
2515.03	3 Supply an Class [IV]	d installation of (MRS03 Apr	geotextile, Strength (16)	Class [C], Filtration	4	30.4	430.4 m2
3109.03	1P Excavation excavation 14)	n and disposal n > 10 m3 (Pro	of Unsuitable Material visional Quantity as di	with individual rected) (MRS04 Oct		12.8	12.8 m3
3502.03	1 Backfill wi locations (Item 310	ith select backfi using rock fill m)9.01)] (MRS0	ll material to [to unsui naterial in accordance v 4 Oct 14)	table material with MRTS04 > 10 m3		12.8	12.8 m3
3106.03	1 Ground su Intersection 14)	urface treatmen on - remove an	t, special (cubic metre d replace with Class B	es) (Northern material) (MRS04 Oct	1	13.7	113.7 m3
3201.03	1 Road exca	avation, all mate	erials (MRS04 Oct 14)	-2	04.2	-204.2 m3
Checklists:							

Road Excavation

Road ExcavationBrisbane Street (Stage 2B)MC20 CH 30-110 (RHS)

NCRs:

29 During the excavation to subgrade activity at the Brisbane Street / Edward Street intersection, excavation past the limit of pavement works was exceeded on Edward Street.

This lot conforms in all respects with the standards and requirements specified in the contract documents, the lot verification records are complete and any non conformances have been actioned in accordance with the contract requirements

Signed:		
Print Name:	1	Date:
	Not relevant	
Approved by (signature):		
Print Name:	Not relevant	Date: 05/10/17



Checklist

J518-1: Beaudesert Town Centre Bypass

Checklist: ITP 0407: Road Excavation

Cne	<u>eckiist:</u> EX Bri MC	risbane Street (Stage 2B) C20 CH 30-110 (RHS)							
	Dat	e Open: 6 Jul 2017 Date Work Started: 6 Jul 2017 Date Work Complete							
	Check Typ	e: Description:	Check Verify Appr. NCR						
1	Check Item	Safety Management Responsibility: Works Supervisor / Project Engineer							
		Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.							
2	Check Item	Lot Size MRTS04.1 Clause 1.2							
		Responsibility: Project Engineer							
		The maximum lot size shall not exceed 500 lineal meters.	SOM						
3	Check Item	Construction							
		Responsibility: Works Supervisor							
		Excavations shall be constructed to the shapes, lines, dimensions and other	Excavation Works exceeded						
		requirements shown on the drawings. Material within the lines of cuttings which is identified as unsuitable sh all not be used in the construction of embankments.	limit of Norks.						
4	Hold Point	Bottom of Excavation HOLD POINT 5 MRTS04 Clause 13.3.2.1							
		Responsibility: Administrator / Works Supervisor / Project Engineer	son attached site interting						
		When the level of excavation has reached subgrade level plus 100mm, the Contractor shall notify the Adminstrator and cease excavation until the subgrade treatment type has been determined.	and survey areas						
5	Check Item	Unsuitable Material Below the Lines of Cuttings							
		Responsibility: Works Supervisor							
		Material below the finished lines and levels of cuttings, which is Unsuitable Materia in accordance with Clause 9.2, shall be removed and disposed in accordance with Clause 9.3	31						
		Where unsuitable material has been removed, the excavation shall be backfilled to the finished surface level with appropriate fill material.							
6	Check Item	Disposal of Surplus and Unsuitable Material							
		Responsibility: Works Supervisor							
		All material excess to project requirements and Unsuitable Materials shall be disposed of off site, unless approved otherwise. All disposed material shall be in accordance with all relevant Statuatory Requirements.							

	J518-1: Beaudesert T Checklist: ITP 040	Checklist own Centre Bypass To 7: Road Excavation 07:	Checklist wn Centre Bypass Road Excavation
necklist: EX01 Brist MC2 Date (L3: Road Excavation Dane Street (Stage 2B) O CH 30-110 (RHS) Open: 6 Jul 2017 Date Work Started: 6 Jul 2017 Date Work Complete:		
Check Item	Backfill to Unsuitable Excavations MRTS04 Clause 19.3.1 Responsibility: Works Supervisor / Project Engineer		
	The excavation shall be backfilled with general fill material Class A or B and placed in layers with a maximum loose layer thickness of 300mm to achieve a minimum RDD of 95%.	Lot te	
	TEST - Compaction Required Standard - 95% RDD Frequency: Lot Size < 500m ³ - 1 per 50m ³ Lot Size 500m ³ to 2000m ³ - 1 per 150m ³ Lot Size > 2000m ³ - 1 per 250m ³		
Check Item	Finishing Batters MRTS04 Clause 16 Responsibility: Works Supervisor Batters shall be free of loose material and shall be trimmed neatly to the shapes specified. No portion of a batter shall project beyond the shape specified by more than 300mm or one-third of the height of the batter, whichever is the lesser.	t Box	
Check Item	Survey MRTS04 Clause 6.3.1 Responsibility: Works Supervisor / Surveyor The top of the insitu material below subgrade in cuttings shall be neatly trimmed and surveyed. The specified tolerance is +/- 25mm. Excavation quantity shall also be captured by survey.		
Item No.	Description	Qty	
2515.03	Supply and installation of geotextile, Strength Class [C], Filtration Class [IV] (MRS03 Apr 16)	430.4 m2	
3109.01P	Excavation and disposal of Unsuitable Material with individual excavation > 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14)	12.8 m3	
3502.01	Backfill with select backfill material to [to unsuitable material locations using rock fill material in accordance with MRTS04 > 10 m3 (Item 3109.01)] (MRS04 Oct 14)	12.8 m3	
3106.01	Ground surface treatment, special (cubic metres) (Northern Intersection - remove and replace with Class B material) (MRS04 Oct 14)	113.7 m3	
3201.01	Road excavation, all materials (MRS04 Oct 14)	-204.2 m3	
omments			



Not relevant	@tmr.qld.gov.au>
Wednesday, 12 July 2017 2:21 PM	
Not relevant	
Not relevant	
FW: Site Instruction (Subgrade Treatment	at Brisbane St / Edward St Intersection)
Brisbane St LHS - Subgrade Treatment at	Edward St Intersection.pdf
	Not relevant Wednesday, 12 July 2017 2:21 PM Not relevant FW: Site Instruction (Subgrade Treatment Brisbane St LHS - Subgrade Treatment at

N/R

Please see the site instruction below and attached.

As this instruction falls inside and outside of the geotechnical treatment, claimed qtys shall be broken down accordingly to represent the scope of work which is geotechnical treatment, and the remainder being unsuitable.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: ^{Not relevant} E Not relevant @tmr.qld.gov.au W: www.tmr.qld.gov.au

From: Not relevant
Sent: Wednesday, 12 July 2017 11:46 AM
To: Not relevant
Cc: @tmr.qld.gov.au>
Cc: @tmr.qld.gov.au>
Subject: Site Instruction (Subgrade Treatment at Brisbane St / Edward St Intersection)

Not relevant

Please see the attached photo/sketch.

Unsuitable Subgrade was identified adjacent to the Brisbane St/Edward St Intersection.

I instructed SEE Civil to remove and replace to 500mm below subgrade (as Subgrade Treatment). An inspection of the floor of the box identified that Geofabric - Class C was required prior to backfilling (approx. 180m2).

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team Program Delivery and Operations | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: Not relevant E: Not relevant W: www.tmr.qld.gov.au



From: Sent: To: Cc: Subject: Attachments:

 Not relevant
 @tmr.qld.gov.au>

 Thursday, 13 July 2017 1:38 PM

 Not relevant

 Not relevant

 FW: Site Instruction (Brisbane St LHS - Rock Blanket in front of Caltex)

 Brisbane St LHS - 300mm Rock Blanket in from of Caltex.pdf

N/R

Please see the site instruction below and attached.

Kind regards,

Not relevant

Project Engineer | Beaudesert Town Centre Bypass Project Team **Program Delivery and Operations** | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: Not relevant E: Not relevant W: www.tmr.qld.gov.au

From: Not relevant

Sent: Thursday, 13 July 2017 7:23 AM To: ^{Not relevant} Cc: ^{Not relevant} @t

@tmr.qld.gov.au>

@tmr.qld.gov.au>

Subject: Site Instruction (Brisbane St LHS - Rock Blanket in front of Caltex)

Not relevant

Please see the attached photo/sketch.

Ground water was identified in from of the Caltex service station (possibly from the water main).

I instructed SEE Civil to install at 300mm thick Rock Blanket (approx. 9m x 1m) to be drained into Manhole 4/3 via a 100mm perforated pipe.

Kind regards,

Not relevant

Inspector (Contract) | Beaudesert Town Centre Bypass Project Team **Program Delivery and Operations** | Department of Transport and Main Roads

36-38 Cotton St | Nerang Qld 4211 PO Box 442 | Nerang Qld 4211 M: ^{Not relevant} E Not relevant @tmr.gld.gov.au W: www.tmr.gld.gov.au

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180

DRAIN TO STORM WATER MANHOLE 4/3

210

12 Jul 2017, 08:17

CDD		J518	-1: Beaudesert Town Centre Bypass
			NCR: 29
NCR No. 29 Ra	ised By N/R	Date Raised Wed, 1	2 Jul 2017
Lot: EX013	Description: Road ExcavationBrisbane Street ((Stage 2B)MC20 CH 30-110 (RHS)	
Location Edward Street	- Road Excavation.		
Severity Incidental	Minor Major	Related Parties:	
Action			
Retest	Replace/Reconstruct	Use as is	3rd Party Approval Req'd?
Repair/Re	ctify Reject	Other (refer to disposition)	No Yes
Description of Non Conform During the excavation to subgra	ance ade activity at the Brisbane Street / Ed	ward Street intersection, excavation	on past the limit of pavement works was
exceeded on Edward Street.			
Corrective Action: (W	hat immediate action will be taken to	correct the work)	
After investigating, it was identi channel and gully pit on the nor driveway and laterally to an exi	fied that to an extent, some additiona thern side of Edward Street. The limit sting pavement joint in the middle of t	I road excavation works were reque of works in this instance have been the northern lane.	ired to construct the new kerb and in increased longitudinally to the Caltex
The remainder of the over exca	vation shall be squared up with Edwar	rd Street.	
The over excavated area shall b	e constucted as per Pavement Detail I	M,	
Preventative Action: (W It was identified that the cause shown differently to both the dr	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and twities in new areas, the limit of work	rom reoccurring) error in the design model where the d channel tie-in to Edward Street) a s must be checked with the drawing	ne limit of road excavation works was and limit of pavement works.
Preventative Action: (W It was identified that the cause shown differently to both the dr In future, when commencing ac conflicting information. Raised By - Signature	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of work Internally Approved (rom reoccurring) error in the design model where the d channel tie-in to Edward Street) a s must be checked with the drawin sign.)	ne limit of road excavation works was and limit of pavement works. Igs to ensure there are no issues with
Preventative Action: (W It was identified that the cause shown differently to both the dr In future, when commencing ac conflicting information. Raised By - Signature	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of work Internally Approved (Print N	rom reoccurring) error in the design model where the d channel tie-in to Edward Street) a s must be checked with the drawin sign.) N/R	ne limit of road excavation works was and limit of pavement works. Ings to ensure there are no issues with Date: 12/07/17
Preventative Action: (W It was identified that the cause shown differently to both the dr In future, when commencing ac conflicting information. Raised By - Signature	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of work Internally Approved (Print N	rom reoccurring) error in the design model where ti d channel tie-in to Edward Street) a s must be checked with the drawin sign.) N/R Name:	ne limit of road excavation works was and limit of pavement works. ags to ensure there are no issues with Date: <u>12/07/17</u>
Preventative Action: (W It was identified that the cause shown differently to both the dr In future, when commencing ac conflicting information. Raised By - Signature	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of work Internally Approved (Print N	rom reoccurring) error in the design model where the design smust be checked with the drawing sign.) N/R Name:	ne limit of road excavation works was and limit of pavement works. ngs to ensure there are no issues with Date: <u>12/07/17</u>
Preventative Action: (W It was identified that the cause shown differently to both the dr In future, when commencing ac conflicting information. Raised By - Signature upproval Comments: Cost of rect.	hat action will be taken to prevent it from of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works Internally Approved (Print N Acca Acon 6 Se	rom reoccurring) error in the design model where the design model where the deam of the drawing sign.) NR Name: NR Sorne Sy SEE	ne limit of road excavation works was and limit of pavement works. ags to ensure there are no issues with Date: <u>12/07/17</u>
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing ac conflicting information. Raised By - Signature upproval Comments: Cost of rect.	hat action will be taken to prevent it from of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works) Internally Approved (Print N Internal Job Sc Approval Signatu	rom reoccurring) error in the design model where the design model where the dehannel tie-in to Edward Street) a smust be checked with the drawing sign.) Name: N/R Name: N/R	ne limit of road excavation works was and limit of pavement works. Angs to ensure there are no issues with Date: <u>12/07/17</u>
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing ac- conflicting information. Raised By - Signature upproval Comments: Cost of rect. NCR Approved NCR Not Approved	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of work Internally Approved (Print N fication do Se Approval Signatu	rom reoccurring) error in the design model where the deam of the into Edward Street) as must be checked with the drawing sign.) NR Name: N/R	ne limit of road excavation works was and limit of pavement works. Ings to ensure there are no issues with Date: <u>12/07/17</u> <i>Civil</i> .
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing ac conflicting information. Raised By - Signature Approval Comments: Cost of rect. NCR Approved NCR Not Approved	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works Internally Approved (Print N Approval Signatu Print Nan	rom reoccurring) error in the design model where the drawing server in the design model where the drawing server is must be checked with the drawing sign.) N/R Name: N/R	ne limit of road excavation works was and limit of pavement works. ags to ensure there are no issues with Date: 12/07/17 Civil. Date: 8/8/12
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing acconflicting information. Raised By - Signature Approval Comments: Cost of rect. NCR Approved NCR Not Approved Ioseout Comments:	hat action will be taken to prevent it from this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works) Internally Approved (Print Normal Signatue Print Name	rom reoccurring) error in the design model where the deam of the design model where the deam of the de	ne limit of road excavation works was and limit of pavement works. ags to ensure there are no issues with Date: 12/07/17 Cimil. Date: 8/8/12
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing acconflicting information. Raised By - Signature Approval Comments: Cost of rect. NCR Approved NCR Not Approved Ioseout Comments:	hat action will be taken to prevent it from this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works Internally Approved (rom reoccurring) error in the design model where the deam of the design model where the deam of the de	ne limit of road excavation works was and limit of pavement works. ags to ensure there are no issues with Date: 12/07/17 Cimil. Date: 8/8/12
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing acconflicting information. Raised By - Signature Approval Comments: Cost of rect. NCR Approved NCR Not Approved Ioseout Comments:	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works Internally Approved (Print N Approval Signatu Print Nan	rom reoccurring) error in the design model where the drawnel tie-in to Edward Street) a smust be checked with the drawin sign.) NR Sign.) NR Sorne Sy SEE Tre: N/R N/R Not relevant ne:	ne limit of road excavation works was and limit of pavement works. ags to ensure there are no issues with Date: 12/07/17 Civil. Date: 8/8/17
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing ac- conflicting information. Raised By - Signature Approval Comments: Cost of rect. NCR Approved NCR Not Approved Coseout Comments:	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works Internally Approved (Print N Approval Signatu Print Nan Closeout Signa	rom reoccurring) error in the design model where the drawing the channel tie-in to Edward Street) as must be checked with the drawing sign.) NR Name: NR	ne limit of road excavation works was and limit of pavement works. Ings to ensure there are no issues with Date: <u>12/07/17</u> <i>Civil</i> . Date: <u>8/8/1/2</u>
Preventative Action: (W It was identified that the cause shown differently to both the du In future, when commencing acconflicting information. Raised By - Signature Approval Comments: Cost of rect. NCR Approved NCR Not Approved Stoseout Comments:	hat action will be taken to prevent it fr of this over excavation was due to an awing limit of works (i.e. the kerb and tivities in new areas, the limit of works Internally Approved (Print N frca hon 6 5c Approval Signatu Print Nan Closeout Signa Print N	rom reoccurring) error in the design model where the drawing the channel tie-in to Edward Street) as must be checked with the drawing sign.) NR Sign.) NR Some Sy SEE NR	he limit of road excavation works was and limit of pavement works. Ings to ensure there are no issues with Date: <u>12/07/17</u> <i>Civil</i> . Date: <u>8/8/17</u>

J518-1: Beaudesert Town Centre Bypass

Lot: GT004

Civil—	_						
Lot:	GT004			Work Type:	GT	Area:	
Description:	Ground Surface Tr Zone 1 MC20 CH 170-371 MC20 CH 140-220 MC10 CH 40460-44	reatment (LHS) (RHS) 0540					
	Other Details:			Key Dates:			
	Raised By:	Not relevant		Opened:	02 Feb 2017	Closed:	15 Feb 2017
	Conformed By:			Work St:	02 Feb 2017	Work End:	15 Feb 2017
	Testing Level:	Normal	Reduced	Guaranteed		Conformed	27 Feb 2017
<u>Geometry:</u>	No geometry defi	ned.					
<u>Quantities:</u>							
					Meas. Qty	Eff. ()ty
2515.02	Supply and install Class [IV] (MRS)	ation of geotext 03 Apr 16)	ile, Strength Class [D],	, Filtration	1,748.5	1,74	8.5 m2
3104.01	Ground surface treatment under embankment, standard (MRS04 Oct 14)				9,805.3	9,80	5.3 m2
3109.01P	Excavation and di excavation > 10 r 14)	Excavation and disposal of Unsuitable Material with individual excavation > 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14)				68	1.4 m3
V0005	Omitted Item Cla	ss A & B Unsuita	able Replacement		681.4	68	1.4 m³

QVCs:

Ground Surface	Ground Surface Treatment
Treatment,	Zone 1
Standard	MC20 CH 170-371 (LHS)
	MC20 CH 140-220 (RHS)
	MC10 CH 40460-40540

NCRs:

ATPs:

Related Lots:

Variations:

This lot conforms in all respects with the standards and requirements specified in the contract documents, the lot verification records are complete and any non conformances have been dispositioned in accordance with the contract requirements

Signed:		,
Print Name:	N/R	Date:
Approved by (signature):		
Print Name:		Date: 27/02/17

		J518 QVC: ITP 0403	8-1: Bea Ground	udesert Surface	Check Town Centre Byp Treatment, Stand	list pass lard
<u>Lot</u>	t: GT004 0 Zone 1 MC20 0 MC20 0 MC10 0	Ground Surface Treatment H 170-371 (LHS) H 140-220 (RHS) H 40460-40540				
<u>Da</u>	te Open: 02 Feb 3	2017 <u>Date Work Starts:</u> 02 Feb 2017 <u>Date Compl:</u>				
	Check Type:	Description:	Check	Verify	Appr.	NCR
1	Check Item	Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.	B			
S	Check Item	Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 10,000m ² .	B			
3	Check Item	Areas to be Treated MRTS04 Clause 12.2.1.1 Responsibility: Works Supervisor Ground Surface Treatment shall apply to any area beneath embankment or pavement, excluding areas of excavation.	B			
4	Check Item	Filling Holes & Localised Depressions MRTS04 Clause 12.2.1.2 Responsibility: Works Supervisor Any holes or local depressions following dearing and grubbing and stripping shall be filled to level with ground with material comparable to the surrounding ground.	£			
5	Check Item	Compaction of Insitu Material Below Embankments MRTS04 Clause 12.2.1.3		B		
		Responsibility: Works Supervisor / Project Engineer The exposed ground surface on which an embankment is to be placed, shall be scarified and re-compacted to a depth of at least 150mm.	١١A	d-	see attacked	reports.
		Test - Compaction Required Standard 95% RDD Frequency - 1 per 2000m ² , Min 2 per Lot)
6	Check Item	Embankment Foundations MRTS04.1 Clause 4 Responsibility: Works Supervisor / Project Engineer Foundations for embankments must have a minimum CBR of 2% and Bearing Pressure of 100kPa. Material which does not meet this requirement is dassified as unsuitable.	Ð			
7	Hold Point	Treatment of Unsuitable HOLD POINT 3 MRTS04 Clause 9.3 Responsibility: Administrator / Works Supervisor / Project Engineer Where unsuitable or potentially unsuitable material is encountered on site, the contractor shall, before proceeding to remove or cover such material, notify the Administrator. The Administrator will advise the treatment type, if any, and the extent of such treatment.		C	Seebelan	 }\/
ç	Proof Roll-	Helen St LH.S. Unsuitable Encanted (Service Trench):	N/R	F	ill Line : :	N/R 8/02/17
9	Proof Roll-1	Helen St RHS Unsuitable Encantered Under Rull Tracks	N/R		6/02/17	

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			Checklist J518-1: Beaudesert Town Centre Bypass QVC: ITP 0403Ground Surface Treatment, Standard
<u>_ot:</u> Date Open:	GT004 (Zone 1 MC20 Cl MC20 Cl MC10 Cl 02 Feb 2	Ground Surface Treatment H 170-371 (LHS) H 140-220 (RHS) H 40460-40540 2017 <u>Date Work Starts:</u> 02 Feb 2017 <u>Date Compl:</u>	
Check	Туре:	Description:	Check Verify Appr. NCR
8 Check	Item	 Backfill to Unsuitable Excavations Responsibility: Works Supervisor / Project Engineer The excavation shall be backfilled with general fill material Clain layers with a maximum loose layer thickness of 300mm to a RDD of 95%. TEST - Compaction Required Standard - 95% RDD Frequency: Lot Size < 500m³ - 1 per 50m³ Lot Size < 500m³ to 2000m³ - 1 per 150m³ Lot Size > 2000m³ - 1 per 2S0m³	ass A or B and placed achieve a minimum All ck. see attuched reports.
9 Check	Item	Acid Sulphate Soils MRTS04 Clause 12.2.3 Responsibility: Works Supervisor / Project Engineer Acid Sulphate Soils have not been identified on this site.	
Item	No.	Description	Qty

Comments

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				· · ·	
.	Responsible Officer		Verifying Authority		
Signature: Print Name:	Not relevant	Date: 27/02/17	. <u></u>	Date:	

		J518-1: Be	Lot Quantity Report Beaudesert Town Centre Bypass		
Civil				L	ot: GT004
ot: GT004 W	/ork Type:	GT	Area:		
escription: Ground Surface TreatmentZone 1MC20 CH 170-371 (LHS)MC20 C	H 140-220 (RI	HS)MC10 CH 40	0460-40540		
Geometry:					
Schedule Item		Actual Qty		Eff. Qty	Approved
515.02: Supply and installation of geotextile, Strength Class [D], Filtration Class V] (MRS03 Apr 16) (m2)		1,748.5		1,748.5	52
104.01: Ground surface treatment under embankment, standard (MRS04 Oct 4) (m2)		9,805.3		9,805.3	20
109.01P: Excavation and disposal of Unsuitable Material with individual xcavation > 10 m3 (Provisional Quantity as directed) (MRS04 Oct 14) (m3)	681.4			681.4	20
O005: Omitted Item Class A & B Unsuitable Replacement (m ³)		681.4		681.4	20
X		A	Approved By:		
Signature:	Not relevant				
Print Name:	ot relevant			Date: _	6/3/17



Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant

Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470

Density Report - Sand Replacement

Client: See Civil Pty Ltd Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Project: Beaudesert Town Centre Bypass Project

Component: MC20

Lot No: GT-004

Report No: 65 Report Date: 8/02/2017 Tested By: ^{N/R} Test Date: 6/02/2017 Test Request No: TR-015

Job No: 115

Sample No.:	4109	4110	•	i i i i i i i i i i i i i i i i i i i		
Material Source:	Existing	Existing			i Au	
Material Type:	Foundation	Foundation		· · · · ·		
Client Reference:	TR-015	TR-015		•		
Control Line / Road:	MC20	MC20				
Chainage:	173	277				
Offset:	+22.0m	+14.0m			•	
Test Level:	GST	GST	•			
Test Depth:	150	150				
Compactive Effort:	Standard	Standard				
Oversize Sieve Size (mm):	19.0	19.0				
Percentage of Oversize Dry (%):						
Density of Oversize (t/m3)						
Field Dry Density (t/m3)	1.821	1.814	1997			
Field Moisture Content (%)	10.9	11.2				
Assigned Value Report No:						
Assigned Value Report Date:						
Maximum Dry Density (t/m3)	1.895	1.896	- 14	-	-	
Adjusted Maximum Dry Density (t/m3)		•	-		4	
Optimum Moisture Content (%)	13.0	13.1		•		
APD Sample No. / Date:		· · · ·	4			
Apparent Particle Density (t/m3)		2	4	4		
Moisture Ratio (%)	84	86				
Moisture Ratio Specification (If any):	4		4		25 S.	
Density Ratio % :	96.1	95.7		-		
Density Ratio Required % :	95.0	95.0			-	
Degree of Saturation % :		à			1.00	
Characteristic Value (Density) % :	95.7				A MARKET AND A MARKET	
Characteristic Value (D.O.S) % :						
Sampling Procedures: Q Test Procedures: Q	050 , Q061 102A , Q140A , Q141B ,	Q142A , Q143 ,			Page 1 of 1	
Nata Accreditation No: 199	002		Not relev	vant		
Laboratory: Bris	sbane South			N/R		
Accredited for compliance with results of the tests included in traceable to Australian/nation	i ISO/IEC 17025. The this document are al standards.		Approved Signatory			



Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470

Density Report - Sand Replacement

Client: See Civil Pty Ltd Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Project: Beaudesert Town Centre Bypass Project

Component: MC20 Lot No: GT-004
 Report No: 69

 Report Date: 9/02/2017

 Tested By:

 N/R

 Test Date: 7/02/2017

 Test Request No: TR-018

Job No: 115

Sample No .: 4124 . . -Existing Material Source: . . -. Material Type: GST . . • . **Client Reference:** TR-018 Control Line / Road: MC10 . . . 4 Chainage: 40504 . . . Offset: +2.0m • . . . Test Level: GST • . . . Test Depth: 150 Compactive Effort: Standard Oversize Sieve Size (mm): 19.0 Percentage of Oversize Dry (%): -5 -Density of Oversize (t/m3) --. --Field Dry Density (t/m3) 1.580 -. 2 -Field Moisture Content (%) 22.2 2 . --Assigned Value Report No: -Assigned Value Report Date: Maximum Dry Density (t/m3) 1.585 ----Adjusted Maximum Dry Density (t/m3) . . . -. Optimum Moisture Content (%) 19.4 APD Sample No. / Date: -. --Apparent Particle Density (t/m3) -. -. -Moisture Ratio (%) 115 • . • . Moisture Ratio Specification (If any): 2 4 Density Ratio % : 99.7 Density Ratio Required % 95.0 Degree of Saturation % : . . . • . Characteristic Value (Density) % : 99.7 Characteristic Value (D.O.S) % : . Sampling Procedures: Q050, Q061 Page 1 of 1 Test Procedures: Q102A, Q140A, Q141B, Q142A, Q143, Not relevant Nata Accreditation No: 19902 NATA Laboratory: Brisbane South N/R Accredited for compliance with ISO/IEC 17025. The results of the tests included in this document are Approved Signatory TECHNICAL traceable to Australian/national standards. ASCT Doc No. Q63 Rev:1, 21/09/2016


Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470

Density Report - Sand Replacement Client: See Civil Pty Ltd Job No: 115 Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Report No: 104 Project: Beaudesert Town Centre Bypass Project Report Date: 18/02/2017 Tested By: N/R Component: MC10 Test Date: 15/02/2017 Lot No: GT-004 Test Request No: TR-044 Sample No.: 4356 Material Source: Existing . . . Material Type: GST Client Reference: TR-044 ÷ . . • Control Line / Road: MC10 . . . Chainage: 40450 Offset: 3.0 4 . . . Test Level: GST Test Depth: 150 -Compactive Effort: Standard ----Oversize Sieve Size (mm): 19.0 ÷ 2 --Percentage of Oversize Dry (%): --. . -Density of Oversize (t/m3) --. 4 Field Dry Density (t/m3) 1.793 4 -. -Field Moisture Content (%) 9.0 2 1 Assigned Value Report No: -Assigned Value Report Date: -Maximum Dry Density (t/m3) 1.862 -. . -Adjusted Maximum Dry Density (t/m3) . 2 . . . **Optimum Moisture Content (%)** 14.3 . • . . APD Sample No. / Date: ---. . Apparent Particle Density (t/m3) . 4 . . Moisture Ratio (%) 63 Moisture Ratio Specification (If any): . **Density Ratio % :** 96.3 . . 4 . Density Ratio Required % 95.0 Degree of Saturation % : • Characteristic Value (Density) % : • Characteristic Value (D.O.S) % : Sampling Procedures: Q050, Q061 Page 1 of 1 Test Procedures: Q102A, Q140A, Q141B, Q142A Not relevant Nata Accreditation No: 19902 NATA Laboratory: Brisbane South N/R Accredited for compliance with ISO/IEC 17025. The results of the tests included in this document are Approved Signatory TECHNICAL traceable to Australian/national standards. ASCT Doc No. Q63 Rev:1, 21/09/2016

AUSTRAL SOIL AN CONC TEST	IAN ND CRETE TING	Laboratory: / Postal Address: / Address: / Mobile: [^] Email: t A.B.N.: 7	ASCT Brisbane Sc PO Box 1232 Park I I/31 Tradelink Road lot relevant or isbane.south@asc /3 193 500 470	outh Ridge QLD 4125 I Hillcrest Q 4118 ct.com.au	
	Density	Report - Sand Rep	placement		
Client: So Address: 24 Project: Bo Component: M Lot No: G	ee Civil Pty Ltd 4A Ozone Street, T eaudesert Town C C20 T-004	weed Heads, NSW, 2486 entre Bypass Project		Job No: Report No: Report Date Tested By: Test Date: Test Request No:	115 78 10/02/2017 N/R 9/02/2017 TR-023
U	Insuitable k	Leplacement-He	elen St Llt	s Thench	
Sample No.:	4207	1			
Material Source:	Cryna Quarry				
Material Type:	General Fill	•		•	
Client Reference:	TR-023			•	5.0
Control Line / Road:	MC20				· · · · ·
Chainage:	318		*		· · · · ·
Offset:	2	1		1	/
Test Level:	GST	·	de la	1	
Test Depth:	200				
Compactive Effort:	Standard		A-1	+	
Oversize Sieve Size (mm):	19.0		÷	1	
Percentage of Oversize Dry (%):	16		4	(L)	-
Density of Oversize (t/m3)	2.702				-
Field Dry Density (t/m3)	2.050	-		• •	-
Field Moisture Content (%)	7.8	÷	coko.	10 million (10 million)	•
Assigned Value Report No:				10	
Assigned Value Report Date:				1 ton in the second	
Maximum Dry Density (t/m3)	2.002		•		
Adjusted Maximum Dry Density (t/m3)	2.091	•	•	1	
Optimum Moisture Content (%)	10.4	•	•	-	1. The second se
APD Sample No. / Date:	100+C 2010	2	.ek	-	-
Apparent Particle Density (t/m3)	÷	· · · · ·			
Moisture Ratio (%)	75		*	÷	1
Moisture Ratio Specification (If any):	+	~	÷	-	÷
Density Ratio % :	98.1			1.0	
Density Ratio Required % :	95.0				
Degree of Saturation % :					44
Characteristic Value (Density) % :	•				
Characteristic Value (D.O.S) % :					
Nata Accreditation No: 199 Laboratory: Bri	1050 , Q061 02A , Q140A , Q141B , 902 sbane South	Q142A , Q143 ,	Not re	N/R	Page 1 of
Accredited for compliance with results of the tests included in ECHNICAL OMPETENCE	h ISO/IEC 17025. The this document are al standards.			Approved Signatory ASCT Doc No. Q63 Rev:1.	21/09/2016

AUSTRAL SOIL AN	IAN ID RETE	Laboratory: A Postal Address: P Address: 4/ Mobile ^{, No}	SCT Brisbane So O Box 1232 Park F '31 Tradelink Road	uth Ridge QLD 4125 Hillcrest Q 4118	
TEST	INC			in the second second	
A CHARLEN AND A CHARLEN I CO	into	Email: bi	risbane.south@asc	t.com.au	
		A.B.N.: 73	3 193 500 470		
	Density R	Report - Sand Rep	lacement		
Client: Se	e Civil Pty Ltd			Job No	o: 115
Address: 24	A Ozone Street. Tw	eed Heads, NSW, 2486		Report No	D: 83
Project: Be	audesert Town Cer	tre Bynass Project		Report Date	e: 14/02/2017
Toject. De	addesert rown der	the Dypass Project		Teport Date	N/R
				lested B	y :
Component: MC	20			Test Date	e: 10/02/2017
Lot No: GT	-004		i .	Test Request No	o: TR-028
Unsuitable R	e placement -	Helen Stills T	rench		
Sample No.:	4246	4247		T.	
Material Source:	Cryna Quarry	Cryna Quarry			
Material Type:	GST	GST			
Client Reference:	TR-028	TR-028	1.		
Control Line / Road:	MC20	MC20		-	
Chainage:	181	202			
Offset:	2	1			
Test Level:	GST	GST	÷	-	1 C.A.
Test Depth:	200	200	· · · ·	G	
Compactive Effort:	Standard	Standard			
Oversize Sieve Size (mm):	37.5	37.5		6	-
Percentage of Oversize Dry (%):		12		4.0	-
Density of Oversize (t/m3)	-	2.637			
Field Dry Density (t/m3)	1.976	1.985		-	
Field Moisture Content (%)	8.8	8.4			
Assigned Value Report No:	AV25	1.	in a second second		1
Assigned Value Report Date:	14/02/2017			1	la series a
Maximum Dry Density (t/m3)	2.001	2.001			
djusted Maximum Dry Density (t/m3)		2.060			
Optimum Moisture Content (%)	11.4	11.4			•
APD Sample No. / Date:					
Apparent Particle Density (t/m3)			- ÷	+	-
Moisture Ratio (%)	77	74	1.4.0 P	N	
Moisture Ratio Specification (If any):			-	år.	6
Density Ratio % :	98.7	96.4	1.0		10
Density Ratio Required % :	95.0	95.0			
Degree of Saturation % :	. 1			1	
Characteristic Value (Density) % :	96.2 🗸				
Characteristic Value (D.O.S) % :		land the second se		1	
Sampling Procedures: QC)50 , Q061	Children and			Page 1
Nata Accreditation No: 199 Laboratory: Bris Accredited for compliance with	02 bane South ISO/IEC 17025. The	Q144A, Q143,	Not releve	N/R	L
RECITLO FOR results of the tests included in I CHNICAL MPETENCE	this document are I standards.			Approved Signatory ASCT Doc No. Q63 Rev:1	, 21/09/2016

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**										
AUSTRALIAN			ASCT Brisbane South P	ty Ltd						
SOIL AN		PO Box 1232 Park R	Ridge QLD 4125		Telephone: Not relevant					
CONCRETE			4/31 Tradelink Road Hillcrest Q 4118				Mobile: Not relevant			
7			Email: brisbane.sout	h@asct.com.au		A.B.N: 73 193 500 4	70			
		R	EPORT OF	FIELD DENS	TY					
	See Civil Pty Ltd					REPORT NO.	110			
ADDRESS:	244 Orono Street T	wood Hoade NSW 2	2496			LOT NO:	GT-004			
	Boaudosort Town C	entre Bynass Project				DEOLIEST NO:	TR-044			
PROJECT:	146	entre bypass Project	5. O			REQUESTINU.	COT			
IOB NO.:	115 MC40					MATERIAL:	Golf Overne			
JOCATION:	WC10					MATERIAL SOURCE:	Cryna Quarry			
TESTED DV.	N/R	1. A. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.				DEDODTED DV.	N/R			
IESTED BY:	45/00/0047	111.0.	Jucon L(1)	Jack Di	Truck	REPORTED BY:	47/00/2047			
DATE TESTED:	15/02/2017 VIIS	uitabe kep	nacement (Un	nge via rait	hack	DATE REPORTED:	17/02/2017			
SAMPLE No.	4357	4358		-				-		
LOCATION/CHAINAGE (m)	40421	40433								
CONTROLLINE	MC10	MC10		1.1.1	City (1.00			
OFFSET (m)	-4	-11								
LEVEL OF TEST (m)(RL)	GST	GST			-		-			
TEST DEPTH (mm)	200	200	1.1		1.1		- 2 · · · ·			
OVERSIZE IEVE SIZE (mm)	37.5	37.5						-		
% OVERSIZE	8	7			12	12.				
DENSITY OF OVERSIZE (Vm3)	2.636	2.653	11 S 11				-	-		
MOISTURE RATIO (%)	101	94								
FIELD DRY DENSITY (I/m3)	1.994	1.954		<u>.</u>	-	2.1				
FIELD MOISTURE CONTENT (%)	11.7	11.1		-	-					
COMPACTION SAMPLE No.	4357	4358			4		<u></u>	-		
DATED MDD AND OMC TESTED	16/02/2017	16/02/2017								
MAXIMUM DRY DENSITY (1/m3)	1.953	1.937						-		
ADJUSTED MAXIMUM DRY DENSITY (Vm3)	1.996	1,972								
OPTIMUM MOISTURE CONTENT (%)	12.7	12.7	-	-		1.1.1				
ADJUSTED OPTIMUM MOISTURE CONTENT (%)	11.6	11.9								
DENSITY RATIO: (%)	99.9	99.1			· · · ·			-		
CHARACTERISTIC VALUE OF DENSITY RATIO: (%)	99.0					$= \frac{1}{2} \partial \left[\left[\frac{\partial \left[\left[\frac{\partial \left[\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $				
TEST PROCEDURES: CALIBRATION DETAILS:	TEST METHODS Q020, Q0 C4-2-Cryna	50, Q061, Q140A, Q143, Q14	11A, Q142A		Not relevent	· · · · · · · · · · · · · · · · · · ·				
DATE O144A ASSIGNED:	N/A	~ ~			NULTEIEVAIL					
LAYER DEPTH (mm)	200	NATA		Authorised Signatory	~					
Accredited for compliance with ISO/IEC 1 included in this document are traceable to	17025. The results of the to Australian/national	lests			NATA Accreditation Numb	er: 19902				
standards.		TECHNICAL			Laboratory Name: ASCT 8	Suspane South				
ASCT QLD Doc No. Q59 Rev No. 0 02-09-16										

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					J518-1: Beau	idesert Town (Centre Bypass
							Lot: SG004
Lot:	SG004			Work Type:	SG	Area:	
Description:	<i>Subgrade Brisbane Street MC10 CH 40191-4</i> 0	0380					
	Other Details:			Key Dates:			
	Raised By:	N/R		Opened:	07 Mar 2017	Closed:	19 Apr 2017
	Conformed By:			Work St:	07 Mar 2017	Work End:	19 Apr 2017
	Testing Level:	✓ Normal	Reduced	Guaranteed:		Conformed:	21 Apr 2017
Geometry:	No geometry defi	ined.					
Quantities:							
					Meas. Qty	Eff. Q	ty
3402.01P	Subgrade treatme (Provisional Quan	ent Type A in cu ntity if ordered)	uttings and in embankr (MRS04 Oct 14)	nents	1,169.1	1,169	9.1 m2
3402.01P	Subgrade treatme (Provisional Quan	ent Type A in cu ntity if ordered)	uttings and in embankr (MRS04 Oct 14)	ments	11.9	1	1.9 m2
QVCs:							
Subgrade	Subgrade Brisbane Street MC10 CH 40191-	40380					
NCRs:							
ATPs:							
Related Lots: Variations:							

Signed:	·	
Print Name:	Not relevant	Date:
Approved by (signature): Print Name:	Not relevant	Date: 21/04/1-

SEE	J518-1: Beau	Lot Quantity Report desert Town Centre Bypass Lot: SG004
-ot: 5G004	Work Type: SG	Area:
vescription: SubgradeBrisbane StreetMC10 CH 40191-40380		
Geometry:		
Schedule Item	Actual Qty	Eff. Qty Approved?
402.01P: Subgrade treatment Type A in cuttings and in embankments Provisional Quantity if ordered) (MRS04 Oct 14) (m2)	1,169.1	o Mar Eom
402.01P: Subgrade treatment Type A in cuttings and in embankments Provisional Quantity if ordered) (MRS04 Oct 14) (m2)	11.9	· Yes
Signature:	App Not relevant	roved By:
Print Namo	Not relevant	Date: 28.417
r int name.		Date:

		J518-1: Be	Lot Quantity Report audesert Town Centre Bypass
			Lot: SG004
nt: 5G004	Work Type:	5G	Area:
scription: SubgradeBrisbane StreetMC10 CH 40191-40380			
eometry:			
chedule Item		Actual Qty	Eff. Qty Approved
02.01P: Subgrade treatment Type A in cuttings and in embankments ovisional Quantity if ordered) (MRS04 Oct 14) (m2)		1,169.1	o Yez
······································	Not relevant	A	oproved By:
Signature:	Not relevant		
Print Name:	(Date: <u>5-417</u>
. 0.			

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J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

Lot: SG004 Brisbar MC10		SG004 Si Brisbane MC10 CH	J04 Subgrade sbane Street 10 CH 40191-40380								
<u>Date</u>	Open:	07 Mar 2	017	<u>Date Work Starts:</u>	07 Mar 2017	Date Compl:					
	Check	Type:	Dese	cription:				Check	Verify	Appr.	NCR
1	Check	Item	Safei Respo Ensur Ensur dig po	t y Management onsibility: Works Supe e all personnel signe e DBYD procedures I ermit in place. A copy	ervisor / Project (d onto daily pre- have been carried v must be held w	Engineer start and applica d out prior to co ith the machine	able SWMS. mmencing work and operator.	e E			
2	Check	Item	Lot S MRTS Respo The r	iize 04.1 Clause 1.2 onsibility: Project Eng naximum lot size sha	jineer Il not exceed 500	00m².		RJ 1200	ي ع س		
3	Check	[tem	Subg MRTS Respo Subgi % Pa PI - > WPI - Single WPI - Single	rade Fill Material 04 Clause 14.2 posibility: Works Superade fill material shall fired Standard (Cla ssing 0.075mm Siever 7% < 1200 Point Soaked CBR - fired Standard (Cla 1200-2200 Point Soaked CBR -	ervisor / Project I I be General Fill (bss A Fill): e - 15-30% 10% ass B Fill): 10%	Engineer Class A or Class I	в.	NHA Sibgro Unsu Repla Gryni (see	ide in itable ced ' x Cur attack	Cutting e with Neil woral Fil hed sepon	-All Jens Il ts)
4	Hold P	pint	Cons MRTS Respo If a s Exca applie	truct Subgrade in 04 Clause 18.3.3.1 8 onsibility: Works Supe ubgrade treatment w vation Lot - HOLD ed as directed.	Cuttings A MRTS04.1 Clauservisor as directed by th POINT 5), Subg	se 13.5 Je Administrator grade Treatment	(refer to Road s Type A or B shall b	Be) Refe	r to	Ex 004	HDZ
5	Check	Item	Testi MRTS Respo Testi TEST Gradi	ing of Subgrade in 604 Clause 18.3.3.2 8 605 Subject Works Super- find of the insitu mater of the insitu mater of the insitu material r - Material Properties ng, Atterberg Limits, nency - 1 per material	Cuttings MRTS04.1 Clauservisor / Project I rial in cuttings (of Single Point Soal I type.	se 13.6 Engineer ther than rock) s ked CBR.	shall be performed.	I Unsj	121A Aifeille	<u>Replace</u>	inert
6	Check	Item	Earti MRTS Respi Emba subgi Const into t emba	works Transition 504 Clause 18.3.4.1 8 onsibility: Works Sup- ankment subgrade sh rade level intercepts f truction as a near-gra he cuttings. Additional ankments is required.	from Cut to Fill 18.3.4.2 ervisor all continue longi the prepared gro ade embankment al foundation test	l itudinally up to t und surface. shall continue f ting and prepara	he line where the or a distance of 10m tion at near-grade	BI			

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

	<u>Lot:</u>	SC Br M	3004 Subgra isbane Stree C10 CH 4019	ade et 91-40380						
	<u>Date</u>	<u>Open:</u> 07	7 Mar 2017	Date Work Starts:	07 Mar 2017	Date Compl:				
	7	Check Ty Check Iter	r pe: Des m Com MRT Resp TES Crite Frequ	acription: apaction S04 Table 15.3B - Dei consibility: Works Sup T - Sand Replacement ria - 97% RDD uency - 1 per 500m ² ,	nsity Requiremen ervisor / Project I t Min 4 per Lot.	ts Engineer	4 Tests - (see att	Check All (ached)	Verify B Pass)	Appr. NCR
	8	Check Ite	m Mois MRTS Resp Class - 90	sture Content S04 Table 15.3C - Mo xonsibility: Works Sup- s A 50 - 80 of OMC of OMC	isture Content ervisor		Class B 6 Ran	o ges T	- 10 29 - 10	> <u>8</u> ¢/-
X	9	Witness P	roint Proc Witr Resp The no vi a gro appr	of Roll ness Point MRTS04 (consibility: Administra material at subgrade isible vertical moveme oss mass of not less to roved by the Administ	Clause 18.3.1 & N tor / Works Super level shall provident under the rea han 15 tonnes wi rator.	IRTS04.1 Clause : rvisor / Project En e a stable, dense r axle of a fully lo th a single rear ay	L3.4 gineer surface which display aded water truck with de, or similar vehicle	s n		N/R
	10	Check Ite	m Geo MRT: Resp Horiz - Ed - Edç Verti +/- 2	metrics S04 Clause 6.2 sonsibility: Works Sup- zontal Tolerances lges not adjacent to a ges adjacent to a stru S04 Clause 6.3 ical Tolerances 25mm	ervisor / Surveyo a structure + 250/- cture +/-50mm	r -50mm	,	E All ok Surve	届 : .y AH	ached.
×	11	Hold Poin	t Plac HOL Resp The all st	ement of Pavement D POINT 9 MRTS04 consibility: Administra subgrade shall be con tandard requirements	t Clause 18.3.1 tor / Works Super structed and test prior to placement	rvisor / Project En ted to subgrade le nt of the pavemer	gineer wel in accordance wit nt.	th		- N/R
		Thomas Min	Det							0.54

Item No.	Description	Qty

128.5

Civil

A second second			CHECKIIS
			J518-1: Beaudesert Town Centre Bypas
-Civil——			QVC: ITP 0408Subgrad
SG004 S	Subgrade		
Brisbane MC10 C	e Street H 40191-40380		
pen: 07 Mar :	2017 Date Work Starts:	07 Mar 2017 <u>Date Compl:</u>	
nents			
	Responsible Officer	1	Verifying Authority
Signature:			
Print Name:	Not relevant	Date: 21/04/17	Date:







ASCT - Brisbane South PO Box 1232, Park Ridge QLD 4125 4/31 Tradelink Road Hillcrest Q 4118 Telephone: Not relevant Email: brisbane.south@asct.com.au A.B.N: 73 193 500 470





ī,

Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125

Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant

Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470

Client: Se	e Civil Ptv Ltd			Job No: 1	115			
	e olvilli ty Lta A Osene Séreet Tur	and Llanda NGW 24	20	Bonort No: 3	150			
Address: 24	Address: 24A Uzone Street, I weed Heads, NSW, 2486							
Project: Be	audesert Town Cen	tre Bypass Project		Report Date:	21/04/2017 J/R			
				Tested By:				
Component: -				Test Date: 1	9/04/2017			
Lot No: SC	5-004			Test Request No: 1	R-206			
Sample No.:	5442							
Material Source:	Existing	•	•	•				
Material Type:	Subgrade	•		-	-			
Client Reference:	TR-206	-		-	••••••			
Control Line / Road:	MC10			-				
Chainage:	40199	-		· ·	•			
Offset:	-2	- · ·	-	-	-			
Test Level:	Subgrade			-	-			
Test Depth:	150				-			
Compactive Effort:	Standard		-	-	_			
Oversize Sieve Size (mm):	19.0			-	-			
Percentage of Oversize Dry (%)	•			-	•			
Density of Oversize (t/m3)				-	-			
Field Dry Density (t/m3)	1.795		-					
Field Moisture Content (%)	18.4		· ·	-				
Assigned Value Report No:			· · · ·					
Assigned Value Report Date:								
Maximum Dry Density (t/m3)	1.825	-	-		-			
Adjusted Maximum Dry Density (t/m3)		•	· ·					
Optimum Moisture Content (%)	17.0	· · ·	•	-	-			
Adjusted Optimum Moisture Content (%)			· ·	-				
M D D Date Tested	20/04/2017		· ·	-				
APD Sample No. / Date:	LOIUNEON		· .					
Annarent Particle Density (t/m3)		<u> </u>		_	-			
Moisture Ratio (%)	108		· ·					
Moisture Ratio Specification (If and)	100							
Density Ratio %								
Density Ratio Required %	07.0		-	t				
Density Ratio Required %	31.0		<u>+</u>	<u> </u>				
Characteristic Volue (Density) %	-		+ •					
Characteristic Value (Density) % :		-						
Sampling Procedures: 0	-	<u> </u>	.l	<u> </u>	Page 1 of			
Sampling Flocedules. G	030, Q001 024 01404 01418	O142A . O143			raye i 01			
			Not relevant	i	,			
NATA Nata Accreditation No. 10	202							
India Accievitation No. 15	shane South							
Accredited for compliance with	h ISC/IEC 17025. The			N/R				
TECHNICAL COMPETENCE results of the tests included in	this document are			Approved Signatory				
traceable to Austrelian/nation	ei ecendertis.			ASCT Doc No. Q63 Rev:1, 2	1/09/2016			

AUSTRAL SOIL AN CONC TEST	JAN 1D CRETE TING		ASCT Brisbarie South Pty PO Box 1232 Park Rid 4/31 Tradelink Road F	r Ltd Ige QLD 4125 Hillcrest Q 4118		Telephone. ^{Not relevar} Mobile: Not relevant	ıt	
			Email: brisbane.south	@asct.com.au		A.B.N: 73 193 500 4	70	
		RE	EPORT OF F	IELD DENS	ITY			
CLIENT:	See Civil Pty Ltd					REPORT NO:	358	
ADDRESS:	24A Ozone Street, T	weed Heads, NSW, 24	86			LOT NO:	SG-004	
PROJECT:	Beaudesert Town C	entre Bypass Project				REQUEST NO:	TR-206	
JOB No.:	115					MATERIAL:	Subgrade	
LOCATION:	-					MATERIAL SOURCE:	Cryna Quarry	
							N/D	
TESTED BY:	N/R					REPORTED BY:	N/R	
DATE TESTED:	19/04/2017					DATE REPORTED:	21/04/2017	
SAMPLE No.	5443	5444	5445	-	•	-	-	-
LOCATION/CHAINAGE (m)	40222	40309	40362		-	-	-	
CONTROL LINE	MC10	MC10	MC10		-		-	-
OFFSET (m)	-3.5	-2,7	-4.6	-	-	-	-	-
LEVEL OF TEST (m)(RL)	Subgrade	Subgrade	Subgrade		-	-	-	
TEST DEPTH (mm)	200	200	200	-	-	-	-	
OVERSIZE IEVE SIZE (mm)	37.5	37.5	37.5	•	-	-		-
% OVERSIZE	7	7	7	•	-	-	-	-
DENSITY OF OVERSIZE (Vm3)	2.621	2.620	2.634	-	-			
MOISTURE RATIO (%)	92	80	79	· ·	-	-	-	-
FIELD DRY DENSITY (Um3)	2,102	2,011	2.033	-			-	-
FIELD MOISTURE CONTENT (%)	9.8	9.2	8.6	-	-	-	-	-
COMPACTION SAMPLE No.	5443	5444	5445	-	-	-	-	-
DATE MDD AND OMC TESTED	20.4.17	20,4.17	20,4.17	-	-	-	-	-
MAXIMUM DRY DENSITY (Um3)	2,015	1.941	1.956	•	-	-	-	-
ADJUSTED MAXIMUM DRY DENSITY (Vm3)	2.046	1.979	1,991	-	-	-	-	-
OPTIMUM MOISTURE CONTENT (%)	11.5	12.4	11.6	-	-	-	-	-
ADJUSTED OPTIMUM MOISTURE CONTENT (%)	10.7	11.5	10.8	<u> </u>			-	
DENSITY RATIO: (%)	102,7	101.6	102.1		lan a tea a a	• • • • • • • • • • • • • • • •	··· . · · · · · · · · · · · · · · · · ·	
CHARACTERISTIC VALUE OF DENSITY RATIO: (%)	101.7							
TEST PROCEDURES: CALIBRATION DETAILS: DATE 0144A ASSIGNED: LAYER DEPTH (mm)	TEST METHÓDS Q020, Q0 C4-2-Cryna N/A 200	50, Q081, Q140A, Q143, Q141	A, Q142A	Authorised Signatory	Not relevant	`		

Accredited for compliance with ISO/IEC 17025. The results of the tests included in this document are traceable to Australian/national standards.

ASCT QLD Doc No. Q59 Rev No. 0 02-09-16

NATA Accreditation Number: 19902

Laboratory Name: ASCT Brisbane South

NATA

"F. Jurston

Project:

Beaudesert Town Centre Bypass

Not relevant

21/04/17

170421 ASB SG.FLD

Surveyed:		
Surveyor:		
Date:		
QA File/s:		

Pavement Type: N 812 below FSL Material Type: Bare Earth Control Line: MC10 .





1. Out-of-tolerance results are highlighted Red/Blue and Bold (or ARL (+/-25mm) as per MRT504 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the

nearest centimetre.

∆RL

Upper Tolerance : 0.025 Lower Tolerance : -0.025

Po	oint No.		Chainage	Offset from CL (-Left/+Right)	Easting	Northing	Asbuilt RL	Design RL	ΔRL (-Low/+High)	Out of tolerance (Low/High)	Comment
•	65	40200	40200	0.11	499417.908	6905471.663	57.579	57.587	-0.009		
	64	40200	40200	3.41	499414.782	6905472.744	57,474	57,455	0.019		
	62	40210	40210	0.17	499414.747	6905462.225	57.389	57.393	-0.004		
	63	40210	40210	3.47	499411.595	6905463.185	57.259	57.248	0.011		
	61	40220	40220	0.06	499411.799	6905452.645	57.206	57.204	0.002		
	60	40220	40220	3.68	499408.349	6905453.752	57.038	57.038	0.000		
	57	40230	40230	0.01	499408.883	6905443.161	57.014	57.014	0.000		
	58	40230	40230	0.61	499408.312	6905443.345	57.002	56.996	0.006		
	59	40230	40230	3.98	499405.069	6905444.266	56.854	56.839	0.014		
	56	40240	40240	-0.10	499406.038	6905433.458	56.840	55.826	0.014		
	55	40240	40240	1.00	499404.985	6905433.795	56.804	56.799	0.005		
	54	40240	40240	4.46	499401.672	6905434.778	56.670	56.658	0.012		
	50	40250	40250	-0.11	499403.202	6905423.904	56.672	56.657	0.014		
	51	40250	40250	1.71	499401.454	6905424.418	56.612	56.609	0.003		
	52	40250	40250	5.15	499398.140	6905425.343	56.478	56.501	-0.023		
	53	40250	40250	7.66	499395.738	6905426.084	56.284	56.301	-0.018		
	49	40260	40260	0.63	499399.654	6905414.383	56.486	56.510	-0.024		
	48	40260	40260	2.48	499397.908	6905415.010	56.434	56.417	0.016		
	47	40260	40260	5.88	499394.624	6905415.882	56.318	56.310	0.008		
	46	40260	40260	8.15	499392.466	6905416.593	56.188	56.172	0.016		
	42	40270	40270	5.35	499394.331	6905405.700	56.250	56.237	0.013		
	43	40270	40270	6.73	499391.066	6905406.577	56,141	56.130	0.011		
	44	40270	40270	0.30	499390.033	6905406.673	56.132	56.072	0.010		
	45	40270	40270	8.55 4.12	455565.525	6905407.090	56.070	56.073	0.002		
	41	40280	40280	757	499387 438	6905397 305	55.970	55.077	0.000		
	39	40280	40280	8.08	499386 939	6905397.305	55.968	55.95/	0.001		
	38	40280	40280	9.13	499385 949	6905397.425	55.940	55 957	-0.013		
	34	40290	40290	4.73	499387.229	6905386 981	55 957	55 943	0.014		
	35	40290	40290	8.14	499383.977	6905388.014	55.845	55 838	0.014		
	36	40290	40290	9.06	499383.102	6905388.283	55.816	55.810	0.006		
	37	40290	40290	10.09	499382.133	6905388.637	55.757	55.779	-0.022		
	33	40300	40300	5.24	499383.715	6905377.634	55.817	55.829	-0.013		
	32	40300	40300	8.75	499380.388	6905378.744	55.712	55.722	-0.011		
	31	40300	40300	9.83	499379.349	6905379.050	55.678	55.689	-0.011		
	30	40300	40300	10.93	499378.286	6905379.323	55.671	55.655	0.016		
	26	40310	40310	5.67	499380.188	6905368.305	55.719	55.720	-0.001		
	27	40310	40310	9.09	499376.955	6905369.426	55.621	55.617	0.004		
	28	40310	40310	10.55	499375.567	6905369.893	55.566	55.572	-0.006		
	29	40310	40310	11.60	499374.564	6905370.182	55.537	55.540	-0.003		
	25	40320	40320	5.92	499376.738	6905358.979	55.622	55.616	0.006		
	24	40320	40320	9.36	499373.494	6905360.127	55.524	55.513	0.012		
	23	40320	40320	11.12	499371.815	6905360.646	55.471	55,459	0.012		
	22	40320	40320	12.16	499370.825	6905360.962	55.440	55.428	0.013		
	18	40330	40330	6.05	499373.323	6905349.662	55.511	55,517	-0.006		
	19	40330	40330	9.48	499370.102	6905350.853	55.410	55.414	-0.004		
	20	40330	40330	11.58	499368.103	6905351.496	55.344	55.350	-0.006		
	21	40330	40330	12.60	499367.166	6905351.887	55.321	55.320	0.001		
	17	40340	40340	6,08	499369.918	6905340.369	55.414	55.421	-0.006		
	16	40340	40340	9.54	499366.656	6905341.528	55.324	55.316	0.007		
	15	40340	40340	11.89	499364.438	6905342.313	55.255	55.245	0.010		
	14	40340	40340	12.91	499363,492	0905342.690	55.228	55.215	0.012		
	10	40350	40350	6.15	499366.378	6905331.013	55.313	55.322	-0.009		
	11	40350	40350	9.41	499303.333	0905332.1/4	55.222	55.225	-0.003		
	12	40350	40350	12.21	499300.712	0905333,155	55.137	55.141	-0.004		
	13	40350	40350	13.18	499359.820	6005233.538	55.10b	55.112	-0.005		
	0 7	40360	40360	0.1/	433302.873	6005221./20	55.222	55.220	-0.004		
	, 6	40300	40360	9.40 10 4P	437333,/32	69053322.832	55,027	33.127 SE 037	0.011		
	υ ς	40300	40360	12,40	433330.300	69052374 714	55,007	55.037	0.001		
	J	-10300	40300	10.01	422222.270	0000024.210	55.007	22,003	0.005		

Project:

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Beaudesert Town Centre Bypass

Surveyed:	
Surveyor:	
Date:	
QA File/s:	

Not relevant 21/04/17 170421 ASB SG.FLD

Pavement Type: N 812 below FSL Material Type: Bare Earth Control Line: MC10



 Out-of-tolerance results are highlighted Red/Blue and Bold for ARL (4/-25mm) as per MRTS04 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the

nearest centimetre.

ΔRL

Upper Tolerance : 0.025 Lower Tolerance : -0.025

Point No.		Chainage	Offset from CL (-Left/+Right)	Easting	Northing	Asbuilt RL	Design RL	∆RL (-Low/+High)	Out of tolerance (Low/High)	Comment
2	40370	40370	6.20	499359.286	6905312.325	55.142	55.128	0.014		
3	40370	40370	9.46	499356.255	6905313.514	55.019	55.031	-0.012		
4	40370	40370	13.79	499352.233	6905315.132	54.884	54.902	-0.018		

Points Tested :	63	
Within Tolerance :	63	100.0%
Too High :	0	0.0%
Too Low :	0	0.0%
Maximum Conformance:	0.019	
Minimum Conformance:	-0.024	
Average Conformance:	0.002	
Standard Deviation :	0.011	



STRAIGHT EDGE CONFORMANCE SHEET

Test Frequency: 1 Per 50m (LHS & RHS) Conformance: Max 25mm Lot No: SG004 (Brisbane Street MC10 CH 40191-40380)

	LHS (Turn)	LHS	RHS	RHS (Turn)
MC10				
40200		/	12	1
40250		/	4	1
40300		/	7	\sim
40350	~	(3	/
		/		

Signed:

Date: 20/04/17

Conformance Report

J518-1: Beaudesert Town Centre Bypass

Lot: SG005

Lot:	SG005			Work Type:	SG	Area:	
Description:	Subgrade Brisbane Street Pavement Type A MC10 CH 40380-44 MC20 CH 31-190 (0450 (RHS) 'LHS)					
	Other Details:			Key Dates:			
	Raised By:	N/R		Opened:	06 Mar 2017	Closed:	28 Apr 2017
	Conformed By:			Work St:	06 Mar 2017	Work End:	28 Apr 2017
	Testing Level:	✓ Normal	Reduced	Guaranteed:		Conformed:	28 May 2017
Geometry:	No geometry defi	ined.					
Quantities:							
QVCs:							
Subgrade	Subgrade Brisbane Street Pavement Type A MC10 CH 40380- MC20 CH 31-120	4 40450 (RHS) (LHS)					
NCRs:							
TPs:							
Related Lots:							
Variations:							
This lot conform complete and a	ns in all respects with ny non conformance	h the standards as have been dis	and requirements specifies	ed in the contract o with the contract r	locuments, the le equirements	ot verification re	cords are
			Signed	ı			

Approved by (signature):

Print Name:

Not relevant

	nol rin	
Date:	28/05/11	

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade



J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

	<u>Lot:</u>		SG005 S Brisbane Pavemer MC10 CH MC20 CH	ubgrade Street It Type A I 40380-40450 (RHS) I 31-120 (LHS)					
	<u>Date</u>	<u>Open:</u>	06 Mar 2	017 Date Work Starts: 06 Mar 2017 Date Con	<u>(pl:</u>				
		Check	Туре:	Description:	c	heck	Verify	Appr.	NCR
	6	Check I	tem	Earthworks Transition from Cut to Fill MRTS04 Clause 18.3.4.1 & 18.3.4.2 Responsibility: Works Supervisor Embankment subgrade shall continue longitudinally up subgrade level intercepts the prepared ground surface. Construction as a near-grade embankment shall contin into the cuttings. Additional foundation testing and pre-	to the line where the ue for a distance of 10m paration at near-grade	ア			
	7	Check I	tem	Compaction MRTS04 Table 15.3B - Density Requirements Responsibility: Works Supervisor / Project Engineer TEST - Sand Replacement Criteria - 97% RDD Frequency - 1 per 500m ² , Min 4 per Lot.	Saraton at near-grave	□ Tes pas	副 53	· · · · · · · · · · · · · · · · · · ·	
	8	Check I	tem	Moisture Content MRTSO4 Table 15.3C - Moisture Content Responsibility: Works Supervisor Class A 50 - 80 of OMC - 90 of OMC 20ch area had see b be prior to the	how long Class B 60 left to ring.	围 MC MCI	□ 20 R0 0 R01	Inges 35-5 ges 94-107	0 ^{2/.}) r/:;
×	9	Witness	s Point	Proof Roll Witness Point MRTS04 Clause 18.3.1 & MRTS04.1 Cl Responsibility: Administrator / Works Supervisor / Proj The material at subgrade level shall provide a stable, o no visible vertical movement under the rear axle of a f a gross mass of not less than 15 tonnes with a single r approved by the Administrator.	U ause 13.4 act Engineer ense surface which displays Jlly loaded water truck with ear axle, or similar vehicle			N/R	
	10	Check I	item	Geometrics MRTS04 Clause 6.2 Responsibility: Works Supervisor / Surveyor Horizontal Tolerances - Edges not adjacent to a structure +250/-50mm - Edges adjacent to a structure +/-50mm MRTS04 Clause 6.3 Vertical Tolerances	MC20 trea CH40-50 i of tolorance). Low r2.3 CMB.	s lo are	BL) ~ (up as to	b 25mm be made	autside up in
×	11	Hold Po	bint	+/- 25mm Placement of Pavement HOLD POINT 9 MRTS04 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / Proj The subgrade shall be constructed and tested to subgr all standard requirements prior to placement of the pa	ect Engineer ade level in accordance with /ement.			. N/R	

X

Civil

84



J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

Lot: SG005 Subgrade Brisbane Street Pavement Type A MC10 CH 40380-40450 (RHS) MC20 CH 31-120 (LHS)

Date Open: 06 Mar 2017 Date Work Starts: 06 Mar 2017 Date Compl:

Item No.	Description	Qty

Comments

<u>Resp</u>	onsible Officer V	erifying Authority
Signature:		
Print Name:	Date:	Date:

Project:

:

Beaudesert Town Centre Bypass

Surveyed:	Not relevant
Surveyor:	
Date:	27/04/17
QA File/s:	170427 ASB SG.FLD

veris



1. Out-of-tolerance results are highlighted Red/Blue and Bold for ARL (+/-25mm) as per MRTS04 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the nearest centimetre.

Upper Tolerance : 0.025 Lower Tolerance : -0.025

ΔRL

Point No.	Chainage	Offset from CL {-Left/+Right}	Easting	Northing	Asbuilt RL	Design RL	∆RL (-Low/+High)	Out of tolerance (Low/High)	Comment
30	40380	0.46	499361.075	6905300.955	55.562	55.569	-0.007		
29	40380	2.21	499359.447	6905301.591	55.533	55.552	-0.018		
28	40380	3.37	499358.362	6905302.003	55.519	55.540	-0.021		
31	40380	6.17	499355.748	6905303.012	55.371	55.388	-0.017		
32	40380	7.96	499354.080	6905303.670	55.321	55.335	-0.013		
33	40380	9.59	499352.558	6905304.254	55.271	55.286	-0.014		
34	40380	12.98	499349.386	6905305.435	55.170	55.184	-0.014		
35	40380	13.97	499348.432	6905305.728	55.1 32	55.153	-0.021		
25	40390	1.74	499359.481	6905290.777	55.514	55.529	-0.015		
26	40390	-0.06	499357.946	6905291.468	55,481	55.479	0.002		
27	40390	3.42	499354.692	6905292.698	55.381	55.386	-0.005		
39	40390	6.12	499352.189	6905293.705	55.289	55.294	-0.005		
38	40390	9.52	499349.015	6905294.920	55.193	55.192	0.002		
37	40390	12.96	499345.810	6905296.184	55.085	55.088	-0.004		
36	40390	13.89	499344.972	6905296.599	55.061	55.061	-0.001		
24	40400	-5.19	499359.062	6905280.265	55.535	55.537	-0.002		
23	40400	-3.54	499357.526	6905280.859	55.488	55.488	0.000		
22	40400	0.03	499354.235	6905282.269	55.366	55.381	-0.015		
21	40400	3.34	499351.124	6905283.391	55.267	55.281	-0.014		
40	40400	6.09	499348.565	6905284.404	55.185	55.199	-0.013		
41	40400	9.49	499345.421	6905285.694	55,097	55.0 9 7	-0.001		
42	40400	13.02	499342.140	6905286.992	54.992	54.991	0.001		
43	40400	14,13	499341.095	6905287.379	54.962	54.957	0.005		
16	40410	-9.01	499358.919	6905269.559	55.547	55.559	-0.012		
17	40410	-6.95	499356.982	6905270.257	55.491	55.494	-0.002		
18	40410	-3.56	499353.858	6905271.589	55.398	55.392	0.005		
19	40410	0.08	499350.463	6905272.904	55.279	55.283	-0.004		
20	40410	3,37	499347.412	6905274.133	55.197	55.184	0.013		
47	40410	6.17	499344.829	6905275.220	55.094	55.101	-0.007		
46	40410	9.47	499341.751	6905276.413	54.990	55.001	-0.012		
45	40410	13.00	499338.499	6905277.768	54.891	54.896	-0.005		
44	40410	16.78	499334.940	6905279.059	54.790	54.785	0.004		
15	40420	-13.80	499359.679	6905258.607	55.636	55.649	-0.013		
14	40420	-10.50	499356.551	6905259.681	55.507	55.505	0.002		
13	40420	-8.90	499355.058	6905260.261	55.459	55,456	0.003		
12	40420	-7.05	499353.360	6905261.004	55,401	55.401	0.000		
11	40420	-3.48	499350.042	6905262.313	55.294	55.294	0.001		
10	40420	0.04	499346.783	6905263.643	55.203	55.188	0.015		
9	40420	3.40	499343.639	6905264.821	55.095	55.087	0.008		
48	40420	6.08	499341.185	6905265.918	55.015	55.007	0.007		
49	40420	9.57	499337.943	6905267.202	54.914	54.902	0.012		
50	40420	12.94	499334.813	6905268.447	54.782	54.801	-0.019		
2	40430	-18.38	499359.961	6905247.153	55.793	55.804	-0.010		
3	40430	-12.63	499354.727	6905249.538	55.483	55.4/6	0.007		
- 4	40430	-8.85	499351.256	6905251.042	55.346	55.359	-0.014		
5	40430	-7.02	499349.552	6905251.704	55.296	55.304	-0.008		
6	40430	-3.46	499346.254	6905253.051	55.183	55.197	-0.014		
7	40430	0.01	499343.008	6905254.280	55.094	55.09Z	0.002		
8	40430	3.33	499339.947	6905255.572	54.969	54.993	-0.024		
55	40430	4.98	499338.415	6905256.185	54.924	54.945	-0.021		
54	40430	5.97	499337.515	6905256.586	54.912	54.914	-0.002		

Material Type: Bare Earth Control Line: MC10

Project:

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Beaudesert Town Centre Bypass

Surveyed:	Not relevant
Surveyor:	
Date:	27/04/17
QA File/s:	170427 ASB SG.FLD

Material Type: Bare Earth

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 Out-of-tolerance results are highlighted Red/Blue and Bold for &RL (+/-25mm) as per MRTSO4 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the nearest contimetre.

Upper Tolerance : 0.025 Lower Tolerance : -0.025

ΔRL

Control Line:	MC10								
Point No.	Chainage	Offset from CL {-Left/+Right}	Easting	Northing	Asbuilt RL	Design RL	ΔRL (-Low/+High)	Out of tolerance (Low/High)	Comment
53	40430	9.49	499334.294	6905258.003	54.809	54.810	-0.001		
52	40430	13.04	499330.963	6905259.234	54.683	54.702	-0.019		
51	40430	14.42	499329.660	6905259.716	54.636	54.660	-0.024		
61	40440	-7.13	499345.823	6905242.360	55.227	55. 211	0.016		
60	40440	-3.50	499342.463	6905243.726	55.126	55.102	0.024		
59	40440	0.00	499339.216	6905245.034	55.004	54.997	0.007		
58	40440	5.97	499333.730	6905247.391	54.831	54.819	0.012		
57	40440	9.49	499330.494	6905248.760	54.735	54.721	0.014		
56	40440	13.00	499327.218	6905250.032	54.622	54.607	0.014		

Points Tested :	60	
Within Tolerance :	60	100.0%
Too High :	0	0.0%
Too Low :	0	0 .0%
Maximum Conformance:	0.024	
Minimum Conformance:	-0.024	
Average Conformance:	-0.004	
Standard Deviation :	0.011	

Beaudesert Town Centre Bypass Project:

Surveyed:	Not releva
Surveyor:	
Date:	27/04/17
QA File/s:	170427 ASB SG.FLD

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1. Out-of-tolerance results are highlighted Red/Blue and Bold for GRL (+/-25mm) as per MIRTS04 Clause 6.3.1

2. Cha rages are rounded to the nearest metre, Offsets to the nearest contimetrie

ΔRL

Upper Tolerance : 0.025 Lower Tolerance : -0.025

Material Type: Bare Earth Control Line: MC20

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Point No.	Chainage	Offset from CL (-Left/+Right)	Easting	Northing	Asbuilt RL	Design RL	ΔRL (-Low/+High)	Out of tolerance (Low/High)	Comm
96	32	-11,20	499382.720	6905138.717	56.808	56.821	-0.013		
97	32	-9.56	499384.292	6905139.181	56.825	56.887	-0.061	LOW	
98	33	-6.06	499387.248	6905141.516	56.911	56.903	0.007		
99	33	-2.58	499390.526	6905142.706	56.849	56.872	-0.023		
100	33	-1.32	499391.765	6905142.950	56.839	56.832	0.006		
91	40	-10.82	499380.680	6905146.906	56.646	56.685	-0.039	LOW	
92	40	-9.84	499381.618	6905147.196	56.688	\$6.715	-0.027	LDW	
93	40	-6.35	499384.977	6905148.130	56.774	56.820	0.046	LÓW	
94	40	-2.80	499388.371	6905149.189	56.792	56.840	-0.048	LOW	
95	40	-1.00	499390.100	6905149.687	56.761	56.786	-0.025		
86	50	-10.96	499377.694	6905156.482	56.537	56.566	-0.029	LOW	
87	50	-10.01	499378.600	6905156.763	56.564	56.595	-0.031	LOW	
88	50	-6.55	499381.946	6905157.657	56.663	56.700	-0.037	LOW	
89	50	-2.94	499385.400	6905158.711	56.767	56.795	-0.028	LOW	
90	50	-1.09	499387.149	6905159.289	56.721	56.739	-0.019		
82	60	-10.94	499374.870	6905166.050	56.463	56.474	-0.011		
83	60	-9.90	499375.877	6905166.331	56.486	56.505	-0.020		
85	60	-2.86	499382.603	6905168.385	56.702	56.711	-0.009		
84	60	-1.41	499384.017	6905168.743	56.658	56.681	-0.023		
78	70	-10.84	499372.138	6905175.622	56.376	56.380	-0.005		
77	70	-9.78	499373.164	6905175.866	56.395	56.412	-0.017		
79	70	-6.11	499376.647	6905177.050	56.477	56.520	-0.043	LOW	
80	70	-2.57	499380.056	6905178.003	56.602	56.624	-0.022		
81	70	-1.36	499381.224	6905178.305	56.582	56.601	-0.019		
73	BO	-10.96	499369.168	6905185.181	56.203	56.244	-0,041	LOW	
74	80	-9.97	499370.134	6905185.433	56.257	56.274	-0.018		
75	80	-5.77	499374.138	6905186.690	56.377	56.397	0.020		
76	80	-2.08	499377.667	6905187.761	55.496	56.505	-0.010		
70	90	-11.23	499366.068	6905194.675	56.015	56.037	-0.022		
69	90	-10.00	499367.221	6905195.132	56.051	56.072	-0.022		
71	90	-5.52	499371.544	6905196.309	56.192	56.212	-0.019		
72	90	-1.94	499374.977	6905197.311	56.308	56.329	-0.020		
65	100	-12.64	499361.882	6905203.821	55.708	55.730	-0.022		
66	100	-11.68	499362.835	6905203.975	55.754	55.775	-0.021		
67	100	-6.62	499367.673	6905205.455	55.942	55.968	-0.027	LOW	
68	100	-2.11	499371.962	6905206.860	56.125	56,133	-0.009		
61	110	-13.76	499358.045	6905209.812	55.446	55.470	-0.025		
62	110	-12.77	499358.881	6905210.352	55.485	55.508	-0.022		
63	110	-7.73	499363.299	6905212.777	55.707	55.727	-0.019		
64	110	-3.18	499367.256	6905215.022	55.907	55.924	-0.017		
101	180	11.45	499324.903	6905267.652	54.012	54.021	-0.009		
102	180	17.88	499329.880	6905271.719	54.469	54.470	-0.001		
103	190	21.60	499330.819	6905277.256	54.591	54.593	-0.002		
Points Tested :		43							
Within Toleran	ce :	31	72.1%						
Too High :		0	0.0%						
Too Low :		12	27.9%						
Maximum Con	formance:	0.007							
Minimum Cool	ormance:	-0.061							
Average Confo	imance:	-0.022							
Standard Devis	tion :	0.014							
Stanuaro Devia		0.014							



Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: Not relevant Email: brisbane.south@asct.com.au

A.B.N.: 73 193 500 470 **Density Report - Sand Replacement** Client: See Civil Pty Ltd Job No: 115 Address: 24A Ozone Street, Tweed Heads, NSW, 2486 Report No: 272 Project: Beaudesert Town Centre Bypass Project Report Date: 15/03/2017 Tested By: N/R Test Date: 13/03/2017 Component: MC20 Lot No: SG-005 Test Request No: TR-158 Sample No.: 5009 5010 Material Source: Existing Existing

Material Type:	Subgrade	Subgrade	-	-	-
Client Reference:	TR-158	TR-158		•	-
Control Line / Road:	MC20	MC20	-	-	-
Chainage:	74	118		•	•
Offset:	5	10		-	-
Test Level:	Subgrade	Subgrade	•	•	•
Test Depth:	150	150	•	-	•
Compactive Effort:	Standard	Standard		-	-
Oversize Sieve Size (mm):	19.0	19.0	-	-	-
Percentage of Oversize Dry (%):	12	11	-	-	-
Density of Oversize (t/m3)	2.721	2.676	-	-	-
Field Dry Density (t/m3)	2.090	2.099	-	-	-
Field Moisture Content (%)	3.6	5.2	-	-	-
Assigned Value Report No:	•				
Assigned Value Report Date:					
Maximum Dry Density (t/m3)	2.025	2.038	-	-	-
Adjusted Maximum Dry Density (t/m3)	2.091	2.095	•	-	-
Optimum Moisture Content (%)	11.5	11.9	-	•	-
[Adjusted Optimum Moisture Content (%)	10.1	10.5	•	-	-
M.D.D. Date Tested:	14/03/2017	14/03/2017	-	-	•
APD Sample No. / Date:	-	-	-		-
Apparent Particle Density (t/m3)	-	•	-	-	-
Moisture Ratio (%)	35	50	-		•
Moisture Ratio Specification (If any):	-	*			,
Density Ratio % :	99.9	100.2	•	-	-
Density Ratio Required %:	97.0	97.0			
Degree of Saturation % :		-	•	-	-
Characteristic Value (Density) % :	99.9				
Characteristic Value (D.O.S) % :	•				
Sampling Procedures:	Q050, Q061	••••••			Page 1 of 1
Test Procedures:	Q102A , Q140A , Q141B ,	Q142A , Q143 ,			
~			Not re	elevant	
Nata Accreditation No:	19902				
Laboratory:	Brisbane South				
Accredited for compliance v	with ISO/IEC 17025. The			Not relevant	
treceble to Austrelian/nati	en com document are onal standerde.			Approved Signatory	
				ASCT Doc No. Q63 Rev:1,	21/09/2016

AUSTRAL SOIL AN CONC TEST	IAN ID RETE TING		ASCT Brisbane South Pty PO Box 1232 Park Ride 4/31 Tradelink Road Hi Email: brisbane.south@	Ltor ge QLD 4125 Ilcrest Q 4118 Dasct.com.au		Telephone: Not relevan Mobile Not relevant A.B.N: 73 193 500 4	nt 70	
		RE	PORT OF F	IELD DENS	ITY			
CLIENT: ADDRESS: PROJECT: JOB No.: LOCATION:	See Civil Pty Ltd 24A Ozone Street, 1 Beaudesert Town C 115 MC10/MC20	weed Heads, NSW, 24	86			REPORT NO; LOT NO: REQUEST NO; MATERIAL: MATERIAL SOURCE;	364 SG-005 TR-208 Subgrade Cryna Quarry	
	N/R						N/R	
TESTED BY:	20/04/2017					REPORTED BT:	24/04/2017	
DATE TESTED:	20/04/2017					DATE REPORTED:	24/04/2017	
SAMPLE No.	5467	5468	5469	-	•	-	•	-
LOCATION/CHAINAGE (m)	40404	40426	66	-	-	-	-	-
CONTROL LINE	MC10	MC10	MC20	-	-	-	-	-
OFFSET (m)	3.0	9.6	2.8	- · ·	-	-	-	-
LEVEL OF TEST (m)(RL)	Subgrade	Subgrade	Subgrade	-	-	-	-	-
TEST DEPTH (mm)	200	200	200	-	-	-	-	-
OVERSIZE IEVE SIZE (mm)	37.5	37.5	37.5	-	-	-	-	-
% OVERSIZE	9	10	7	-	-	-		-
DENSITY OF OVERSIZE (Vm3)	2.663	2.678	2.652	-	-	-		-
MOISTURE RATIO (%)	95	94	107	-	-	-	-	-
FIELD DRY DENSITY (Um3)	2.050	2.076	2.029	-	-	-	-	-
FIELD MOISTURE CONTENT (%)	10.0	9.2	10.4	-	-	-	-	-
COMPACTION SAMPLE No.	5467	5468	5469	-	-	-	-	-
DATE MDD AND OMC TESTED	21,04,2017	21.04.2017	21.04.2017	-	-	-	-	-
MAXIMUM DRY DENSITY (Um3)	1.979	2.010	2.002	-	-	-		-
ADJUSTED MAXIMUM DRY DENSITY (Vm3)	2.027	2.063	2.036	-	-	-	-	-
OPTIMUM MOISTURE CONTENT (%)	11.6	10.9	10.5	-	-	-	-	-
ADJUSTED OPTIMUM MOISTURE CONTENT (%)	10.5	9.8	9.8	-		-	-	-
DENSITY RATIO: (%)	103.6	103.3	101.4	-	-			-
CHARACTERISTIC VALUE OF DENSITY RATIO: (%)	101.8			s, da constructo de la composition Al				
TEST PROCEDURES: CALIBRATION DETAILS: DATE 0144A ASSIGNED: LAYER DEPTH (mm) Accredited for compliance with ISO/IEC 1	TEST METHODS 0020, Or C4-2-Cryna N/A 200 17025. The results of the	050, 0061, 0140A, 0143, 0141A NATA Iesis	A, Q142A	Authorised Signatory	Not relevant	ег. 19902		
included in this document are traceable to standards.	o Australian/national	TECHNICAL			Laboratory Name: ASCT I	Brisbane South		
R			RTI 135/06103 - Fil	e 2 - Page 86 of 11	0			



STRAIGHT EDGE CONFORMANCE SHEET

Test Frequency: 1 Per 50m (LHS & RHS) Conformance: Max 25mm Lot No: SG00g (Brisbane Street - Pavement Type A)

	LHS (Turn)	LHS	RHS	RHS (Turn)
MC10				
СН 40390		-7	4	
СН 40440	/	2	6	
MC20				
СН 40	/	2	5	
СН 90		4	3	1
СН 140	1	4	4	/

Signed:

Date: 28/04/17

Not rele

					1519-1· P	Conform	mance Report
Set _{civil}					JJ10-1, D	eaudesert Tov	Lot: SG017
Lot:	SG017			Work Type:	SG	Area:	
Description:	<i>Subgrade Brisbane Street MC10 CH 40380 (l</i>	.HS) to MC20 C	H 110 (RHS)				
	Other Details:			Key Dates:			
	Raised By:	Not relevant		Opened:	15 Jun 2017	Closed:	05 Oct 2017
	Conformed By:			Work St:	15 Jun 2017	Work End:	20 Jun 2017
	Testing Level:	Normal	Reduced	Guaranteed:		Conformed:	05 Oct 2017
<u>Geometry:</u>	No geometry define	ed.					
uantities:					Meas.	Qty E	Eff. Qty
3402.0	1P Subgrade (Provision	treatment Type al Quantity if o	e A in cuttings and in embai dered) (MRS04 Oct 14)	nkments		889	889 m2
hecklists:							
Subgra	de	Sub	gradeBrisbane StreetMC10	CH 40380 (LHS)	to MC20 CH 110	(RHS)	
This lot conforn complete and a	ns in all respects with any non conformance	n the standards s have been act	and requirements specified ioned in accordance with th	in the contract de	ocuments, the lot ements	verification rec	cords are
			Signed:				
			Print Name:			Dat	:e:
				210			

Approved by (signature):

Print Name:

Not relevant

Date: 05/10/17

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

Checklist

Lot:		SG017 Brisban MC10 C	G017 Subgrade Brisbane Street IC10 CH 40380 (LHS) to MC20 CH 110 (RHS)							
Date	Open:	15 Jun	2017 Date Work Starts: 15 Jun 2017 Date Compl:							
	Check	Type:	Description:	Check Verify Appr. NCR						
1	Check	Item	Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS. Ensure DBYD procedures have been carried out prior to commencing work dig permit in place. A copy must be held with the machine operator.	and a						
2	Check	Item	Lot Size							
			MRTS04.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 5000m ² .	1318.5m						
3	Check	Item	Subgrade Fill Material MRTS04 Clause 14.2	NEA 🗆						
			Responsibility: Works Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B.	Subgrade in cutting						
			Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - >7% WPI - <1200 Single Point Soaked CBR - 10%							
			Required Standard (Class B Fill): WPI - 1200-2200 Single Point Soaked CBR - 10%							
4	Hold P	oint	Construct Subgrade in Cuttings MRTS04 Clause 18.3.3.1 & MRTS04.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT 5), Subgrade Treatments Type A or B sh applied as directed.	Ball De Refer to Lat Exolo						
5	Check	Item	Testing of Subgrade in Cuttings MRTS04 Clause 18.3.3.2 & MRTS04.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer							
			Testing of the insitu material in cuttings (other than rock) shall be performe TEST - Material Properties Grading, Atterberg Limits, Single Point Soaked CBR.	ed. Unsuitable treatment directed. testing performed to determine						
			Frequency - 1 per material type.	all admig.						
6	Check	Item	Earthworks Transition from Cut to Fill MRTS04 Clause 18.3.4.1 & 18.3.4.2 Responsibility: Works Supervisor Embankment subgrade shall continue longitudinally up to the line where the subgrade level intercepts the prepared ground surface.	e						
			Construction as a near-grade embankment shall continue for a distance of into the cuttings. Additional foundation testing and preparation at near-gradembankments is required.	10m de						

Civi

Checklist J518-1: Beaudesert Town Centre Bypass



Open: 15 Jur	SG017 Subgrade Brisbane Street MC10 CH 40380 (LHS) to MC20 CH 110 (RHS)					
	n 2017 Date Work Starts: 15 Jun 2017 Date Compl:					
Check Type:	Description:	Check Verify	Appr. NCF			
Check Item	Compaction MRTS04 Table 15.3B - Density Requirements Responsibility: Works Supervisor / Project Engineer					
	TEST - Sand Replacement Criteria - 97% RDD Frequency - 1 per 500m ² , Min 4 per Lot.	Cv=99.8%				
Check Item	Moisture Content MRTS04 Table 15.3C - Moisture Content	8 🗆 🗖				
	Responsibility: Works Supervisor Class A 50 - 80 of OMC - 90 of OMC	Class B 60 Ranges 114%	-124%			
Witness Point Proof Roll Witness Point MRTS04 Clause 18.3.1 & MRTS04.1 Cl Responsibility: Administrator / Works Supervisor / Proj The material at subgrade level shall provide a stable, c no visible vertical movement under the rear axle of a fi a gross mass of not less than 15 tonnes with a single r approved by the Administrator.		.4 neer Irface which displays led water truck with e, or similar vehicle	1			
Check Item	Geometrics MRTS04 Clause 6.2 Responsibility: Works Supervisor / Surveyor Horizontal Tolerances - Edges not adjacent to a structure +250/-50mm	B B See attached re	port.			
	- Edges adjacent to a structure +/-50mm MRTS04 Clause 6.3 Vertical Tolerances +/- 25mm					
Hold Point	Placement of Pavement HOLD POINT 9 MRTS04 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / Project Engi The subgrade shall be constructed and tested to subgrade leve all standard requirements prior to placement of the pavement.	neer al in accordance with	805			
Item No.	Description		Qty			
	Check Item Check Item Witness Point Check Item Hold Point Item No.	Check Item Compaction MRTSO4 Table 15.38 - Density Requirements Responsibility: Works Supervisor / Project Engineer TEST - Sand Replacement Criteria - 97% RDD Frequency - 1 per 500m², Min 4 per Lot. Check Item Moisture Content MRTSO4 Table 15.3C - Moisture Content Responsibility: Works Supervisor Class A 50 - 80 of OMC - 90 of OMC Witness Point Proof Roll Witness Point MRTSO4 Clause 18.3.1 & MRTSO4.1 Clause 13 Responsibility: Administrator / Works Supervisor / Project Engi The material at subgrade level shall provide a stable, dense su no visible vertical movement under the rear axle of a fully load a gross mass of not less than 15 tonnes with a single rear axle approved by the Administrator. Check Item Geometrics MRTSO4 Clause 6.2 Responsibility: Works Supervisor / Surveyor Horizontal Tolerances - Edges not adjacent to a structure +250/-50mm - Edges adjacent to a structure +/-50mm MRTSO4 Clause 6.3 Vertical Tolerances +/- 25mm Placement of Pavement HOLD POINT 9 MRTSO4 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / Project Engi The subgrade shall be constructed and tested to subgrade leve all standard requirements prior to placement of the pavement. Item No. Description	Check Item Compaction MRTSO4 Table 15.38 - Density Requirements Responsibility: Works Supervisor / Project Engineer: TEST - Sand Replacement Criteria - 97% RDD Frequency - 1 per 500m ³ , Min 4 per Lot. Cu = 99, 8% Check Item Moisture Content MRTSO4 Table 15.3C - Moisture Content Responsibility: Works Supervisor Class A 50 e0 GMC Class B 60 Ranges 114% Witness Point Proof Roll Class B 60 Ranges 114% Witness Point Proof Roll Class B 60 Ranges 114% Witness Point Proof Roll Class B 60 Ranges 114% Witness Point Proof Roll Class B 60 Ranges 114% Check Item Seconstitute + Varies Supervisor / Project Engineer Class B 60 Ranges 114% Check Item Gementrics MRTSO4 Clause 6.2 Responsibility: Works Supervisor / Surveyor Horizontal Tolerances + /- 25mm Class 6.3 Sec. Attached Tec. Hold Point Placement of Pavement HOLD POINT 9 MRTSO4 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / Project Engineer The subgrade shall be constructed and tested to subgrade level in accordance with all standard requirements prior to placement of the pavement. Class A 60 Hold Point Placement of Pavement HOLD POINT 9 MRTSO4 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / Project Engineer The subgrade shall be constructed and tested to subgrade level in accordance with all s			

SG017 Subgrade Brisbane Street MC10 CH 4080 (HS) to MC20 CH 110 (RHS) 2em: 15 Jun 2017 Date Work Starts: 15 Jun 2017 Date Compl: Nents	BB		J518-1: Beaudesert Town Centre Bypas
SG017 Subgrade Brisbane Street MC10 Of 44 0380 (LHS) to MC20 CH 110 (RHS) 2em: 15 Jun 2017 Date Work Starts: 15 Jun 2017 Date Compl: ents Responsible Officer Verifying Authority Signature: Date: D			QVC: ITP 0408Subgrad
MCIO OF 40300 (LHS) to MC20 CH 110 (RHS) EEEE: 15 Jun 2017 Date Work Starts: 15 Jun 2017 Date Compl: Tents Responsible Officer Verifying Authority Signature: Date:	SG017 S	jubgrade	
	MC10 Ch	40380 (LHS) to MC20 CH 110 (RHS)	
Signature:	<u>) Den:</u> 15 Jun 2	017 Date Work Starts: 15 Jun 2017 Date Co	<u>mpl:</u>
Responsible Officer Signature: Print Name: Date: Date: Date:	ments		
Responsible Officer Signature: Print Name: Date: Date: Date: Date:			
Responsible Officer Signature: Print Name: Date: Date: Date: Date:			
Signature: Date: Date: Date:		Responsible Officer	Verifying Authority
Print Name:Date: _	Signature:		
deased under Rith	Print Name:	Date:	Date:



AUSTRAL		ASCT Brisbane South Pty						
A SCT SOIL AN		PO Box 1232 Park Ric	Telephone: Not relevant					
CONC	RETE		4/31 Tradelink Road H	MobileNot relevant				
TEST	TING			•		A D NI 72 402 500	170	
			Email: prispane.south(gasct.com.au	and the second se	A.B.N: 73 193 500 4	470	
		R	EPORT OF F	IELD DENS	TY			
JENT:	See Civil Pty Ltd	A STATISTICS	The second second	100 C	1.4	REPORT NO:	588	
DDRESS:	24A Ozone Street, Tv	weed Heads, NSW, 24	486			LOT NO:	SG-017	
ROJECT:	Beaudesert Town Ce	ntre Bypass Project				REQUEST NO:	TR-283	
DB No.:	115					MATERIAL:	Subgrade	
OCATION:	MC20					MATERIAL SOURCE:	Cryna Quarry	
						REPORTED BY:		
ESTED BY:	N/R						N/R	
ATE TESTED:	21/06/2017					DATE REPORTED:	27/06/2017	
MPLE No.	6725	6726	6727			4		2
CATION/CHAINAGE (m)	96	115	129			-	-	-
ONTROL LINE	MC20	MC20	MC20		÷.		100	-
FFSET (m)	6.0	11.0	31.0		-	30		
EVEL OF TEST (m)(RL)	Subgrade	Subgrade	Subgrade		1.1	- P.	1.00	-
EST DEPTH (mm)	200	200	200		÷.	-		
VERSIZE IEVE SIZE (mm)	37.5	37.5	37.5				1.4.1	
OVERSIZE	12	10	9	1.141		- 13-	+	
ENSITY OF OVERSIZE (t/m3)	2.698	2.722	2.682					
OISTURE RATIO (%)	124	119	114	l cec	÷.	-	-	
ELD DRY DENSITY (Vm3)	2.035	2.055	2.042	(L) (L)	-	2.0	1	1.1.1
ELD MOISTURE CONTENT (%)	12.1	10.6	11.3		1.1			-
OMPACTION SAMPLE No.	6725	6726	6727					
ATE MDD AND OMC TESTED	24/06/2017	24/06/2017	24/06/2017	1.000	- N.	3 to 1		-÷
AXIMUM DRY DENSITY (Um 3)	1.976	1.988	1.949		÷		- ÷	
DJUSTED MAXIMUM DRY DENSITY (1/m 3)	2.041	2.045	2.000			•		-
PTIMUM MOISTURE CONTENT (%)	11.1	9.9	10.9	Cê 1	-	ж.	-	
DJUSTED OPTIMUM MOISTURE CONTENT (%)	9.8	8.9	9.9	A		1-	-	
ENSITY RATIO: (%)	99.7	100.5	102.1		-	-	-	-
HARACTERISTIC VALUE OF DENSITY RATIO: (%)	99.8		E. S. Suder ages 10.	a barter and a second sec	a concentration of the second			

TEST PROCEDURES: CALIBRATION DETAILS; DATE Q144A ASSIGNED: LAYER DEPTH (mm)

, ind

NATA

Accredited for compliance with ISO/IEC 17025. The results of the tests included in this document are traceable to Australian/national standards.

NA

200

ASCT QLD Doc No. Q59 Rev No. 0 02-09-16

55 Not relevant

NATA Accreditation Number: 19902 Laboratory Name: ASCT Brisbane South

Authorised Signatory

AUSTRALI SOIL AN A.S.C.T. CONCL TEST	Laboratory: ASCT Brisbane South Postal Address: PO Box 1232 Park Ridge QLD 4125 Address: 4/31 Tradelink Road Hillcrest Q 4118 Mobile: ^{Not relevant} Email: brisbane.south@asct.com.au					
	Density D	A.B.N.: 73	193 500 470			
	Density R	eport - Sand Rep	lacement			
Client: Sec Address: 24/ Project: Be Component: MC Lot No: SG	e Civil Pty Ltd A Ozone Street, Twe audesert Town Cent :10 -017	ed Heads, NSW, 2486 tre Bypass Project		Job No: * Report No: * Report Date: * Tested By: * Test Date: * Test Request No: *	115 589 27/06/2017 _{V/R} 21/06/2017 FR-283	
Sample No.:	6728					
Material Source:	Existing	•				
Material Type:	Subgrade		· · · ·			
Client Reference:	TR-283					
Control Line / Road:	MC10	La contra de la		1		
Chainage:	40411	(••• · · · · · · · · · · · · · · · · ·	•			
Offset:	-15	0.0	•••			
Test Level:	Subgrade			1		
Test Depth:	150	*	•		•	
Compactive Effort:	Standard				the second second	
Oversize Sieve Size (mm):	19.0					
Percentage of Oversize Dry (%):	-		-			
Eicld Day Density (t/m2)	1 000			-		
Field Moisture Content (%)	1.020			-		
Assigned Value Report No:	10.0		-	in the second second		
Assigned Value Report Date:				and the second s		
Maximum Dry Density (t/m3)	1.832					
Adjusted Maximum Dry Density (t/m3)				-		
Optimum Moisture Content (%)	15.0					
Adjusted Optimum Moisture Content (%)	.					
M.D.D. Date Tested:	24/06/2017					
APD Sample No. / Date:		· · · · · · · · · · · · · · · · · · ·	•			
Apparent Particle Density (t/m3)		-			4	
Moisture Ratio (%)	102					
Moisture Ratio Specification (If any):	à.	×		×	4	
Density Ratio % :	99.6					
Density Ratio Required % :	97.0					
Degree of Saturation % :			1 1 A	•		
Characteristic Value (Density) % :						
Characteristic Value (D.O.S) % :	-		20-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		Dana d -d	
NATA Nata Accreditation No: 199 Laboratory: Bris Accredited for compliance with results of the tests included in trespetible to Australian/Rational	102 , Q140A , Q141B , 102 102 102 105 105 105 105 105 105 105 105	Q142A	Not rel	N/R Approved Signatory	/ age 10/	

Project:

Beaudesert Town Centre Bypass

Surveyed:	Not relevant
Surveyor:	
Date:	20/06/17
QA File/s:	170620 ASB SG.FLD



 Dut-of-tolerance results are highlighted Red/Blue and Bold for ΔRL (+/-25mm) as per MRTS04 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the nearest centimetre.

ΔRL

Upper Tolerance : 0.025 Lower Tolerance : -0.025

Material Type: Bare Earth Control Line: MC10 AND 20

Point No.	Chainage	Offset from CL (-Left/+Right)	Easting	Northing	Asbuilt RL	Design RL	ΔRL (-Low/+High)	Out of tolerance (Low/High)	Comment
AUTO1641	110	0.21	499370.167	6905216.760	55.988	56.012	-0.023		
AUTO1642	110	4.99	499374.324	6905219.117	56.189	56.203	-0.014		
AUTO1643	110	6.41	499375.564	6905219.800	56.270	56.259	0.010		
AUTO1624	110	10.50	499379.099	6905221.864	56.328	56.321	0.007		
AUTO1623	110	15.42	499383.360	6905224.327	56.176	56.175	0.001		14
AUTO1640	120	1.44	499365.164	6905225.638	55.857	55.855	0.002		in c
AUTO1639	120	5.06	499367.805	6905228.114	55.992	55.999	-0.007		
AUTO1638	120	6.46	499368.863	6905229.031	56.039	56.057	-0.018		2
AUTO1625	120	13.89	499374.333	6905234.059	56.277	56.285	-0.009		U
AUTO1626	120	22.10	499380.364	6905239.632	56.033	56.035	-0.002		
AUTO1637	130	9.82	499362.179	6905239.273	55.800	55.797	0.002		
AUTO1628	130	25.08	499370.848	6905251.841	56.099	56.110	-0.011		
AUTO1627	130	35.01	499376.464	6905260.022	55.830	55.821	0.008		
AUTO1630	40400	-20.91	499373.683	6905274.488	55.681	55.676	0.005		
AUTO1631	40400	-15.45	499368.598	6905276.483	55.758	55.750	0.008		
AUTO1629	40410	-21.62	499370.612	6905264.838	55.909	55.900	0.010		м
AUTO1632	40410	-15.51	499364.901	6905267.006	55.746	55.753	-0.007		С
AUTO1633	40420	-17.37	499362.908	6905257.083	55.730	55.721	0.009		1
AUTO1634	40420	-13.02	499358.892	6905258.753	55.609	55.613	-0.004		0
AUTO1635	40430	-19.45	499361.032	6905246.948	55.701	55.695	0.005		
AUTO1636	40430	-18.51	499360.169	6905247.323	55.796	55.785	0.011		

Points Tested :	21						
Within Tolerance :	21	100.0%					
Too High :	0	0.0%					
Too Low :	0	0.0%					
Maximum Conformance:	0.011						
Minimum Conformance:	-0.023						
Average Conformance:	-0.001						
Standard Deviation :	0.010						
					J518-1: Be	Confori eaudesert Tov	mance Report vn Centre Bypass
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							Lot: SG018
Lot:	SG018			Work Type:	SG	Area:	
Description:	<i>Subgrade Brisbane Street MC10 CH 40300-4t</i>	0380 (LHS)					
	Other Details:			Key Dates:			
	Raised By:	N/R		Opened:	23 Jun 2017	Closed:	05 Oct 2017
	Conformed By:			Work St:	23 Jun 2017	Work End:	26 Jun 2017
	Testing Level:	✓ Normal	Reduced	Guaranteed:		Conformed	05 Oct 2017
<u>Geometry:</u>	No geometry define	d.					
uantities:					Meas.	Qty E	ff. Qty
3402.01	P Subgrade (Provision	treatment Type al Quantity if o	e A in cuttings and in emb dered) (MRS04 Oct 14)	pankments	1,3:	18.5	1,318.5 m2
hecklists:							
Subgrad	le	Sub	gradeBrisbane StreetMC	LO CH 40300-40380	(LHS)		
his lot conform complete and ar	is in all respects with ny non conformances	the standards have been act	and requirements specific ioned in accordance with	ed in the contract do the contract require	ocuments, the lot ements	t verification rec	ords are
			Signed	i:			
			Print Nam	e:		Dat	e:

Approved by (signature):

Print Name:

N/R

Not relevant

Date: 05/10/17

J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

<u>en:</u> 23 Jun 2 heck Type: heck Item	2017 <u>Date Work Starts:</u> 23 Jun 2017 <u>Date Compl:</u> Description: Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS.	Check	Verify	Арр	r. P	2-
heck Type: neck Item	Description: Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS.	Check	Verify	Арр	r. 1	
neck Item	Safety Management Responsibility: Works Supervisor / Project Engineer Ensure all personnel signed onto daily pre-start and applicable SWMS.	2				ICK
	Ensure DBYD procedures have been carried out prior to commencing work and a dig permit in place. A copy must be held with the machine operator.					
neck Item	Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 5000m ² .	889 B	D M M			
neck Item	Subgrade Fill Material MRTS04 Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - >7% WPI - <1200 Single Point Soaked CBR - 10% Required Standard (Class B Fill): WPI - 1200-2200 Single Point Soaked CBR - 10%	MA	🗆 de ir	Cuttin	9	
old Point	Construct Subgrade in Cuttings MRTS04 Clause 18.3.3.1 & MRTS04.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT 5), Subgrade Treatments Type A or B shall be applied as directed.	B Refer	to L	ot Exe	OIO	
neck Item	Testing of Subgrade in Cuttings MRTS04 Clause 18.3.3.2 & MRTS04.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer Testing of the insitu material in cuttings (other than rock) shall be performed. Un TEST - Material Properties Grading, Atterberg Limits, Single Point Soaked CBR.No furthur testing Subgrade Suitabil Subgrade Suitabil Subgrade SuitabilFrequency - 1 per material type.	Isuitad	Be tr imed	eatment to clete	direct	red.
neck Item	Earthworks Transition from Cut to Fill MRTS04 Clause 18.3.4.1 & 18.3.4.2 Responsibility: Works Supervisor Embankment subgrade shall continue longitudinally up to the line where the subgrade level intercepts the prepared ground surface. Construction as a near-grade embankment shall continue for a distance of 10m into the cuttings. Additional foundation testing and preparation at near-grade embankments is required.	B				
	eck Item d Point eck Item eck Item	ack Item Lot Size MRTSO4.1 Clause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 5000m². ack Item Subgrade Fill Material MRTSO4 Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade Fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% Pt - >7% WPI - 41200 Single Point Soaked CBR - 10% Required Standard (Class B Fill): WPI - 1200-2200 Single Point Soaked CBR - 10% Required Standard (Class B Fill): WPI - 1200-2200 Single Point Soaked CBR - 10% d Point Construct Subgrade in Cuttings MRTSO4 Clause 18.3.3.1 & MRTSO4.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT 5), Subgrade Treatments Type A or B shall be applied as directed. eck Item Testing of Subgrade in Cuttings MRTSO4 Clause 18.3.3.2 & MRTSO4.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer Testing of Fuer Instrumental in cuttings (other than rock) shall be performed. If a subgrade I instrumental in cuttings (other than rock) shall be performed. If the subgrade level limercepts the prepared for the rock shall be performed. If the subgrade level intercepts the	ack Item Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer Responsibility: Works Supervisor / Project Engineer Subgrade Fill Material MAT MRTS04 Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade Fill Material Subgrade Fill Material MAT MAT Responsibility: Works Supervisor / Project Engineer Subgrade Fill Material Subgrade Fill Material MAT Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - >7% WPI - 41200 Single Point Soaked CBR - 10% Required Standard (Class B Fill): WPI - 41200 Single Point Soaked CBR - 10% Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT 5), Subgrade Treatments Type A or B shall be applied as directed. If Standard Supervisor eck Item Testing of Subgrade in Cuttings Not Wrt 50 A clause 18.3.3.2 & MRTS04.1 Clause 13.6 Responsibility: Works Supervisor Not Wrt 50 A clause 18.3.3.2 & MRTS04.1 Clause 13.6 Responsibility: Works Supervisor Not Wrt 50 A clause 18.3.3.2 & MRTS04.1 Clause 13.6 Responsibility: Works Supervisor Not Wrt 50 A clause 18.3.3.2 & MRTS04.1 Clause 13.6 <td< td=""><td>ack Item Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer B84 m² The maximum lot size shall not exceed 5000m². B84 m² ack Item Subgrade Fill Material MA MRTS04 Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade Fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): WA Image: Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - 27% WP1 - 41200 Single Point Soaked CBR - 10% Required Standard (Class A Fill): WP1 - 20200 Single Point Soaked CBR - 10% Image: Class A Fill): MRTS04 Clause 18.3.3.1 & MRTS04.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT 5), Subgrade Treatments Type A or B shall be applied as directed. eck Item Testing of Subgrade in Cuttings Image: Supervisor REST - Material Properties Not Full Properties Grading, Atterberg Limits, Single Point Soaked CBR. Not Full Properties Grading, Atterberg Limits, Single Point Soaked CBR. Not Full Properties Grading, Atterberg Limits, Single Point Soaked CBR. Not Full Properties</td><td>ack Item Lot Size MRTSO4. Iclause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 5000m². S84 m² ack Item Subgrade Fill Material MRTSO4 Clause 14.2 Responsibility: Vorks Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. MA4 Image: Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): WPI - s1200 Single Point Soaked CBR - 10% MA4 Image: Class A Fill): WPI - 1200 - 200 Single Point Soaked CBR - 10% d Point Construct Subgrade in Cuttings MRTSO4 Clause 18.3.3.1 & MRTSO4.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT S), Subgrade Treatments Type A or B shall be applied as directed. eck Item Testing of Subgrade in Cuttings MRTSO4 Clause 18.3.3.2 & MRTSO4.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer Testing of Subgrade in Cuttings (MRTSO4 Clause 18.3.3.2 & MRTSO4.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer Testing of the instu material in cuttings (other than rock) shall be performed. Unsuitable the tertment of the instu material in cuttings (other than rock) shall be performed. 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Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - 57% WPI - 1200 Single Point Soaked CBR - 10% MA Image: Class A Fill): % Project Engineer Subgrade in Cuttings d Point Construct Subgrade in Cuttings MRTSOA Clause 13.3.3.1 & MRTSOA! Clause 13.5 Responsibility: Work Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLP POINT S), Subgrade Treatments Type A or B shall be applied as directed. Image: Point Subgrade in Cuttings MRTSOA Clause 13.3.3.2 & MRTSOA! Clause 13.6 Responsibility: Work Supervisor. eck Item Testing of Subgrade in Cuttings MRTSOA Clause 13.3.1 & MRTSOA! I Clause 13.6 Responsibility: Work Supervisor. Image: Point Subgrade the Cutto Fill MRTSOA Clause 13.3.4.1 & M.3.4.2 Responsibility: Work Supervisor Entantment subgrade shall continue longitudinally up to the line where the subgrade tend increding and preparation at near-grade embankments is frequired.</td></td<>	ack Item Lot Size MRTS04.1 Clause 1.2 Responsibility: Project Engineer B84 m ² The maximum lot size shall not exceed 5000m ² . B84 m ² ack Item Subgrade Fill Material MA MRTS04 Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade Fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): WA Image: Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - 27% WP1 - 41200 Single Point Soaked CBR - 10% Required Standard (Class A Fill): WP1 - 20200 Single Point Soaked CBR - 10% Image: Class A Fill): MRTS04 Clause 18.3.3.1 & MRTS04.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT 5), Subgrade Treatments Type A or B shall be applied as directed. eck Item Testing of Subgrade in Cuttings Image: Supervisor REST - Material Properties Not Full Properties Grading, Atterberg Limits, Single Point Soaked CBR. Not Full Properties Grading, Atterberg Limits, Single Point Soaked CBR. Not Full Properties Grading, Atterberg Limits, Single Point Soaked CBR. Not Full Properties	ack Item Lot Size MRTSO4. Iclause 1.2 Responsibility: Project Engineer The maximum lot size shall not exceed 5000m ² . S84 m ² ack Item Subgrade Fill Material MRTSO4 Clause 14.2 Responsibility: Vorks Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. MA4 Image: Clause 14.2 Responsibility: Works Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): WPI - s1200 Single Point Soaked CBR - 10% MA4 Image: Class A Fill): WPI - 1200 - 200 Single Point Soaked CBR - 10% d Point Construct Subgrade in Cuttings MRTSO4 Clause 18.3.3.1 & MRTSO4.1 Clause 13.5 Responsibility: Works Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLD POINT S), Subgrade Treatments Type A or B shall be applied as directed. eck Item Testing of Subgrade in Cuttings MRTSO4 Clause 18.3.3.2 & MRTSO4.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer Testing of Subgrade in Cuttings (MRTSO4 Clause 18.3.3.2 & MRTSO4.1 Clause 13.6 Responsibility: Works Supervisor / Project Engineer Testing of the instu material in cuttings (other than rock) shall be performed. Unsuitable the tertment of the instu material in cuttings (other than rock) shall be performed. Unsuitable the tertment Subgrade Subgrade shall Continue longitudinally up to the line where the subgrade level intercepts the prepared ground surface. construction as a near-grade embankment shall continue for a distance of 10m into the cuttings Additional foundation testing and preparation at near-grade embankments is required.	ek Item Let Size MRTSOA I. Clause 1.2 Responsibility: Project Engineer The maximum tot size shall not exceed 5000m ² . 889 m ² eck Item Subgrade Fill Material MRTSOA Clause 1.4.2 Responsibility: Work Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. MA Image: Clause 1.4.2 Responsibility: Work Supervisor / Project Engineer Subgrade fill material shall be General Fill Class A or Class B. Required Standard (Class A Fill): % Passing 0.075mm Sieve - 15-30% PI - 57% WPI - 1200 Single Point Soaked CBR - 10% MA Image: Class A Fill): % Project Engineer Subgrade in Cuttings d Point Construct Subgrade in Cuttings MRTSOA Clause 13.3.3.1 & MRTSOA! Clause 13.5 Responsibility: Work Supervisor If a subgrade treatment was directed by the Administrator (refer to Road Excavation Lot - HOLP POINT S), Subgrade Treatments Type A or B shall be applied as directed. Image: Point Subgrade in Cuttings MRTSOA Clause 13.3.3.2 & MRTSOA! Clause 13.6 Responsibility: Work Supervisor. eck Item Testing of Subgrade in Cuttings MRTSOA Clause 13.3.1 & MRTSOA! I Clause 13.6 Responsibility: Work Supervisor. Image: Point Subgrade the Cutto Fill MRTSOA Clause 13.3.4.1 & M.3.4.2 Responsibility: Work Supervisor Entantment subgrade shall continue longitudinally up to the line where the subgrade tend increding and preparation at near-grade embankments is frequired.



J518-1: Beaudesert Town Centre Bypass

QVC: ITP 0408Subgrade

<u>ot:</u>	SG018 Brisban MC10 C	Subgrade e Street H 40300-40380 (LHS)	
Date Open:	23 Jun	2017 Date Work Starts: 23 Jun 2017 Date Compl:	
Chec	k Type:	Description:	Check Verify Appr. NCR
7 Checl	k Item	Compaction MRTS04 Table 15.3B - Density Requirements Responsibility: Works Supervisor / Project Engineer TEST - Sand Replacement Criteria - 97% RDD Frequency - 1 per 500m ² , Min 4 per Lot.	Cv=100.3%
8 Checl	k Item	Moisture Content MRTS04 Table 15.3C - Moisture Content Responsibility: Works Supervisor Class A 50 - 80 of OMC - 90 of OMC	Class B 60 Ranges 103%-109%
9 Witne	ess Point	Proof Roll Witness Point MRTS04 Clause 18.3.1 & MRTS04.1 Clause 13.4 Responsibility: Administrator / Works Supervisor / Project Engineer The material at subgrade level shall provide a stable, dense surface wh no visible vertical movement under the rear axle of a fully loaded wate a gross mass of not less than 15 tonnes with a single rear axle, or simil approved by the Administrator.	hich displays er truck with ilar vehicle
10 Checl	k Item	Geometrics MRTS04 Clause 6.2 Responsibility: Works Supervisor / Surveyor Horizontal Tolerances - Edges not adjacent to a structure +250/-50mm - Edges adjacent to a structure +/-50mm	B B See attached report
11 Hold	Point	MRTS04 Clause 6.3 Vertical Tolerances +/- 25mm Placement of Pavement HOLD POINT 9 MRTS04 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / Project Engineer The subgrade shall be constructed and tested to subgrade level in acco	ordance with
Item	n No.	Description	Qty

×

		J518-1: Beaudesert Town Centre Bypas
		QVC: ITP 0408Subgrad
SG018 S Brisbane MC10 CH Open: 23 Jun 2	ubgrade Street I 40300-40380 (LHS) 017 <u>Date Work Starts:</u> 23 Jun 2017 <u>Date -</u>	Compl:
iments		
Cianatura	Responsible Officer	Verifying Authority
Print Name:	Date:	Date:



A.S.C.T. SOIL AN CONC TEST	A.S.C.T. SOIL AND CONCRETE TESTING		PO Box 1232 Park Ridge QLD 4125 4/31 Tradelink Road Hillcrest Q 4118			Telephone: ^{Not relevant} Mobile ^{Not relevant}		
			PORT OF		A.B.N. 73 193 500 4	470		
CLIENT: ADDRESS: PROJECT: IOB.No.: LOCATION:	See Civil Pty Ltd 24A Ozone Street, To Beaudesert Town Ce 115 Brisbane St CH:4030	weed Heads, NSW, 2 entre Bypass Projec 0-40380 (LHS)	2486 t	ILLO DENO		REPORT NO: LOT NO: REQUEST NO: MATERIAL: MATERIAL SOURCE:	622 SG-018 TR-290 Subgrade Cryna Quarry	
TESTED BY: DATE TESTED:	V/R 26/06/2017					REPORTED BY: DATE REPORTED:	N/R 30/06/2017	
SAMPLE No.	6816	6817			-			
OCATION/CHAINAGE (m)	40324	40360			-	-	1	
ONTROL LINE	MC10	MC10	121			1	-	
FSET(LHS) (m)	2.8	0.1	•				i i i i i i i i i i i i i i i i i i i	
EVEL OF TEST (m)(RL)	Subgrade	Subgrade					0.00	
EST DEPTH (mm)	200	200			1			
VERSIZE IEVE SIZE (mm)	37.5	37.5			4	1 1 2 1		
OVERSIZE	8	9						1 3
ENSITY OF OVERSIZE (Vm3)	2.677	2.691						
OISTURE RATIO (%)	103	109				1	_	
ELD DRY DENSITY (t/m3)	2.078	2.119		1 A A A A A A A A A A A A A A A A A A A	14		2.	
IELD MOISTURE CONTENT (%)	10.4	9.6						
OMPACTION SAMPLE No.	6816	6817						
ATE MDD AND OMC TESTED	27/06/2017	27/06/2017		- E -			4	
AXIMUM DRY DENSITY (t/m3)	2.028	2.052	- 2					1
DJUSTED MAXIMUM DRY DENSITY (1/m3)	2.070	2.098			1			
PTIMUM MOISTURE CONTENT (%)	11.0	9.7	4					
DJUSTED OPTIMUM MOISTURE CONTENT (%)	10.1	8.8		· · · · · · · · · · · · · · · · · · ·				1
ENSITY RATIO: (%)	100.4	101.0		-				5
HARACTERISTIC VALUE OF DENSITY RATIO: (%)	100.3				£	a harden and a second and		1 - 1 - 1
EST PROCEDURES: ALIBRATION DETALS: ATE 0144A ASSIGNED: VYER DEPTH (mm)	TEST METHODS Q020, Q05 C4-2-Cryna N/A 200	0, Q061, Q140A, Q143, Q14	11A, Q142A	Authorised Signatory -	Not relevant	-		

Accredited for compliance with ISO/IEC 17025. The results of included in this document are traceable to Australian/national standards.

ASCT QLD Doc No. Q59 Rev No. 0 02-09-16

TECHNICAL

Laboratory Name: ASCT Brisbane South

AUSTRAL A.S.C.T. SOIL AN CONC	IAN ID RETE	Laboratory: / Postal Address: / Address: / Mobile: [/]	ASCT Brisbane Sou PO Box 1232 Park R 4/31 Tradelink Road	uth Ridge QLD 4125 Hillcrest Q 4118			
TEST	TING						
7	in, G	Email: r	prispane.soutn@asc	t.com.au			
		A.B.N.: 7	73 193 500 470				
	Density I	Report - Sand Re	placement				
Client: Se Address: 24 Project: Be Component: Me Lot No: SC	ee Civil Pty Ltd A Ozone Street, Tv eaudesert Town Ce C10 G-018	veed Heads, NSW, 2486 ntre Bypass Project		Job No Report No Report Date Tested By Test Date Test Request No	: 115 : 623 : 30/06/2017 : N/R : 26/06/2017 : TR-290		
Sample No.:	6818	6819					
Material Source:	Existing	Existing			•		
Material Type:	Subgrade	Subgrade	· · ·		•		
Client Reference:	TR-290	TR-290					
Control Line / Road:	MC10	MC10	<u>.</u>	•	· · ·		
Chainage:	40308	40356	· ·		2		
Offset (LHS) (m)	4.7	9.7		· · · · ·			
Test Level:	Subgrade	Subgrade					
Test Depth:	150	150		· · · · · ·	1		
Compactive Effort:	Standard	Standard			÷		
Oversize Sieve Size (mm):	19.0	37.5	· ·	•	÷		
Percentage of Oversize Dry (%):				·	(A)		
Density of Oversize (t/m3)	-			· · ·			
Field Dry Density (t/m3)	1.751	1.953					
Field Moisture Content (%)	8.1	11.1	•	· · · ·	•		
Assigned Value Report No:							
Assigned Value Report Date:	•		line and				
Maximum Dry Density (t/m3)	1.764	1.946		·			
Adjusted Maximum Dry Density (t/m3)	<u> </u>		•		•		
Optimum Moisture Content (%)	16.0	11.3					
Adjusted Optimum Moisture Content (%)	4	1					
M.D.D. Date Tested:	27/06/2017	27/06/2017		· · · ·			
APD Sample No. / Date:			•				
Apparent Particle Density (t/m3)	-	· ·					
Moisture Ratio (%)	51	98					
Moisture Ratio Specification (If any):	4		-				
Density Ratio % :	99.2	100.4		· · · · · · · · · · · · · · · · · · ·			
Density Ratio Required % :	97.0	97.0	-	the second se			
Degree of Saturation % :	•			•	•		
Characteristic Value (Density) % :	99.1						
Characteristic Value (D.O.S) % :	<u>6</u>		11-19-1-1				
NATA Nata Accreditation No: 199 Laboratory: Brit	020 , Q061 02A , Q140A , Q141B , 902 sbane South	Q142A , Q143 ,	Not	relevant	Page 1 of 1		
Accredited for compliance with TECHNICAL COMPETENCE COMPETENCE COMPETENCE COMPETENCE	n ISO/IEC 17025. The this document are el standards.			N/R Approved Signatory ASCT Doc No. Q63 Rev:1	, 21/09/2016		

SUBGRADE LEVEL REPORT - 812 Below FSL

Project: Beaudesert Town Centre Bypass

Surveyed:	Not relevant
Surveyor:	
Date:	26/06/17
QA File/s:	170626 ASB SG.FLD

 Out-of-tolerance results are highlighted Red/Blue and Bold for ARL (+/-25mm) as per MRTS04 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the nearest centimetre.

ΔRL

Upper Tolerance : 0.025 Lower Tolerance : -0.025

Point No.	Chainage	Offset from CL (-Left/+Right)	Easting	Northing	Asbuilt RL	Design RL	ΔRL (-Low/+High)	Out of tolerance (Low/High)	Comment
AUTO1638	40310	-8.12	499393.241	6905363.866	55.576	55.585	-0.008	1	
AUTO1639	40310	-7.02	499392.234	6905364.322	55.671	55.678	-0.007		
AUTO1640	40310	-3.44	499388.813	6905365.374	55.800	55.787	0.014		
AUTO1641	40310	-0.03	499385.601	6905366.516	55.867	55.889	-0.022		
AUTO1637	40320	-7.02	499389.013	6905354.880	55.598	55.586	0.012		
AUTO1636	40320	-3.48	499385.611	6905355.859	55.697	55.689	0.007		
AUTO1635	40320	-0.04	499382.382	6905357.057	55.781	55.793	-0.012		
AUTO1634	40330	-7.03	499385.639	6905345.269	55.492	55.486	0.007		
AUTO1633	40330	-3.49	499382.343	6905346.559	55.604	55.595	0.010		
AUTO1632	40330	-0.08	499379.120	6905347.668	55.679	55.697	-0.017		
AUTO1627	40340	-8.67	499383.779	6905335.334	55.305	55.285	0.021		
AUTO1628	40340	-6.97	499382.149	6905335.822	55.406	55.393	0.013		
AUTO1629	40340	-3.49	499378.883	6905337.037	55.491	55.498	-0.007		
AUTO1630	40340	0.02	499375.564	6905338.191	55.578	55.603	-0.025		
AUTO1631	40340	1.21	499374.457	6905338.622	55.620	55.638	-0.018		
AUTO1626	40350	-9.13	499380.702	6905325.697	55.227	55.214	0.013		
AUTO1625	40350	-6.97	499378.671	6905326.417	55.316	55.297	0.019		
AUTO1624	40350	-3.52	499375.444	6905327.658	55.408	55.401	0.007		
AUTO1623	40350	-0.07	499372.201	6905328.834	55.520	55.504	0.015		
AUTO1622	40350	2.66	499369.676	6905329.854	55.601	55.587	0.014		
AUTO1617	40360	-9.46	499377.542	6905316.310	55.154	55.152	0.002		
AUTO1621	40360	-7.08	499375.258	6905317.000	55.213	55.199	0.014		
AUTO1620	40360	-3.46	499371.890	6905318.329	55.317	55.307	0.010		
AUT01619	40360	0.02	499368.612	6905319.489	55.407	55.411	-0.004		
AUTO1618	40360	3.42	499365.421	6905320.670	55.485	55.506	-0.021		
AUTO1616	40370	-10.06	499374.498	6905306.591	55.209	55.200	0.009		
AUT01615	40370	-6.97	499371.596	6905307.639	55.258	55.244	0.014		
AUT01614	40370	-3.50	499368.338	6905308.839	55.278	55.279	-0.001		
AUTO1613	40370	0.01	499365.101	6905310.198	55.308	55.315	-0.007		
AUTO1612	40370	3.39	499361.906	6905311.319	55.340	55.348	-0.008		
Points Tested :		30							
Within Toleranc	e :	30	100.0%						
Too High :		0	0.0%						
Too Low :		0	0.0%						
Maximum Confe	ormance:	0.021	. Abier						
Minimum Confe	ormance:	-0.025							
Average Confor	mance:	0.001							
Standard Deviat	ion :	0.014							

Material Type: Bare Earth Control Line: MC10

					1010 1. D	conton	un Contro Dura
Set					J218-1: В	eaudesert To	I ot: SC022
Civil	56022			Work Type:	SG	Area:	
Description:	Subgrade Brisbane Street MC20 CH 31-120 (.	RHS)					
	Other Details:			Key Dates:			
	Raised By:	N/R		Opened:	14 Jul 2017	Closed:	05 Oct 2017
	Conformed By:			Work St:	14 Jul 2017	Work End:	21 Jul 2017
	Testing Level:	✓ Normal	Reduced	Guaranteed:		Conformed	: 05 Oct 2017
Geometry:	No geometry define	ed.					
Quantities:					Meas.	Oty	Eff. Qty
3402.0	1P Subgrade (Provision	treatment Typ	e A in cuttings and in em ordered) (MRS04 Oct 14	nbankments 4)	1,0	23.3	1,023.3 m2
Checklists:							
Subgra	de	Su	bgradeBrisbane StreetMC	C20 CH 31-120 (RHS)			
Subgra	de	Su	bgradeBrisbane StreetMC	C20 CH 31-120 (RHS)			
This lot conforn complete and a	ns in all respects with any non conformance	n the standards s have been ac	s and requirements specin tioned in accordance wit	ified in the contract do th the contract require ed:	ocuments, the lo ements	t verification re	cords are
This lot conform complete and a	ns in all respects with ny non conformance	n the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nam	fied in the contract do th the contract require ed: me:	ocuments, the looments	ot verification re	cords are te:
This lot conform complete and a	ns in all respects with ny non conformance	n the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan	ed: Not relevant	ocuments, the lo	ot verification re	cords are te:
This lot conform complete and a	ns in all respects with any non conformance	n the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur	re):	ocuments, the lo	t verification re	cords are
This lot conform complete and a	ns in all respects with ny non conformance	n the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): Not relevant me:	perments, the logements	nt verification re	te:
This lot conform complete and a	ns in all respects with ny non conformance	n the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): Not relevant me:	pocuments, the logements	Da	te:
This lot conform complete and a	ns in all respects with any non conformance	n the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): Not relevant me:	perments, the logements	Da	te:
This lot conform complete and a	ns in all respects with any non conformance	n the standards s have been ac	s and requirements speci tioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): Mot relevant me:	pocuments, the logements	nt verification re	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): Mot relevant me:	perments, the logements	nt verification re	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): me: Not relevant me:	pocuments, the logements	Da	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): Mot relevant me:	pocuments, the logements	Da	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	fied in the contract do th the contract require ed: me: Not relevant me: Not relevant	pocuments, the logements	Da	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	fied in the contract do th the contract require ed: me: Not relevant me:	pocuments, the logements	nt verification re	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	fied in the contract do th the contract require ed: me: Not relevant me:	pocuments, the logements	nt verification re	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	re): me: Not relevant me:	pocuments, the logements	Da	te:
This lot conform complete and a	ns in all respects with	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	fied in the contract de th the contract require ed: me: Not relevant me:	pocuments, the logements	Da	te:
This lot conform complete and a	ns in all respects with any non conformance	h the standards s have been ac	s and requirements speci ctioned in accordance wit Signe Print Nan Approved by (signatur Print Nan	fied in the contract de th the contract require ed: me: Not relevant me: Not relevant	pocuments, the logements	Da	cords are te:

J518-1: Beaudesert Town Centre Bypass

Checklist: ITP 0408: Subgrade

<u>_n</u>	Brisba MC20	ane Street CH 31-120 (RH	IS)						
	Date Op	pen: 14 Jul 2017	Date Work Started:	14 Jul 2017	Date Work Con	mplete:			
	Check Type:	Description:				Check	Verify	Appr.	NCR
	Check Item	Safety Manager Responsibility: W Ensure all person Ensure DBYD pro dig permit in place	ment orks Supervisor / Projec nel signed onto daily pr cedures have been carr e. A copy must be held	t Engineer e-start and applic ied out prior to co with the machine	able SWMS. ommencing work a operator.	ind a			
	Check Item	Lot Size MRTS04.1 Clause Responsibility: Pr The maximum lot	1.2 oject Engineer size shall not exceed 5	000m².		Ø 1, 02	0 3.3 m ²		
	Check Item	Subgrade Fill M MRTS04 Clause 1 Responsibility: W Subgrade fill mat Required Stand % Passing 0.075 PI - >7% WPI - <1200 Single Point Soak Required Stand WPI - 1200-2200 Single Point Soak	laterial 4.2 orks Supervisor / Projec erial shall be General Fi lard (Class A Fill): mm Sieve - 15-30% ed CBR - 10% lard (Class B Fill): ed CBR - 10%	t Engineer Il Class A or Class	В.	NHA Subgrad	le in (Cutting	
	Hold Point	Construct Subg MRTS04 Clause 1 Responsibility: W If a subgrade tre Excavation Lot applied as directed	rade in Cuttings 8.3.3.1 & MRTS04.1 Cla orks Supervisor atment was directed by - HOLD POINT 5), Su	ause 13.5 the Administrato ibgrade Treatmer	r (refer to Road Its Type A or B sha	B) Refes	- to Lo	t Exora	3
	Check Item	Testing of Subg MRTS04 Clause 1 Responsibility: W Testing of the ins TEST - Material F Grading, Atterber Frequency - 1 pe	grade in Cuttings 8.3.3.2 & MRTS04.1 Cla orks Supervisor / Project itu material in cuttings Properties g Limits, Single Point S r material type.	ause 13.6 ct Engineer (other than rock) oaked CBR.	shall be performe	d. No fur determin Unsuitab	BD ther te: e subgr e treat	sting pote ade suite ment diren	inmed ibility. cted.
	Check Item	Earthworks Tra MRTS04 Clause 1 Responsibility: W Embankment sub subgrade level in Construction as a into the cuttings. embankments is	ansition from Cut to I 8.3.4.1 & 18.3.4.2 lorks Supervisor grade shall continue lor tercepts the prepared g a near-grade embankme Additional foundation t required.	Fill ngitudinally up to round surface. ent shall continue esting and prepar	the line where the for a distance of 1 ation at near-grad	0m e			



J518-1: Beaudesert Town Centre Bypass

Checklist: ITP 0408: Subgrade

Cheo	<u>cklist:</u> SG02 Brisba MC20	2: Subgrade ane Street CH 31-120 (RHS)		
	Date O	pen: 14 Jul 2017 Date Work Started: 14 Jul	2017 Date Work Complete:	
7	Check Item	Compaction MRTS04 Table 15.3B - Density Requirements Responsibility: Works Supervisor / Project Engined TEST - Sand Replacement Criteria - 97% RDD Frequency - 1 per 500m ² , Min 4 per Lot.	$\Box \Box = 98.$	8%
8	Check Item	Moisture Content MRTS04 Table 15.3C - Moisture Content Responsibility: Works Supervisor Class A 50 - 80 of OMC - 90 of OMC	Class B 60 Raye of be	etween 72% - 94%
×	Witness Point	Proof Roll Witness Point MRTS04 Clause 18.3.1 & MRTS04 Responsibility: Administrator / Works Supervisor / The material at subgrade level shall provide a stal no visible vertical movement under the rear axle of a gross mass of not less than 15 tonnes with a sin approved by the Administrator.	A.1 Clause 13.4 Project Engineer ble, dense surface which displays of a fully loaded water truck with ngle rear axle, or similar vehicle	WUS Fac Not relevant
10	Check Item	Geometrics MRTS04 Clause 6.2 Responsibility: Works Supervisor / Surveyor Horizontal Tolerances - Edges not adjacent to a structure +250/-50mm - Edges adjacent to a structure +/-50mm MRTS04 Clause 6.3 Vertical Tolerances +/- 25mm	□ Ø [See attached	survey report
K 11	Hold Point	Placement of Pavement HOLD POINT 9 MRTS04 Clause 18.3.1 Responsibility: Administrator / Works Supervisor / The subgrade shall be constructed and tested to s all standard requirements prior to placement of th	Project Engineer ubgrade level in accordance with e pavement.	UTS
	Item No.	Description		Qty
	3402.01P	Subgrade treatment Type A in cuttings and in e (MRS04 Oct 14)	mbankments (Provisional Quantity if ordered)	1,023.3 m2

Comments

Civi

	CI	iec	kli	ist
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J518-1: Beaudesert Town Centre Bypass

Checklist: ITP 0408: Subgrade





ASCT Brisbane South PO Box 1232 Park Ridge QLD 4125 4/31 Tradelink Road Hillcrest Q 4118 Email: brisbane.south@asct.com.au

Telephone:Not relevant Mobile: Not relevant A.B.N: 73 193 500 470

Report of Field Density

CLIENT:	ENT: See Civil Pty Ltd JOB NU:						115			
2240 UZUNE Sueet, Iweeu neaus, NSW, 2466 REPOR.							700			
	beaudesert rown Centre Bypass Project									
ZON	IE; -		LOT TYPE: Pavements							
COMPONEN	IT: Brisbane St MC20 C		MATERIAL SOURCE: Nielsons Quarry							
DESCRIPTIC)N: -			MATERIAL TYPE: Type 2.3C UB						
LOT NUMBE	R: SG-022	3-022 REQUEST NUMBER: TR-311								
TESTED BY:	N/R			REPORTED BY:		N/R				
DATE TESTED:	21/07/2017			DATE REPORTED:		26/07/2017				
SAMPLE No.	7375	7376	7377	7378		-	*	120		
CHAINAGE (m)	36	60	81	96	-		2.	-		
LOCATION	Brisbane St	Brisbane St	Brisbane St	Brisbane St			3.5			
CONTROL LINE	MC20	MC20	MC20	MC20				-		
OFFSET(LHS) (m)	-1.10	-3.30	-4.80	-3.00	1.2	4.1	2			
LEVEL OF TEST (m)(RL)	Subgrade	Subgrade	Subgrade	Subgrade						
TEST DEPTH (mm)	150	150	150	150		1.1.1		2		
% OVERSIZE										
DENSITY OF OVERSIZE (1/m3)										
MOISTURE RATIO (%)	88	94	72	76			-	2.1		
FIELD DRY DENSITY (t/m3)	2.321	2.318	2.312	2.328	-	1 A		12 M		
FIELD MOISTURE CONTENT (%)	6.4	6.9	5.2	5.6	10.40	~	2			
COMPACTION SAMPLE No.	AV28.1	AV28.1	AV28.1	AV28.1						
MAXIMUM DRY DENSITY (1/m3)	2.342	2.342	2.342	2.342						
ADJUSTED MAXIMUM DRY DENSITY (1/m3)								5		
OPTIMUM MOISTURE CONTENT (%)	7.3	7.3	7.3	7.3						
DENSITY RATIO:	99.1	99.0	98.7	99.4						
DEGREE OF SATURATION	4									
CHARACTERISTIC VALUE OF DENSITY RATIO	98.8									
CHARACTERISTIC VALUE OF DOS:	1			1				a de contra		
TEST PROCEDURES: BIAS DETAILS: DA TE Q144A ASSIGNED: APD DETAILS:	QDot METHODS Q020 BIAS REPORT NO: C6 06/06/2017) (CV), Q050 (cl:9.1), Q	061 (cl:6.2), Q140A, Q1	43, Q144A, Q141A, Q142A Not Authorised Signatory	relevant			~		

LAYER DEPTH (mm)

NATA Accreditation Number: 19902 Laboratory Name: ASCT Brisbane South

document are traceable to Australian/national standards.

Accredited for compliance with ISO/IEC 17025. The results of the tests included in this



ASCT QLD Doc No. Q35 Rev No. 1 03-02-16

SUBGRADE LEVEL REPORT - 457 Below FSL

Beaudesert Town Centre Bypass

Project:

Surveyed: Not relevant Surveyor: Date: 27/04/17 QA File/s: 170427 ASB SG FLD

Material Type: Bare Earth Control Line: MC20



for ΔRL (+/-25mm) as per MRTSD4 Clause 6.3.1

2. Chainages are rounded to the nearest metre, Offsets to the

resrest certimetre. ΔRL Upper Tolerance : 0.025

Lower Tolerance : -0.025

Í	Point No.	Chainage	Offset from CL (-Left/+Right)	Easting	Northing	Asbuilt RL	Design RL	ΔRL (-Low/+High)	Out of tolerance (Low/High)	Comment
ſ	96	32	-11.20	499382.720	6905138.717	56.808	56.821	-0.013		
	97	32	-9.56	499384.292	6905139.181	56.825	56.887	-0.061	LOW	
	98	33	-6.06	499387.248	6905141.516	56.911	56.903	0.007		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
	99	33	-2.58	499390.526	6905142.706	56.849	56.872	-0.023		CH30-50
	100	33	-1.32	499391.765	6905142.950	56.839	56.832	0.006		C.100 30
	91	40	-10.82	499380.680	6905146.906	56.646	56.685	-0.039	LOW	111 D
	92	40	-9.84	499381.618	6905147.196	56.688	56.715	-0.027	LOW	Match avisting of
	93	40	-6.35	499384.977	6905148.130	56.774	56.820	-0.046	LOW	Mais existing a
	94	40	-2.80	499388.371	6905149.189	56.792	56.840	-0.048	LOW	
	95	40	-1.00	499390.100	6905149.687	56.761	56.786	-0.025		-duard St Lavels
	86	50	-10.96	499377.694	6905156.482	56.537	56.566	-0.029	LOW	LUNIOU OF LEVELS.
	87	50	-10.01	499378.600	6905156.763	56.564	56.595	-0.031	LOW	
	88	50	-6.55	499381.946	6905157.657	56.663	56.700	-0.037	LOW	
	89	50	-2.94	499385.400	6905158.711	56.767	56.795	-0.028	LOW	
	90	50	-1.09	499387.149	6905159.289	56.721	56.739	-0.019		
	82	60	-10.94	499374.870	6905166.050	56.463	56.474	-0.011		
	83	60	-9.90	499375.877	6905166.331	56.486	56.505	-0.020		
	85	60	-2.86	499382.603	6905168.385	56.702	56.711	-0.009		
	84	60	-1.41	499384.017	6905168.743	56.658	56.681	-0.023		
	78	70	-10.84	499372.138	6905175.622	56.376	56.380	-0.005		
	77	70	-9.78	499373.164	6905175.866	56.395	56.412	+0.017		
	79	70	-6.11	499376.647	6905177.050	56.477	56.520	-0.043	LOW	
	80	70	-2.57	499380.056	6905178.003	56.602	56.624	-0.022		
	81	70	-1.36	499381.224	6905178.305	56.582	56.601	-0.019		
	73	80	-10.96	499369.168	6905185.181	56.203	56.244	-0.041	LOW	
	74	80	-9.97	499370.134	6905185.433	56.257	56.274	-0.018		
	75	80	-5.77	499374.138	6905186.690	56.377	56.397	-0.020		
	76	80	-2.08	499377.667	6905187.761	56.496	56.505	-0.010		
	70	90	-11.23	499366.068	6905194.675	56.015	56.037	-0.022		
	69	90	-10.00	499367.221	6905195.132	56.051	56.072	-0.022		
	71	90	-5.52	499371.544	6905196.309	56.192	56.212	-0.019		
	72	90	-1.94	499374.977	6905197.311	56.308	56.329	-0.020		
	65	100	-12.64	499361.882	6905203.821	55.708	55.730	-0.022		
	66	100	-11.68	499362.835	6905203.975	55.754	55.775	-0.021		
	67	100	-6.62	499367.673	6905205.455	55.942	55.968	-0.027	LOW	
	68	100	-2.11	499371.962	6905206.860	56.125	56.133	-0.009		
	61	110	-13.76	499358.045	6905209.812	55.446	55.470	-0.025		
	62	110	-12.77	499358.881	6905210.352	55.485	55.508	-0.022		
	63	110	-7.73	499363.299	6905212.777	55.707	55.727	-0.019		
	64	110	-3.18	499367.256	6905215.022	55.907	55.924	-0.017		
	101	180	11.45	499324.903	6905267.652	54.012	54.021	-0.009		
	102	180	17.88	499329.880	6905271.719	54.469	54.470	-0.001		
	103	190	21.60	499330.819	6905277.256	54.591	54.593	-0.002		
F	oints Tested :		43							
٧	Within Toleranc	e :	31	72.1%				4		
1	oo High :		0	0.0%	-	1	2	inte		
T	OO LOW :		12	27.9%	- 10	o LON	, D PC	sinis -		
N	Aaximum Confe	ormance:	0.007		14		1			
N	Ainimum Confo	ormance:	-0.061							
1	verage Confor	mance:	-0.022							
- 61		Company of the second se								

Standard Deviation :

0.014