

Multiquip Quarries

ABN: 44 101 930 714

***Modified
“Ardmore Park” Quarry
Project***

Structural Capability Assessment

Prepared by

Pavement Management Services

February, 2008

**SPECIALIST CONSULTANT STUDIES COMPENDIUM
PART 9**

Multiquip Quarries

ABN: 44 101 930 714

Modified “Ardmore Park” Quarry Project

Structural Capability Assessment

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EXECUTIVE SUMMARY

This report contains the findings of the investigation into the structural capacity and remaining life assessment as well as improvement costs for the proposed "Ardmore Park" Quarry transport route from the Project Site entrance opposite Lumley Road to the Hume Highway. Structural testing using a Falling Weight Deflectometer was performed by Pavement Management Services on 16th July 2004 and the results back analysed to determine the structural capacity of the pavement. The deflection and curvature results were normalised to the benkleman beam and used to determine the structural requirements and remaining life assessment of the road.

Analysis of the results for the transport route in its current configuration, granular pavement with a sealed surface, indicate (provided that ongoing maintenance is carried out) there is sufficient structural capacity to the fulfill the requirements for a 20yr design life under the proposed traffic loading associated with the "Ardmore Park" Quarry. As a result of the sufficient structural capacity of the pavement there would be no improvement costs attributable to the proposed quarry. Roughness measurements indicate the transport route currently provides sufficient serviceability with an average roughness for the section of 91 NAASRA Counts. A visual inspection of the road indicates the only immediate concern is the evidence of raveling. Should this be left unchecked, it will lead to a further loss of aggregate reducing the impermeability of the wearing surface, resulting in a loss of the structural integrity of the pavement though the ingress of moisture to the pavement. This can be alleviated through the provision of a new seal wearing course for areas showing signs of widespread raveling.

It should be noted that beam and curvature readings only give a guide to the remaining life of the pavement and have fundamental limitations. If a more accurate guide to the remaining life of the pavement is required, it is suggested that an accurate estimate of the layer thickness be obtained and the more fundamentally based mechanistic-empirical approach be applied.

FOREWORD

The following report was prepared in 2004 to accompany a development application for the "Ardmore Park" Quarry submitted in January 2005. It was determined that the modified "Ardmore Park" Quarry Project had not been varied sufficiently to warrant any revision to this report.

It is noted that some references and figures within this report reflect the "Ardmore Park" Quarry proposal as submitted in January 2005.

1 INTRODUCTION

Pavement Management Services was commissioned by R.W. Corkery & Co. Pty. Limited in June 2004, to undertake an investigation into the structural capacity and remaining life assessment of approximately 19.5km of existing pavement comprising the future transport route proposed for "Ardmore Park" Quarry, see **Figure A**. The aim of this investigation was to determine if the existing pavement met the additional loading requirements associated with the proposed quarry, and if not, to determine the improvement costs attributable to the quarry.

Falling Weight Deflectometer (FWD) testing was undertaken by Pavement Management Services on 16 July 2004 along the length of the proposed transport route from the project entrance opposite Lumley Road to the Hume Highway. Testing was carried out in the outer wheel path and staggered across each lane with 150 metre spacings between drops.

2 DESCRIPTION OF THE PROPOSAL

Multiquip proposes to develop and operate a sand and hard rock quarry on the "Ardmore Park" property, approximately 4 kilometres south of the village of Bungonia in the NSW Southern Tablelands (**Figure B**). The proposed "Ardmore Park" Quarry, would incorporate an extraction area of approximately 59 hectares, with additional disturbance associated with the construction of processing areas, water management structures and an internal road network increasing this area of disturbance to 76 hectares. The extracted sand and hard rock (basalt) resources would be processed on the Project Site to produce various quality sand, aggregate and road building materials for use in the growing construction markets of Sydney, Canberra and Goulburn.

Extraction of the sand would be undertaken by conventional methods. Topsoil would be removed and stockpiled using a bulldozer, and the weathered basalt overburden ripped, removed and stockpiled for use in the construction of on-site roads, bund walls, water management structures, rehabilitation and other works. The exposed sand would be excavated using an excavator and transported by truck to one of two sand processing plants. The extracted sand would be processed both by simple screening and size reduction using a dry processing plant, and by washing to remove finer material. Some existing agricultural dams would be enlarged and used for the deposition of silt and clarification of water.

The extraction of the competent basalt would be undertaken using an excavator/truck/front-end loader operation with no drilling and blasting required. Topsoil and subsoil present above the basalt would be cleared and stockpiled for future use in rehabilitation and the limited quantities of overburden produced used in ongoing infrastructure and rehabilitation works. The processing plant and product stockpiles would be located adjacent to the extraction area and utilise existing topography to maximise the efficiency of processing operations.

The transportation of quarry products would be by road between the Project Site and the Hume Highway. From the Hume Highway, the sand and hard rock products would be delivered to their intended destinations to the north (Sydney and other local markets) and south (Canberra, Goulburn and surrounding areas). Multiquip proposes to begin transportation operations as an extension of that currently approved under development consent No. DA001/345 before increasing the average number of movements, subject to compliance with environmental criteria, to an average of 80 per day. **Table 1** presents the proposed phased increase in truck movements.

Table 1
Product Transportation

Phase	Period of Project Life	No. of Truck Movements (per day)	Hours of Operation	Comments
1	0 to 6-12 months	28	Monday to Friday 7:00am to 6:00pm Monday to Saturday 7:00am to 6:00pm	Increase from 2 to 3 weeks/year of existing consent to 52 weeks/year.
2	6-12 months to 2 years	56	Monday to Friday 7:00am to 8:00pm Monday to Saturday 7:00am to 6:00pm	Increase subject to compliance with environmental criteria and following community consultation regarding existing operations.
3	2 years →	80	Monday to Friday 5:00am to 10:00pm Monday to Saturday 5:00am to 5:00pm	Subject to compliance with environmental criteria and forwarding of all community comments to DIPNR for assessment. Multiquip would organise a community forum within 6 to 12 months of commencing phase 3 to assess performance levels and satisfaction of reasonable community concerns.

3 METHODOLOGY

3.1 Evaluation of Existing Pavement – FWD Testing

The FWD testing was conducted in July 2004 in accordance with ASTM D4604 - [2] and PMS-TP4-FWD - [3], with the FWD testing measuring the pavement condition in the outer wheel path of each lane along the pavement. Testing was carried out at 20m intervals and staggered between each lane. At each test point, the peak applied load and peak deflections were recorded from 9 geophones spaced ranging from under the center of the load to a distance of 1 500mm from the load.

3.2 Remaining Life Assessment

Based on the results of the FWD testing pavement thickness supplied, the existing pavement layer modulus values were back calculated using the ELMOD (Elastic Layer Modulus & Overlay Design) software and the radius of curvature method used. The back calculation was completed in accordance with the procedure stated in PMS-QP4-002 [4]. The following information was provided by R.W. Corkery & Co. Pty. Limited and was taken to be the same for the entire length of each road.

- Jerrara Rd vpd = 261.
- Oallen Ford Rd vpd = 390.

- An average of 80 additional heavy vehicles per day associated with proposed quarry.
- An average of 20-30 additional light vehicles per day associated with proposed quarry.

The following assumptions were made.

- The existing wearing course is a 1 coat chip seal (determined from the video capture of the road).
- The wearing course and base layer is to a depth of 250mm.
- The subgrade layer was assumed to be infinite in depth.

Notwithstanding the fundamental limitations in the deflection based approach, the determination of pavement structural life, calculated traffic intensity and the required granular overlay were based on the deflection measurements in terms of the beam deflection readings, with the recorded deflection readings being related to structural life in accordance with Section 10 of the Austroads Pavement Design Guide - [1]. The determination of pavement structural life, calculated traffic intensity and the required AC overlay was based on the deflection and curvature measurements in terms of the beam deflection and curvature readings, with the recorded readings being related to the structural life in accordance with Section 10 of the Austroads Pavement Design Guide - [1].

Curvature values are a surrogate test for horizontal tensile strain at the underside of an asphalt bitumen layer, the precursor to fatigue failure and deflection values are a test for permanent deformation of the subgrade. As the existing pavement consists of only a chip seal wearing course the pavement structural life was determined from the deflection readings and granular overlay requirements. Further discussion is also provided on the potential for reducing the pavements structural life should the pavement be changed to an asphalt/granular pavement configuration.

4 RESULTS

The Remaining Life calculation shows that the transport route from the Project Site entrance opposite Lumley Road to the Hume Highway, in its current configuration, of granular pavement with a sealed surface, indicate there is sufficient structural capacity to fulfill the requirements for a 20 year design life under the proposed traffic loading associated with the "Ardmore Park" Quarry provided that ongoing maintenance is carried out. This ongoing maintenance would comprise of reseals every seven or so years to ensure the impermeability of the wearing course. As a result of the sufficient structural capacity of the pavement there would be no improvement costs attributable to the proposed "Ardmore Park" Quarry. The results show that, rehabilitation in the form of a granular overlay will not be required with only isolated test points having a measured deflection greater than the tolerable deflection. These results are summarised in **Table 2** and detailed in Design Sheets 1 and 3 (see **Appendix A**). Design Sheet 1 details the remaining life of the pavement under the current traffic loading and Design Sheet 3 under the projected traffic loading associated with the quarry. These calculations are on the basis that resurfacing will be provided by way of a new seal wearing course.

Table 2
Structural Results

Configuration	Design Deflection (mm)	Mean Curvature (mm)	Remaining Life (Yrs)	Design Sheet
Current (granular)	1.00	N/A	20	1
Proposed (granular)	1.00	N/A	20	2
Current (Theoretical AC)	1.00	0.37	5	3
Proposed (Theoretical AC)	1.00	0.37	1	4

However, in the case of Design Sheets 2 and 4, if the pavement was to be resurfaced with an asphalt overlay in excess of 30mm the remaining life calculations require curvature and subsequently fatigue of the asphalt to be considered as the primary failure mechanism. Under this theoretical arrangement of asphalt on granular pavement, many areas of the transport route would require more than a thin asphalt overlay to meet the structural requirements for a 20yr design traffic loading. This is primarily due to the many incidences where the measured curvature was greater than the tolerable curvature and equates to an asphalt overlay in excess of 80mm (Design Sheet 4). These results are summarised in **Table 2** above and detailed in Design Sheets 2 and 4 in **Appendix A**. This discussion is provided to highlight the potential for reducing the pavement life by changing the current pavement configuration from a seal/granular to an asphalt/granular pavement.

It should be noted that beam and curvature readings only give a guide to the remaining life of the pavement and have fundamental limitations. If a more accurate guide to the remaining life of the pavement is required, it is suggested that an accurate estimate of the layer thickness be obtained and the more fundamentally based mechanistic-empirical approach be applied.

Data sheets containing detailed results and calculations of remaining life and deflection and curvature plots can be found in **Appendix A**.

Roughness measurements indicate the transport route currently provides sufficient serviceability with an average roughness for the section of 91 NAASRA Counts. A visual inspection of the road indicates the only immediate concern is evidence of raveling. Should this be left unchecked it will lead to further loss of aggregate reducing the impermeability of the wearing surface resulting in a loss of the structural integrity of the pavement though the ingress of moisture to the pavement. This can be alleviated through the provision of a new seal wearing course for areas showing signs of widespread raveling.

5 CONCLUSION

The proposed transport route from the project entrance opposite Lumley Road to the Hume Highway, in its current configuration of granular pavement with a sealed surface has sufficient structural capacity to fulfill the requirements of a 20 year design life under both the current traffic and also the projected traffic loading associated with the quarry provided that ongoing maintenance is carried out. This ongoing maintenance would comprise of reseals every seven or so years to ensure the impermeability of the wearing course. As a result of the sufficient structural capacity of the pavement there are no improvement costs attributable to the quarry.

Should the pavement at any stage in the future be treated by an asphalt overlay greater than 30mm the structural integrity of the pavement will be undermined. This is a result of the pavement only having sufficient structural capacity to accommodate a thin flexible wearing surface.

Roughness measurements indicate the transport route currently provides sufficient serviceability with an average roughness for the section of 91 NAASRA Counts. A visual inspection of the road indicates the only immediate concern is the evidence of raveling. Should this be left unchecked it will lead to a further loss of aggregate reducing the impermeability of the wearing surface, resulting in a loss of the structural integrity of the pavement through the ingress of moisture to the pavement. This can be alleviated through the provision of a new seal wearing course for areas showing signs of widespread raveling.

6 REFERENCES

1. Austroads Pavement Design "A Guide to the Structural Design of Road Pavements", Kelvin Press, Manly Vale N.S.W., 1992.
2. ASTM D4604 "Standard Test Method for Deflections with a Falling-Weight-Type Impulse Load Device" American Society for Testing Materials, Conshohocken, PA, 2002.
3. PMS-TP4-FWD "Falling Weight Deflectometer (FWD) Test Procedure" Pavement Management Services, Sydney, 2000.
4. PMS-QP4-002 "Flexible Pavement Design Procedure", Pavement Management Services, Sydney, 1999.

Appendix A

Data Sheets

(No. of pages excluding this page = 21)

STREET: Ardmore Park Transport Route

SECTION: Project entrance opposite Lumley Road to Hume Highway



**Pavement
 Management
 Services®**

WMAPT (Sydney) 28.0

DESIGN TRAFFIC INTENSITY 1.26E+05
 TOLERABLE DEFLECTION 1.39
 TOLERABLE CURVATURE 0.29

20 year design traffic

DATE TESTED
 16th July 2004

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Design Overlay Calculation (mm)			Remaining Life Calc's (Current Pavement)	
					Beam Deflection	Tested CBR	Rutting Failure	GRANULAR OVERLAY	ESAs	YEARS	
0.000	-1.0	2	543	163	0.57	16	0	0	1.3E+09	20	
0.075	-1.0	1	474	128	0.67	13	0	0	2.7E+08	20	
0.150	-1.0	2	653	42	0.77	4	0	0	6.6E+07	20	
0.225	-1.0	1	779	64	0.77	6	0	0	6.8E+07	20	
0.300	-1.0	2	477	56	0.81	6	0	0	3.9E+07	20	
0.375	-1.0	1	253	62	0.59	6	0	0	8.6E+08	20	
0.450	-1.0	2	385	48	0.92	5	0	0	1.2E+07	20	
0.525	-1.0	1	787	319	0.68	32	0	0	2.3E+08	20	
0.600	-1.0	2	728	266	0.43	27	0	0	1.9E+10	20	
0.675	-1.0	1	340	120	0.54	12	0	0	2.0E+09	20	
0.750	-1.0	2	356	200	0.63	20	0	0	4.9E+08	20	
0.825	-1.0	1	408	76	0.57	8	0	0	1.4E+09	20	
0.900	-1.0	2	510	78	0.69	8	0	0	1.8E+08	20	
0.975	-1.0	1	349	69	0.46	7	0	0	1.0E+10	20	
1.050	-1.0	2	492	101	0.65	10	0	0	3.7E+08	20	
1.125	-1.0	1	452	142	1.67	14	74	74	3.3E+04	5	
1.200	-1.0	2	406	97	0.76	10	0	0	7.3E+07	20	
1.275	-1.0	1	401	68	0.58	7	0	0	9.9E+08	20	
1.350	-1.0	2	270	37	1.15	4	0	0	1.3E+06	20	
1.425	-1.0	1	246	115	0.27	11	0	0	2.0E+12	20	
1.500	-1.0	2	439	43	0.90	4	0	0	1.5E+07	20	
1.575	-1.0	1	288	66	0.44	7	0	0	1.6E+10	20	
1.650	-1.0	2	574	144	0.54	14	0	0	2.1E+09	20	
1.725	-1.0	1	336	83	0.41	8	0	0	3.0E+10	20	
1.800	-1.0	2	627	54	0.74	5	0	0	1.0E+08	20	
1.875	-1.0	1	386	72	0.55	7	0	0	1.9E+09	20	
1.950	-1.0	2	499	101	0.61	10	0	0	6.7E+08	20	
2.025	-1.0	1	797	23	0.62	2	0	0	5.2E+08	20	
2.100	-1.0	2	1645	227	0.27	23	0	0	1.8E+12	20	
2.175	-1.0	1	321	115	0.30	11	0	0	5.9E+11	20	
2.250	-1.0	2	386	26	1.18	3	0	0	1.0E+06	20	
2.325	-1.0	1	380	300	0.74	30	0	0	9.4E+07	20	
2.400	-1.0	2	468	191	0.58	19	0	0	1.0E+09	20	
2.475	-1.0	1	325	120	0.20	12	0	0	3.8E+13	20	
2.550	-1.0	2	852	100	0.48	10	0	0	6.8E+09	20	
2.625	-1.0	1	386	97	1.20	10	0	0	8.6E+05	20	
2.700	-1.0	2	521	136	0.58	14	0	0	1.0E+09	20	
2.775	-1.0	1	513	183	0.59	18	0	0	9.1E+08	20	
2.850	-1.0	2	1023	181	0.37	18	0	0	8.4E+10	20	
2.925	-1.0	1	394	62	0.40	6	0	0	3.6E+10	20	
3.000	-1.0	2	346	89	0.88	9	0	0	1.9E+07	20	
3.075	-1.0	1	263	129	1.46	13	11	11	1.2E+05	20	
3.150	-1.0	2	617	168	0.52	17	0	0	3.2E+09	20	
3.225	-1.0	1	415	208	0.86	21	0	0	2.1E+07	20	
3.300	-1.0	2	461	115	0.76	11	0	0	7.3E+07	20	
3.375	-1.0	1	337	242	0.55	24	0	0	1.7E+09	20	
3.450	-1.0	2	508	47	0.75	5	0	0	8.1E+07	20	
3.525	-1.0	1	253	113	0.69	11	0	0	2.0E+08	20	
3.600	-1.0	2	286	98	1.02	10	0	0	4.3E+06	20	
3.675	-1.0	1	849	30	0.77	3	0	0	6.2E+07	20	
3.750	-1.0	2	276	77	0.99	8	0	0	5.5E+06	20	

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted	Tested CBR	Design Overlay Rutting Failure	Calculation (mm) GRANULAR OVERLAY	Remaining Life Calc's (Current Pavement)	
					Beam Deflection				ESA's	YEARS
3.825	-1.0	1	464	167	0.61	17	0	0	6.8E+08	20
3.900	-1.0	2	453	235	0.53	24	0	0	2.4E+09	20
3.975	-1.0	1	551	456	0.53	46	0	0	2.8E+09	20
4.050	-1.0	2	652	133	0.51	13	0	0	3.4E+09	20
4.125	-1.0	1	1262	234	1.04	23	0	0	3.5E+06	20
4.200	-1.0	2	260	70	0.98	7	0	0	5.9E+06	20
4.275	-1.0	1	727	92	0.52	9	0	0	2.9E+09	20
4.350	-1.0	2	354	117	0.77	12	0	0	6.4E+07	20
4.425	-1.0	1	389	52	0.83	5	0	0	3.0E+07	20
4.500	-1.0	2	220	37	1.35	4	0	0	2.8E+05	20
4.575	-1.0	1	531	49	0.89	5	0	0	1.6E+07	20
4.650	-1.0	2	302	157	0.71	16	0	0	1.5E+08	20
4.725	-1.0	1	348	109	0.41	11	0	0	3.1E+10	20
4.800	-1.0	2	336	186	0.67	19	0	0	2.5E+08	20
4.875	-1.0	1	285	92	0.59	9	0	0	9.1E+08	20
4.950	-1.0	2	1026	364	0.33	36	0	0	2.9E+11	20
5.025	-1.0	1	367	116	0.61	12	0	0	6.1E+08	20
5.100	-1.0	2	624	611	0.35	61	0	0	1.4E+11	20
5.175	-1.0	1	725	104	0.65	10	0	0	3.2E+08	20
5.250	-1.0	2	495	115	0.64	12	0	0	4.0E+08	20
5.325	-1.0	1	401	31	0.63	3	0	0	5.0E+08	20
5.400	-1.0	2	870	193	0.40	19	0	0	4.0E+10	20
5.475	-1.0	1	398	177	0.60	18	0	0	7.0E+08	20
5.550	-1.0	2	404	119	0.70	12	0	0	1.8E+08	20
5.625	-1.0	1	479	49	1.06	5	0	0	2.9E+06	20
5.700	-1.0	2	298	240	0.72	24	0	0	1.3E+08	20
5.775	-1.0	1	271	129	0.47	13	0	0	8.9E+09	20
5.850	-1.0	2	822	82	0.53	8	0	0	2.5E+09	20
5.925	-1.0	1	333	216	0.86	22	0	0	2.1E+07	20
6.000	-1.0	2	398	54	0.99	5	0	0	5.7E+06	20
6.075	-1.0	1	357	67	1.15	7	0	0	1.3E+06	20
6.150	-1.0	2	506	77	0.72	8	0	0	1.2E+08	20
6.225	-1.0	1	348	104	0.56	10	0	0	1.4E+09	20
6.300	-1.0	2	377	48	1.06	5	0	0	2.8E+06	20
6.375	-1.0	1	599	40	0.67	4	0	0	2.4E+08	20
6.450	-1.0	2	583	141	0.62	14	0	0	5.1E+08	20
6.525	-1.0	1	936	114	0.93	11	0	0	1.0E+07	20
6.600	-1.0	2	159	64	1.35	6	0	0	2.6E+05	20
6.675	-1.0	1	562	213	0.88	21	0	0	1.8E+07	20
6.750	-1.0	2	226	39	1.52	4	31	31	8.3E+04	13
6.825	-1.0	1	474	110	0.50	11	0	0	4.8E+09	20
6.900	-1.0	2	613	235	0.45	24	0	0	1.4E+10	20
6.975	-1.0	1	663	162	0.55	16	0	0	1.7E+09	20
7.050	-1.0	2	353	103	0.83	10	0	0	3.2E+07	20
7.125	-1.0	1	408	48	1.24	5	0	0	6.1E+05	20
7.200	-1.0	2	482	51	0.90	5	0	0	1.4E+07	20
7.275	-1.0	1	396	49	0.73	5	0	0	1.1E+08	20
7.350	-1.0	2	651	63	0.72	6	0	0	1.2E+08	20
7.425	-1.0	1	2339	640	0.58	64	0	0	1.0E+09	20
7.500	-1.0	2	334	90	0.94	9	0	0	9.7E+06	20
7.575	-1.0	1	453	303	0.60	30	0	0	7.0E+08	20
7.650	-1.0	2	495	118	0.62	12	0	0	5.8E+08	20
7.725	-1.0	1	765	118	0.55	12	0	0	1.9E+09	20
7.800	-1.0	2	558	62	0.71	6	0	0	1.5E+08	20
7.875	-1.0	1	493	44	0.70	4	0	0	1.7E+08	20
7.950	-1.0	2	605	111	0.59	11	0	0	9.4E+08	20
8.025	-1.0	1	665	140	0.88	14	0	0	1.7E+07	20
8.100	-1.0	2	1421	232	0.33	23	0	0	2.8E+11	20
8.175	-1.0	1	1637	36	0.40	4	0	0	3.9E+10	20
8.250	-1.0	2	1380	598	0.23	60	0	0	8.4E+12	20
8.325	-1.0	1	447	184	0.70	18	0	0	1.7E+08	20
8.400	-1.0	2	905	285	0.33	28	0	0	3.0E+11	20
8.475	-1.0	1	334	61	0.41	6	0	0	3.0E+10	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Design Overlay Calculation (mm)			Remaining Life Calc's (Current Pavement)	
					Beam Deflection	Tested CBR	Rutting Failure	GRANULAR OVERLAY	ESA's	YEARS	
8.550	-1.0	2	657	135	0.50	14	0	0	4.3E+09	20	
8.625	-1.0	1	718	171	0.82	17	0	0	3.4E+07	20	
8.700	-1.0	2	1181	318	0.28	32	0	0	1.5E+12	20	
8.775	-1.0	1	667	75	0.37	8	0	0	9.7E+10	20	
8.850	-1.0	2	615	212	0.49	21	0	0	6.0E+09	20	
8.925	-1.0	1	280	78	0.44	8	0	0	1.7E+10	20	
9.000	-1.0	2	1025	119	0.38	12	0	0	7.5E+10	20	
9.075	-1.0	1	324	51	0.52	5	0	0	3.2E+09	20	
9.150	-1.0	2	2068	70	0.35	7	0	0	1.4E+11	20	
9.225	-1.0	1	414	135	0.28	14	0	0	1.3E+12	20	
9.300	-1.0	2	894	242	0.35	24	0	0	1.3E+11	20	
9.375	-1.0	1	647	154	0.48	15	0	0	6.8E+09	20	
9.450	-1.0	2	1018	350	0.33	35	0	0	2.5E+11	20	
9.525	-1.0	1	705	446	0.30	45	0	0	7.3E+11	20	
9.600	-1.0	2	619	213	0.51	21	0	0	3.9E+09	20	
9.675	-1.0	1	284	24	0.35	2	0	0	1.4E+11	20	
9.750	-1.0	2	793	569	0.32	57	0	0	4.0E+11	20	
9.825	-1.0	1	976	301	1.24	30	0	0	6.2E+05	20	
9.900	-1.0	2	404	73	0.83	7	0	0	3.3E+07	20	
9.975	-1.0	1	1271	363	0.36	36	0	0	1.2E+11	20	
10.050	-1.0	2	579	81	0.63	8	0	0	4.5E+08	20	
10.125	-1.0	1	705	212	0.51	21	0	0	3.8E+09	20	
10.200	0.0	2	543	163	0.53	16	0	0	2.3E+09	20	
10.275	-1.0	1	913	635	0.68	64	0	0	2.1E+08	20	
10.350	0.0	2	516	36	0.94	4	0	0	9.2E+06	20	
10.425	-1.0	1	727	97	1.06	10	0	0	2.9E+06	20	
10.500	0.0	2	531	121	0.61	12	0	0	6.1E+08	20	
10.575	-1.0	1	568	324	1.05	32	0	0	3.3E+06	20	
10.650	0.0	2	608	138	0.56	14	0	0	1.4E+09	20	
10.725	-1.0	1	782	346	0.63	35	0	0	5.0E+08	20	
10.800	0.0	2	611	29	0.93	3	0	0	1.0E+07	20	
10.875	-1.0	1	357	108	0.46	11	0	0	9.2E+09	20	
10.950	0.0	2	788	150	0.45	15	0	0	1.3E+10	20	
11.025	-1.0	1	643	248	1.00	25	0	0	5.1E+06	20	
11.100	0.0	2	766	280	0.36	28	0	0	1.2E+11	20	
11.175	-1.0	1	444	121	0.49	12	0	0	5.6E+09	20	
11.250	0.0	2	770	304	0.40	30	0	0	4.4E+10	20	
11.325	-1.0	1	804	283	0.54	28	0	0	2.2E+09	20	
11.400	0.0	2	377	69	0.88	7	0	0	1.7E+07	20	
11.475	-1.0	1	390	54	0.55	5	0	0	1.9E+09	20	
11.550	0.0	2	647	165	0.47	17	0	0	8.0E+09	20	
11.625	-1.0	1	597	61	0.87	6	0	0	2.1E+07	20	
11.700	0.0	2	386	55	0.85	5	0	0	2.4E+07	20	
11.775	-1.0	1	646	113	0.48	11	0	0	6.2E+09	20	
11.850	0.0	2	853	185	0.40	19	0	0	3.7E+10	20	
11.925	-1.0	1	624	87	0.51	9	0	0	3.4E+09	20	
12.000	0.0	2	640	208	0.43	21	0	0	1.8E+10	20	
12.075	-1.0	1	671	100	0.19	10	0	0	7.4E+13	20	
12.150	0.0	2	708	106	0.51	11	0	0	3.8E+09	20	
12.225	-1.0	1	465	114	0.83	11	0	0	3.2E+07	20	
12.300	0.0	2	487	84	0.70	8	0	0	1.8E+08	20	
12.375	-1.0	1	286	46	0.82	5	0	0	3.5E+07	20	
12.450	0.0	2	592	127	0.47	13	0	0	8.4E+09	20	
12.525	-1.0	1	630	107	0.44	11	0	0	1.4E+10	20	
12.600	0.0	2	434	115	0.69	12	0	0	1.9E+08	20	
12.675	-1.0	1	597	218	0.64	22	0	0	4.1E+08	20	
12.750	0.0	2	598	142	0.45	14	0	0	1.1E+10	20	
12.825	-1.0	1	294	101	0.49	10	0	0	5.9E+09	20	
12.900	0.0	2	295	41	1.14	4	0	0	1.4E+06	20	
12.975	-1.0	1	298	55	0.39	5	0	0	4.7E+10	20	
13.050	0.0	2	526	54	0.81	5	0	0	3.9E+07	20	
13.125	-1.0	1	424	158	0.87	16	0	0	1.9E+07	20	
13.200	0.0	2	619	80	0.57	8	0	0	1.3E+09	20	

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted	Tested CBR	Rutting Failure	Design Overlay Calculation (mm) GRANULAR OVERLAY	Remaining Life Calc's (Current Pavement)	
					Beam Deflection				ESA's	YEARS
13.275	-1.0	1	501	186	0.77	19	0	0	6.7E+07	20
13.350	0.0	2	365	74	0.86	7	0	0	2.2E+07	20
13.425	-1.0	1	173	154	0.95	15	0	0	8.1E+06	20
13.500	0.0	2	280	94	0.95	9	0	0	8.6E+06	20
13.575	-1.0	1	273	102	0.68	10	0	0	2.2E+08	20
13.650	0.0	2	595	121	0.55	12	0	0	1.9E+09	20
13.725	-1.0	1	512	337	0.76	34	0	0	7.8E+07	20
13.800	0.0	2	534	67	0.70	7	0	0	1.7E+08	20
13.875	-1.0	1	351	40	0.78	4	0	0	5.6E+07	20
13.950	0.0	2	367	80	0.75	8	0	0	8.9E+07	20
14.025	-1.0	1	551	114	0.67	11	0	0	2.4E+08	20
14.100	0.0	2	583	27	0.77	3	0	0	6.9E+07	20
14.175	-1.0	1	359	189	1.05	19	0	0	3.2E+06	20
14.250	0.0	2	671	52	0.69	5	0	0	2.0E+08	20
14.325	-1.0	1	852	46	0.54	5	0	0	2.1E+09	20
14.400	0.0	2	364	166	0.73	17	0	0	1.2E+08	20
14.475	-1.0	1	676	75	0.74	8	0	0	9.5E+07	20
14.550	0.0	2	614	251	0.48	25	0	0	6.9E+09	20
14.625	-1.0	1	419	203	0.96	20	0	0	7.8E+06	20
14.700	0.0	2	534	147	0.53	15	0	0	2.8E+09	20
14.775	-1.0	1	667	295	0.69	30	0	0	1.9E+08	20
14.850	0.0	2	742	469	0.30	47	0	0	7.6E+11	20
14.925	-1.0	1	346	72	0.81	7	0	0	3.9E+07	20
15.000	0.0	2	660	341	1.36	34	0	0	1.1E+11	20
15.075	-1.0	1	370	76	0.94	8	0	0	8.9E+06	20
15.150	0.0	2	454	288	0.51	29	0	0	3.9E+09	20
15.225	-1.0	1	713	100	0.62	10	0	0	5.9E+08	20
15.300	0.0	2	583	297	0.46	30	0	0	1.1E+10	20
15.375	-1.0	1	244	78	0.31	8	0	0	4.5E+11	20
15.450	0.0	2	453	61	0.83	6	0	0	3.1E+07	20
15.525	-1.0	1	364	366	0.41	37	0	0	3.1E+10	20
15.600	0.0	2	546	260	0.50	26	0	0	4.6E+09	20
15.675	-1.0	1	629	98	0.52	10	0	0	3.3E+09	20
15.750	0.0	2	773	87	0.46	9	0	0	1.1E+10	20
15.825	-1.0	1	532	57	0.70	6	0	0	1.7E+08	20
15.900	0.0	2	462	165	0.56	16	0	0	1.6E+09	20
15.975	-1.0	1	459	120	0.94	12	0	0	9.5E+06	20
16.050	0.0	2	577	90	0.61	9	0	0	6.2E+08	20
16.125	-1.0	1	895	62	0.65	6	0	0	3.5E+08	20
16.200	0.0	2	331	39	1.01	4	0	0	4.8E+06	20
16.275	-1.0	1	432	78	0.63	8	0	0	5.0E+08	20
16.350	0.0	2	305	201	0.66	20	0	0	2.8E+08	20
16.425	-1.0	1	242	31	0.80	3	0	0	4.5E+07	20
16.500	0.0	2	199	35	1.45	3	7	7	1.3E+05	20
16.575	-1.0	1	1364	91	0.79	9	0	0	5.0E+07	20
16.650	0.0	2	385	81	0.77	8	0	0	6.7E+07	20
16.725	-1.0	1	553	106	0.57	11	0	0	1.3E+09	20
16.800	0.0	2	374	31	1.01	3	0	0	4.4E+06	20
16.875	-1.0	1	281	50	0.70	5	0	0	1.6E+08	20
16.950	0.0	2	760	64	0.58	6	0	0	1.1E+09	20
17.025	-1.0	1	1667	839	0.76	84	0	0	7.1E+07	20
17.100	0.0	2	336	184	0.67	18	0	0	2.6E+08	20
17.175	-1.0	1	347	117	0.58	12	0	0	1.1E+09	20
17.250	0.0	2	442	73	0.61	7	0	0	6.2E+08	20
17.325	-1.0	1	1384	236	0.74	24	0	0	9.5E+07	20
17.400	0.0	2	367	58	0.96	6	0	0	7.5E+06	20
17.475	-1.0	1	422	89	0.83	9	0	0	3.0E+07	20
17.550	0.0	2	259	50	1.18	5	0	0	1.0E+06	20
17.625	-1.0	1	1737	22	0.75	2	0	0	8.9E+07	20
17.700	0.0	2	430	25	0.97	2	0	0	6.7E+06	20
17.775	-1.0	1	827	155	0.86	15	0	0	2.3E+07	20
17.850	0.0	2	279	61	1.14	6	0	0	1.4E+06	20
17.925	-1.0	1	735	205	0.91	20	0	0	1.2E+07	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted	Tested CBR	Design Overlay Calculation (mm)		Remaining Life Calc's (Current Pavement)	
					Beam Deflection		Rutting Failure	GRANULAR OVERLAY	ESA's	YEARS
18.000	0.0	2	373	74	0.84	7	0	0	3.0E+07	20
18.075	-1.0	1	949	622	0.96	62	0	0	7.4E+06	20
18.150	0.0	2	407	41	0.92	4	0	0	1.2E+07	20
18.225	-1.0	1	627	76	0.85	8	0	0	2.4E+07	20
18.300	0.0	2	242	51	1.19	5	0	0	9.5E+05	20
18.375	-1.0	1	178	39	0.62	4	0	0	5.6E+08	20
18.450	0.0	2	2468	35	0.45	3	0	0	1.3E+10	20
18.525	-1.0	1	755	219	0.82	22	0	0	3.4E+07	20
18.600	0.0	2	541	308	0.41	31	0	0	3.5E+10	20
18.675	-1.0	1	663	120	0.72	12	0	0	1.3E+08	20
18.750	0.0	2	379	120	0.58	12	0	0	1.0E+09	20
18.825	-1.0	1	822	108	0.78	11	0	0	6.1E+07	20
18.900	0.0	2	632	94	0.58	9	0	0	1.1E+09	20
18.975	-1.0	1	424	144	0.36	14	0	0	1.0E+11	20
19.050	0.0	2	449	33	0.89	3	0	0	1.5E+07	20
19.125	-1.0	1	634	119	1.05	12	0	0	3.0E+06	20
19.200	0.0	2	730	192	0.42	19	0	0	2.6E+10	20
19.275	-1.0	1	431	69	0.60	7	0	0	7.4E+08	20
19.350	-1.0	2	507	67	0.66	7	0	0	3.2E+08	20
19.425	-1.0	1	443	135	0.62	13	0	0	5.1E+08	20
19.500	-1.0	2	790	105	0.43	10	0	0	1.9E+10	20

SECTION DESIGN INFORMATION:

MEAN	574	143	0.68	14						
STANDARD DEVIATIO	325	121	0.25	12						
DESIGN NUMBERS	286	43	1.00	4	0	0	0	5.1E+06	20	

NOTE:

Base is the combined modulus value for the surface wearing course and the base layer (Base to a depth of 250mm).
 Subgrade represents the modulus value for the remaining material (depth 250mm to the limit of influence of the FWD).
 Remaining Life Calculations are based on Rutting being the predominant failure mechanism of the pavement.
 Subgrade CBR Values are based on the Austroads conversion.
 Design Numbers are based on a 90th percentile confidence level.
 Moduli values are based on a nominal pavement thickness of 250mm and as such are indicative only should a more detailed analysis using these results be needed soils testing will be required to determine the pavement thickness.



STREET: Ardmore Park Transport Route
SECTION: Project entrance opposite Lumley Road to Hume Highway

WMAPT (Sydney) 28.0

DESIGN TRAFFIC INTENSITY 1.26E+05 20 year design traffic DATE TESTED
TOLERABLE DEFLECTION 1.39 16th July 2004
TOLERABLE CURVATURE 0.29

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation			Remaining Life Calc's	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY	ESA's	YEARS
0.000	-1.0	2	543	163	0.57	0.21	16	0	0	0	4.9E+05	20
0.075	-1.0	1	474	128	0.67	0.27	13	0	0	0	1.6E+05	20
0.150	-1.0	2	653	42	0.77	0.25	4	0	0	0	2.2E+05	20
0.225	-1.0	1	779	64	0.77	0.32	6	0	1	1	7.7E+04	12
0.300	-1.0	2	477	56	0.81	0.24	6	0	0	0	2.6E+05	20
0.375	-1.0	1	253	62	0.59	0.17	6	0	0	0	1.6E+06	20
0.450	-1.0	2	385	48	0.92	0.38	5	0	30	30	3.2E+04	5
0.525	-1.0	1	787	319	0.68	0.25	32	0	0	0	2.1E+05	20
0.600	-1.0	2	728	266	0.43	0.19	27	0	0	0	7.8E+05	20
0.675	-1.0	1	340	120	0.54	0.19	12	0	0	0	8.3E+05	20
0.750	-1.0	2	356	200	0.63	0.23	20	0	0	0	3.6E+05	20
0.825	-1.0	1	408	76	0.57	0.17	8	0	0	0	1.2E+06	20
0.900	-1.0	2	510	78	0.69	0.27	8	0	0	0	1.7E+05	20
0.975	-1.0	1	349	69	0.46	0.17	7	0	0	0	1.6E+06	20
1.050	-1.0	2	492	101	0.65	0.22	10	0	0	0	4.4E+05	20
1.125	-1.0	1	452	142	1.67	0.61	14	42	85	85	3.4E+03	1
1.200	-1.0	2	406	97	0.76	0.29	10	0	0	0	1.2E+05	19
1.275	-1.0	1	401	68	0.58	0.22	7	0	0	0	4.3E+05	20
1.350	-1.0	2	270	37	1.15	0.50	4	0	66	66	8.4E+03	1
1.425	-1.0	1	246	115	0.27	0.12	11	0	0	0	7.1E+06	20
1.500	-1.0	2	439	43	0.90	0.31	4	0	0	0	8.7E+04	14
1.575	-1.0	1	288	66	0.44	0.16	7	0	0	0	1.7E+06	20
1.650	-1.0	2	574	144	0.54	0.21	14	0	0	0	4.6E+05	20
1.725	-1.0	1	336	83	0.41	0.12	8	0	0	0	6.2E+06	20
1.800	-1.0	2	627	54	0.74	0.22	5	0	0	0	4.4E+05	20
1.875	-1.0	1	386	72	0.55	0.20	7	0	0	0	7.1E+05	20
1.950	-1.0	2	499	101	0.61	0.25	10	0	0	0	2.4E+05	20
2.025	-1.0	1	797	23	0.62	0.34	2	0	13	13	5.5E+04	9
2.100	-1.0	2	1645	227	0.27	0.05	23	0	0	0	3.3E+08	20
2.175	-1.0	1	321	115	0.30	0.10	11	0	0	0	2.0E+07	20
2.250	-1.0	2	386	26	1.18	0.34	3	0	14	14	5.4E+04	9
2.325	-1.0	1	380	300	0.74	0.31	30	0	0	0	8.9E+04	14
2.400	-1.0	2	468	191	0.58	0.26	19	0	0	0	2.0E+05	20
2.475	-1.0	1	325	120	0.20	0.08	12	0	0	0	4.4E+07	20
2.550	-1.0	2	852	100	0.48	0.13	10	0	0	0	4.3E+06	20
2.625	-1.0	1	386	97	1.20	0.37	10	0	26	26	3.7E+04	6
2.700	-1.0	2	521	136	0.58	0.23	14	0	0	0	3.4E+05	20
2.775	-1.0	1	513	183	0.59	0.21	18	0	0	0	5.4E+05	20
2.850	-1.0	2	1023	181	0.37	0.13	18	0	0	0	5.0E+06	20
2.925	-1.0	1	394	62	0.40	0.14	6	0	0	0	4.0E+06	20
3.000	-1.0	2	346	89	0.88	0.34	9	0	13	13	5.5E+04	9
3.075	-1.0	1	263	129	1.46	0.51	13	2	68	68	7.9E+03	1
3.150	-1.0	2	617	168	0.52	0.17	17	0	0	0	1.4E+06	20
3.225	-1.0	1	415	208	0.86	0.28	21	0	0	0	1.4E+05	20
3.300	-1.0	2	461	115	0.76	0.26	11	0	0	0	1.7E+05	20
3.375	-1.0	1	337	242	0.55	0.19	24	0	0	0	8.0E+05	20
3.450	-1.0	2	508	47	0.75	0.23	5	0	0	0	3.3E+05	20
3.525	-1.0	1	253	113	0.69	0.25	11	0	0	0	2.2E+05	20
3.600	-1.0	2	286	98	1.02	0.31	10	0	0	0	7.9E+04	13
3.675	-1.0	1	849	30	0.77	0.24	3	0	0	0	2.6E+05	20
3.750	-1.0	2	276	77	0.99	0.28	8	0	0	0	1.3E+05	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation			Remaining Life Calc's (Current Pavement)	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY		ESA's
3.825	-1.0	1	464	167	0.61	0.22	17	0	0	0	4.0E+05	20
3.900	-1.0	2	453	235	0.53	0.24	24	0	0	0	2.7E+05	20
3.975	-1.0	1	551	456	0.53	0.20	46	0	0	0	6.0E+05	20
4.050	-1.0	2	652	133	0.51	0.20	13	0	0	0	6.1E+05	20
4.125	-1.0	1	1262	234	1.04	0.37	23	0	28	28	3.5E+04	6
4.200	-1.0	2	260	70	0.98	0.43	7	0	49	49	1.7E+04	3
4.275	-1.0	1	727	92	0.52	0.18	9	0	0	0	1.0E+06	20
4.350	-1.0	2	354	117	0.77	0.32	12	0	5	5	7.0E+04	11
4.425	-1.0	1	389	52	0.83	0.34	5	0	13	13	5.5E+04	9
4.500	-1.0	2	220	37	1.35	0.51	4	0	67	67	8.0E+03	1
4.575	-1.0	1	531	49	0.89	0.33	5	0	8	8	6.4E+04	10
4.650	-1.0	2	302	157	0.71	0.35	16	0	18	18	4.8E+04	8
4.725	-1.0	1	348	109	0.41	0.06	11	0	0	0	1.7E+08	20
4.800	-1.0	2	336	186	0.67	0.36	19	0	21	21	4.3E+04	7
4.875	-1.0	1	285	92	0.59	0.24	9	0	0	0	2.7E+05	20
4.950	-1.0	2	1026	364	0.33	0.11	36	0	0	0	1.1E+07	20
5.025	-1.0	1	367	116	0.61	0.23	12	0	0	0	3.4E+05	20
5.100	-1.0	2	624	611	0.35	0.18	61	0	0	0	9.4E+05	20
5.175	-1.0	1	725	104	0.65	0.25	10	0	0	0	2.5E+05	20
5.250	-1.0	2	495	115	0.64	0.24	12	0	0	0	2.7E+05	20
5.325	-1.0	1	401	31	0.63	0.30	3	0	0	0	9.7E+04	15
5.400	-1.0	2	870	193	0.40	0.12	19	0	0	0	7.3E+06	20
5.475	-1.0	1	398	177	0.60	0.21	18	0	0	0	4.8E+05	20
5.550	-1.0	2	404	119	0.70	0.20	12	0	0	0	6.8E+05	20
5.625	-1.0	1	479	49	1.06	0.34	5	0	16	16	5.1E+04	8
5.700	-1.0	2	298	240	0.72	0.31	24	0	0	0	7.9E+04	13
5.775	-1.0	1	271	129	0.47	0.21	13	0	0	0	4.7E+05	20
5.850	-1.0	2	822	82	0.53	0.19	8	0	0	0	7.8E+05	20
5.925	-1.0	1	333	216	0.86	0.29	22	0	0	0	1.1E+05	18
6.000	-1.0	2	398	54	0.99	0.34	5	0	14	14	5.4E+04	9
6.075	-1.0	1	357	67	1.15	0.59	7	0	81	81	4.1E+03	1
6.150	-1.0	2	506	77	0.72	0.22	8	0	0	0	3.9E+05	20
6.225	-1.0	1	348	104	0.56	0.18	10	0	0	0	9.7E+05	20
6.300	-1.0	2	377	48	1.06	0.32	5	0	3	3	7.3E+04	12
6.375	-1.0	1	599	40	0.67	0.27	4	0	0	0	1.6E+05	20
6.450	-1.0	2	583	141	0.62	0.20	14	0	0	0	6.0E+05	20
6.525	-1.0	1	936	114	0.93	0.36	11	0	23	23	4.1E+04	6
6.600	-1.0	2	159	64	1.35	0.69	6	0	95	95	2.0E+03	0
6.675	-1.0	1	562	213	0.88	0.36	21	0	24	24	3.9E+04	6
6.750	-1.0	2	226	39	1.52	0.52	4	15	69	69	7.5E+03	1
6.825	-1.0	1	474	110	0.50	0.20	11	0	0	0	6.1E+05	20
6.900	-1.0	2	613	235	0.45	0.17	24	0	0	0	1.4E+06	20
6.975	-1.0	1	663	162	0.55	0.18	16	0	0	0	1.1E+06	20
7.050	-1.0	2	353	103	0.83	0.26	10	0	0	0	2.0E+05	20
7.125	-1.0	1	408	48	1.24	0.41	5	0	42	42	2.1E+04	3
7.200	-1.0	2	482	51	0.90	0.35	5	0	17	17	4.9E+04	8
7.275	-1.0	1	396	49	0.73	0.22	5	0	0	0	4.0E+05	20
7.350	-1.0	2	651	63	0.72	0.24	6	0	0	0	3.0E+05	20
7.425	-1.0	1	2339	640	0.58	0.17	64	0	0	0	1.5E+06	20
7.500	-1.0	2	334	90	0.94	0.32	9	0	3	3	7.3E+04	12
7.575	-1.0	1	453	303	0.60	0.17	30	0	0	0	1.6E+06	20
7.650	-1.0	2	495	118	0.62	0.21	12	0	0	0	4.9E+05	20
7.725	-1.0	1	765	118	0.55	0.23	12	0	0	0	3.3E+05	20
7.800	-1.0	2	558	62	0.71	0.25	6	0	0	0	2.1E+05	20
7.875	-1.0	1	493	44	0.70	0.18	4	0	0	0	9.9E+05	20
7.950	-1.0	2	605	111	0.59	0.22	11	0	0	0	4.3E+05	20
8.025	-1.0	1	665	140	0.88	0.32	14	0	5	5	7.0E+04	11
8.100	-1.0	2	1421	232	0.33	0.06	23	0	0	0	1.3E+08	20
8.175	-1.0	1	1637	36	0.40	0.15	4	0	0	0	2.5E+06	20
8.250	-1.0	2	1380	598	0.23	0.08	60	0	0	0	4.4E+07	20
8.325	-1.0	1	447	184	0.70	0.23	18	0	0	0	3.1E+05	20
8.400	-1.0	2	905	285	0.33	0.15	28	0	0	0	2.6E+06	20
8.475	-1.0	1	334	61	0.41	0.16	6	0	0	0	2.0E+06	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation			(Remaining Life Calc's)	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY	ESA's	YEARS
8.550	-1.0	2	657	135	0.50	0.16	14	0	0	0	1.7E+06	20
8.625	-1.0	1	718	171	0.82	0.23	17	0	0	0	3.3E+05	20
8.700	-1.0	2	1181	318	0.28	0.12	32	0	0	0	6.5E+06	20
8.775	-1.0	1	667	75	0.37	0.16	8	0	0	0	1.9E+06	20
8.850	-1.0	2	615	212	0.49	0.17	21	0	0	0	1.3E+06	20
8.925	-1.0	1	280	78	0.44	0.18	8	0	0	0	9.7E+05	20
9.000	-1.0	2	1025	119	0.38	0.09	12	0	0	0	3.3E+07	20
9.075	-1.0	1	324	51	0.52	0.17	5	0	0	0	1.4E+06	20
9.150	-1.0	2	2068	70	0.35	0.14	7	0	0	0	3.4E+06	20
9.225	-1.0	1	414	135	0.28	0.11	14	0	0	0	1.0E+07	20
9.300	-1.0	2	894	242	0.35	0.13	24	0	0	0	5.4E+06	20
9.375	-1.0	1	647	154	0.48	0.16	15	0	0	0	1.7E+06	20
9.450	-1.0	2	1018	350	0.33	0.12	35	0	0	0	8.3E+06	20
9.525	-1.0	1	705	446	0.30	0.09	45	0	0	0	2.8E+07	20
9.600	-1.0	2	619	213	0.51	0.19	21	0	0	0	9.1E+05	20
9.675	-1.0	1	284	24	0.35	0.12	2	0	0	0	7.6E+06	20
9.750	-1.0	2	793	569	0.32	0.12	57	0	0	0	7.4E+06	20
9.825	-1.0	1	976	301	1.24	0.54	30	0	74	74	5.9E+03	1
9.900	-1.0	2	404	73	0.83	0.31	7	0	0	0	8.4E+04	13
9.975	-1.0	1	1271	363	0.36	0.15	36	0	0	0	2.6E+06	20
10.050	-1.0	2	579	81	0.63	0.24	8	0	0	0	2.8E+05	20
10.125	-1.0	1	705	212	0.51	0.18	21	0	0	0	1.0E+06	20
10.200	0.0	2	543	163	0.53	0.18	16	0	0	0	9.7E+05	20
10.275	-1.0	1	913	635	0.68	0.24	64	0	0	0	2.7E+05	20
10.350	0.0	2	516	36	0.94	0.26	4	0	0	0	1.9E+05	20
10.425	-1.0	1	727	97	1.06	0.39	10	0	35	35	2.8E+04	4
10.500	0.0	2	531	121	0.61	0.23	12	0	0	0	3.5E+05	20
10.575	-1.0	1	568	324	1.05	0.42	32	0	43	43	2.1E+04	3
10.650	0.0	2	608	138	0.56	0.15	14	0	0	0	2.3E+06	20
10.725	-1.0	1	782	346	0.63	0.18	35	0	0	0	9.8E+05	20
10.800	0.0	2	611	29	0.93	0.29	3	0	0	0	1.2E+05	19
10.875	-1.0	1	357	108	0.46	0.18	11	0	0	0	1.1E+06	20
10.950	0.0	2	788	150	0.45	0.16	15	0	0	0	2.0E+06	20
11.025	-1.0	1	643	248	1.00	0.38	25	0	32	32	3.1E+04	5
11.100	0.0	2	766	280	0.36	0.16	28	0	0	0	2.0E+06	20
11.175	-1.0	1	444	121	0.49	0.19	12	0	0	0	8.8E+05	20
11.250	0.0	2	770	304	0.40	0.12	30	0	0	0	8.5E+06	20
11.325	-1.0	1	804	283	0.54	0.12	28	0	0	0	7.3E+06	20
11.400	0.0	2	377	69	0.88	0.32	7	0	6	6	6.8E+04	11
11.475	-1.0	1	390	54	0.55	0.17	5	0	0	0	1.4E+06	20
11.550	0.0	2	647	165	0.47	0.14	17	0	0	0	3.1E+06	20
11.625	-1.0	1	597	61	0.87	0.29	6	0	0	0	1.2E+05	19
11.700	0.0	2	386	55	0.85	0.30	5	0	0	0	9.2E+04	15
11.775	-1.0	1	646	113	0.48	0.18	11	0	0	0	9.7E+05	20
11.850	0.0	2	853	185	0.40	0.15	19	0	0	0	2.3E+06	20
11.925	-1.0	1	624	87	0.51	0.23	9	0	0	0	3.6E+05	20
12.000	0.0	2	640	208	0.43	0.16	21	0	0	0	1.8E+06	20
12.075	-1.0	1	671	100	0.19	0.06	10	0	0	0	1.5E+08	20
12.150	0.0	2	708	106	0.51	0.19	11	0	0	0	8.2E+05	20
12.225	-1.0	1	465	114	0.83	0.28	11	0	0	0	1.2E+05	20
12.300	0.0	2	487	84	0.70	0.25	8	0	0	0	2.2E+05	20
12.375	-1.0	1	286	46	0.82	0.28	5	0	0	0	1.3E+05	20
12.450	0.0	2	592	127	0.47	0.21	13	0	0	0	5.2E+05	20
12.525	-1.0	1	630	107	0.44	0.18	11	0	0	0	1.0E+06	20
12.600	0.0	2	434	115	0.69	0.23	12	0	0	0	3.0E+05	20
12.675	-1.0	1	597	218	0.64	0.22	22	0	0	0	4.1E+05	20
12.750	0.0	2	598	142	0.45	0.22	14	0	0	0	4.2E+05	20
12.825	-1.0	1	294	101	0.49	0.19	10	0	0	0	8.0E+05	20
12.900	0.0	2	295	41	1.14	0.42	4	0	44	44	2.0E+04	3
12.975	-1.0	1	298	55	0.39	0.12	5	0	0	0	8.5E+06	20
13.050	0.0	2	526	54	0.81	0.24	5	0	0	0	2.6E+05	20
13.125	-1.0	1	424	158	0.87	0.23	16	0	0	0	3.4E+05	20
13.200	0.0	2	619	80	0.57	0.24	8	0	0	0	2.9E+05	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted Beam		Tested CBR	Design Overlay Calculation (nRemaining Life Calc's)			AC OVERLAY	Current Pavement) (Current Pavement) YEARS
					Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY		
13.275	-1.0	1	501	186	0.77	0.30	19	0	0	0	9.7E+04	15
13.350	0.0	2	365	74	0.86	0.34	7	0	14	14	5.4E+04	9
13.425	-1.0	1	173	154	0.95	0.39	15	0	33	33	2.9E+04	5
13.500	0.0	2	280	94	0.95	0.36	9	0	23	23	4.1E+04	6
13.575	-1.0	1	273	102	0.68	0.31	10	0	0	0	8.2E+04	13
13.650	0.0	2	595	121	0.55	0.23	12	0	0	0	3.6E+05	20
13.725	-1.0	1	512	337	0.76	0.32	34	0	4	4	7.2E+04	11
13.800	0.0	2	534	67	0.70	0.26	7	0	0	0	1.7E+05	20
13.875	-1.0	1	351	40	0.78	0.27	4	0	0	0	1.7E+05	20
13.950	0.0	2	367	80	0.75	0.34	8	0	13	13	5.6E+04	9
14.025	-1.0	1	551	114	0.67	0.21	11	0	0	0	5.2E+05	20
14.100	0.0	2	583	27	0.77	0.30	3	0	0	0	9.9E+04	16
14.175	-1.0	1	359	189	1.05	0.41	19	0	41	41	2.2E+04	4
14.250	0.0	2	671	52	0.69	0.26	5	0	0	0	1.9E+05	20
14.325	-1.0	1	852	46	0.54	0.16	5	0	0	0	1.8E+06	20
14.400	0.0	2	364	166	0.73	0.30	17	0	0	0	8.9E+04	14
14.475	-1.0	1	676	75	0.74	0.31	8	0	0	0	8.2E+04	13
14.550	0.0	2	614	251	0.48	0.22	25	0	0	0	4.0E+05	20
14.625	-1.0	1	419	203	0.96	0.37	20	0	27	27	3.5E+04	6
14.700	0.0	2	534	147	0.53	0.21	15	0	0	0	4.6E+05	20
14.775	-1.0	1	667	295	0.69	0.32	30	0	6	6	6.8E+04	11
14.850	0.0	2	742	469	0.30	0.11	47	0	0	0	1.1E+07	20
14.925	-1.0	1	346	72	0.81	0.32	7	0	6	6	6.7E+04	11
15.000	0.0	2	660	341	0.36	0.16	34	0	0	0	1.8E+06	20
15.075	-1.0	1	370	76	0.94	0.34	8	0	14	14	5.4E+04	9
15.150	0.0	2	454	288	0.51	0.24	29	0	0	0	2.6E+05	20
15.225	-1.0	1	713	100	0.62	0.14	10	0	0	0	3.3E+06	20
15.300	0.0	2	583	297	0.46	0.19	30	0	0	0	7.5E+05	20
15.375	-1.0	1	244	78	0.31	0.10	8	0	0	0	1.6E+07	20
15.450	0.0	2	453	61	0.83	0.31	6	0	0	0	8.8E+04	14
15.525	-1.0	1	364	366	0.41	0.21	37	0	0	0	5.2E+05	20
15.600	0.0	2	546	260	0.50	0.23	26	0	0	0	3.5E+05	20
15.675	-1.0	1	629	98	0.52	0.25	10	0	0	0	2.5E+05	20
15.750	0.0	2	773	87	0.46	0.19	9	0	0	0	8.9E+05	20
15.825	-1.0	1	532	57	0.70	0.17	6	0	0	0	1.4E+06	20
15.900	0.0	2	462	165	0.56	0.30	16	0	0	0	9.8E+04	16
15.975	-1.0	1	459	120	0.94	0.47	12	0	58	58	1.2E+04	2
16.050	0.0	2	577	90	0.61	0.21	9	0	0	0	4.8E+05	20
16.125	-1.0	1	895	62	0.65	0.33	6	0	7	7	6.5E+04	10
16.200	0.0	2	331	39	1.01	0.43	4	0	47	47	1.8E+04	3
16.275	-1.0	1	432	78	0.63	0.28	8	0	0	0	1.3E+05	20
16.350	0.0	2	305	201	0.66	0.32	20	0	2	2	7.6E+04	12
16.425	-1.0	1	242	31	0.80	0.37	3	0	25	25	3.8E+04	6
16.500	0.0	2	199	35	1.45	0.55	3	0	75	75	5.6E+03	1
16.575	-1.0	1	1364	91	0.79	0.31	9	0	0	0	8.1E+04	13
16.650	0.0	2	385	81	0.77	0.29	8	0	0	0	1.1E+05	17
16.725	-1.0	1	553	106	0.57	0.17	11	0	0	0	1.3E+06	20
16.800	0.0	2	374	31	1.01	0.39	3	0	35	35	2.7E+04	4
16.875	-1.0	1	281	50	0.70	0.30	5	0	0	0	1.0E+05	16
16.950	0.0	2	760	64	0.58	0.14	6	0	0	0	3.2E+06	20
17.025	-1.0	1	1667	839	0.76	0.30	84	0	0	0	9.1E+04	14
17.100	0.0	2	336	184	0.67	0.29	18	0	0	0	1.0E+05	17
17.175	-1.0	1	347	117	0.58	0.23	12	0	0	0	3.5E+05	20
17.250	0.0	2	442	73	0.61	0.26	7	0	0	0	2.0E+05	20
17.325	-1.0	1	1384	236	0.74	0.36	24	0	23	23	4.1E+04	7
17.400	0.0	2	367	58	0.96	0.31	6	0	0	0	8.5E+04	13
17.475	-1.0	1	422	89	0.83	0.25	9	0	0	0	2.2E+05	20
17.550	0.0	2	259	50	1.18	0.43	5	0	47	47	1.8E+04	3
17.625	-1.0	1	1737	22	0.75	0.31	2	0	0	0	8.2E+04	13
17.700	0.0	2	430	25	0.97	0.36	2	0	21	21	4.3E+04	7
17.775	-1.0	1	827	155	0.86	0.30	15	0	0	0	9.2E+04	15
17.850	0.0	2	279	61	1.14	0.40	6	0	38	38	2.5E+04	4
17.925	-1.0	1	735	205	0.91	0.39	20	0	34	34	2.9E+04	5

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation (mRemaining Life Calc's)			AC OVERLAY	(Current Pavement)	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	ESA's		YEARS	
18.000	0.0	2	373	74	0.84	0.32	7	0	4	4	7.1E+04	11	
18.075	-1.0	1	949	622	0.96	0.37	62	0	28	28	3.4E+04	5	
18.150	0.0	2	407	41	0.92	0.33	4	0	11	11	5.8E+04	9	
18.225	-1.0	1	627	76	0.85	0.29	8	0	0	0	1.2E+05	18	
18.300	0.0	2	242	51	1.19	0.45	5	0	54	54	1.4E+04	2	
18.375	-1.0	1	178	39	0.62	0.18	4	0	0	0	1.2E+06	20	
18.450	0.0	2	2468	35	0.45	0.16	3	0	0	0	2.1E+06	20	
18.525	-1.0	1	755	219	0.82	0.33	22	0	7	7	6.6E+04	10	
18.600	0.0	2	541	308	0.41	0.14	31	0	0	0	3.3E+06	20	
18.675	-1.0	1	663	120	0.72	0.30	12	0	0	0	9.7E+04	15	
18.750	0.0	2	379	120	0.58	0.30	12	0	0	0	9.7E+04	15	
18.825	-1.0	1	822	108	0.78	0.37	11	0	28	28	3.5E+04	6	
18.900	0.0	2	632	94	0.58	0.23	9	0	0	0	3.7E+05	20	
18.975	-1.0	1	424	144	0.36	0.14	14	0	0	0	3.8E+06	20	
19.050	0.0	2	449	33	0.89	0.36	3	0	24	24	4.0E+04	6	
19.125	-1.0	1	634	119	1.05	0.45	12	0	54	54	1.4E+04	2	
19.200	0.0	2	730	192	0.42	0.17	19	0	0	0	1.5E+06	20	
19.275	-1.0	1	431	69	0.60	0.20	7	0	0	0	5.9E+05	20	
19.350	-1.0	2	507	67	0.66	0.27	7	0	0	0	1.5E+05	20	
19.425	-1.0	1	443	135	0.62	0.24	13	0	0	0	2.9E+05	20	
19.500	-1.0	2	790	105	0.43	0.18	10	0	0	0	1.2E+06	20	

SECTION DESIGN INFORMATION:

MEAN	574	143	0.68	0.25	14
STANDARD DEVIATIO	325	121	0.25	0.10	12

DESIGN NUMBERS	286	43	1.00	0.37	4	0	28	28	3.4E+04	5
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NOTE:

Base is the combined modulus value for the surface wearing course and the base layer (Base to a depth of 250mm).
 Subgrade represents the modulus value for the remaining material (depth 250mm to the limit of influence of the FWD).
 Remaining Life Calculations are based on Rutting being the predominant failure mechanism of the pavement
 Subgrade CBR Values are based on the Austroads conversion.
 Design Numbers are based on a 90th percentile confidence level
 Moduli values are based on a nominal pavement thickness of 250mm and as such are indicative only should a more detailed analysis using these results be needed soils testing will be required to determine the pavement thickness



STREET: Ardmore Park Transport Route

SECTION: Project entrance opposite Lumley Road to Hume Highway

WMAPT (Sydney) 28.0

DESIGN TRAFFIC INTENSITY 1.13E+06 20 year design traffic DATE TESTED
 TOLERABLE DEFLECTION 1.11 16th July 2004
 TOLERABLE CURVATURE 0.18

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Design Overlay Calculation (mm)			Remaining Life Calc's	
					Beam Deflection	Tested CBR	Rutting Failure	GRANULAR OVERLAY	ESAs	YEARS	
0.000	-1.0	2	543	163	0.57	16	0	0	1.3E+09	20	
0.075	-1.0	1	474	128	0.67	13	0	0	2.7E+08	20	
0.150	-1.0	2	653	42	0.77	4	0	0	6.6E+07	20	
0.225	-1.0	1	779	64	0.77	6	0	0	6.8E+07	20	
0.300	-1.0	2	477	56	0.81	6	0	0	3.9E+07	20	
0.375	-1.0	1	253	62	0.59	6	0	0	8.6E+08	20	
0.450	-1.0	2	385	48	0.92	5	0	0	1.2E+07	20	
0.525	-1.0	1	787	319	0.68	32	0	0	2.3E+08	20	
0.600	-1.0	2	728	266	0.43	27	0	0	1.9E+10	20	
0.675	-1.0	1	340	120	0.54	12	0	0	2.0E+09	20	
0.750	-1.0	2	356	200	0.63	20	0	0	4.9E+08	20	
0.825	-1.0	1	408	76	0.57	8	0	0	1.4E+09	20	
0.900	-1.0	2	510	78	0.69	8	0	0	1.8E+08	20	
0.975	-1.0	1	349	69	0.46	7	0	0	1.0E+10	20	
1.050	-1.0	2	492	101	0.65	10	0	0	3.7E+08	20	
1.125	-1.0	1	452	142	1.67	14	162	162	3.3E+04	1	
1.200	-1.0	2	406	97	0.76	10	0	0	7.3E+07	20	
1.275	-1.0	1	401	68	0.58	7	0	0	9.9E+08	20	
1.350	-1.0	2	270	37	1.15	4	4	4	1.3E+06	20	
1.425	-1.0	1	246	115	0.27	11	0	0	2.0E+12	20	
1.500	-1.0	2	439	43	0.90	4	0	0	1.5E+07	20	
1.575	-1.0	1	288	66	0.44	7	0	0	1.6E+10	20	
1.650	-1.0	2	574	144	0.54	14	0	0	2.1E+09	20	
1.725	-1.0	1	336	83	0.41	8	0	0	3.0E+10	20	
1.800	-1.0	2	627	54	0.74	5	0	0	1.0E+08	20	
1.875	-1.0	1	386	72	0.55	7	0	0	1.9E+09	20	
1.950	-1.0	2	499	101	0.61	10	0	0	6.7E+08	20	
2.025	-1.0	1	797	23	0.62	2	0	0	5.2E+08	20	
2.100	-1.0	2	1645	227	0.27	23	0	0	1.8E+12	20	
2.175	-1.0	1	321	115	0.30	11	0	0	5.9E+11	20	
2.250	-1.0	2	386	26	1.18	3	14	14	1.0E+06	18	
2.325	-1.0	1	380	300	0.74	30	0	0	9.4E+07	20	
2.400	-1.0	2	468	191	0.58	19	0	0	1.0E+09	20	
2.475	-1.0	1	325	120	0.20	12	0	0	3.8E+13	20	
2.550	-1.0	2	852	100	0.48	10	0	0	6.8E+09	20	
2.625	-1.0	1	386	97	1.20	10	24	24	8.6E+05	15	
2.700	-1.0	2	521	136	0.58	14	0	0	1.0E+09	20	
2.775	-1.0	1	513	183	0.59	18	0	0	9.1E+08	20	
2.850	-1.0	2	1023	181	0.37	18	0	0	8.4E+10	20	
2.925	-1.0	1	394	62	0.40	6	0	0	3.6E+10	20	
3.000	-1.0	2	346	89	0.88	9	0	0	1.9E+07	20	
3.075	-1.0	1	263	129	1.46	13	112	112	1.2E+05	2	
3.150	-1.0	2	617	168	0.52	17	0	0	3.2E+09	20	
3.225	-1.0	1	415	208	0.86	21	0	0	2.1E+07	20	
3.300	-1.0	2	461	115	0.76	11	0	0	7.3E+07	20	
3.375	-1.0	1	337	242	0.55	24	0	0	1.7E+09	20	
3.450	-1.0	2	508	47	0.75	5	0	0	8.1E+07	20	
3.525	-1.0	1	253	113	0.69	11	0	0	2.0E+08	20	
3.600	-1.0	2	286	98	1.02	10	0	0	4.3E+06	20	
3.675	-1.0	1	849	30	0.77	3	0	0	6.2E+07	20	
3.750	-1.0	2	276	77	0.99	8	0	0	5.5E+06	20	

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Design Overlay Calculation (mm)			Remaining Life Calc's. (Current Pavement)	
					Beam Deflection	Tested CBR	Rutting Failure	GRANULAR OVERLAY	ESA's	YEARS	
3.825	-1.0	1	464	167	0.61	17	0	0	6.8E+08	20	
3.900	-1.0	2	453	235	0.53	24	0	0	2.4E+09	20	
3.975	-1.0	1	551	456	0.53	46	0	0	2.8E+09	20	
4.050	-1.0	2	652	133	0.51	13	0	0	3.4E+09	20	
4.125	-1.0	1	1262	234	1.04	23	0	0	3.5E+06	20	
4.200	-1.0	2	260	70	0.98	7	0	0	5.9E+06	20	
4.275	-1.0	1	727	92	0.52	9	0	0	2.9E+09	20	
4.350	-1.0	2	354	117	0.77	12	0	0	6.4E+07	20	
4.425	-1.0	1	389	52	0.83	5	0	0	3.0E+07	20	
4.500	-1.0	2	220	37	1.35	4	78	78	2.8E+05	5	
4.575	-1.0	1	531	49	0.89	5	0	0	1.6E+07	20	
4.650	-1.0	2	302	157	0.71	16	0	0	1.5E+08	20	
4.725	-1.0	1	348	109	0.41	11	0	0	3.1E+10	20	
4.800	-1.0	2	336	186	0.67	19	0	0	2.5E+08	20	
4.875	-1.0	1	285	92	0.59	9	0	0	9.1E+08	20	
4.950	-1.0	2	1026	364	0.33	36	0	0	2.9E+11	20	
5.025	-1.0	1	367	116	0.61	12	0	0	6.1E+08	20	
5.100	-1.0	2	624	611	0.35	61	0	0	1.4E+11	20	
5.175	-1.0	1	725	104	0.65	10	0	0	3.2E+08	20	
5.250	-1.0	2	495	115	0.64	12	0	0	4.0E+08	20	
5.325	-1.0	1	401	31	0.63	3	0	0	5.0E+08	20	
5.400	-1.0	2	870	193	0.40	19	0	0	4.0E+10	20	
5.475	-1.0	1	398	177	0.60	18	0	0	7.0E+08	20	
5.550	-1.0	2	404	119	0.70	12	0	0	1.8E+08	20	
5.625	-1.0	1	479	49	1.06	5	0	0	2.9E+06	20	
5.700	-1.0	2	298	240	0.72	24	0	0	1.3E+08	20	
5.775	-1.0	1	271	129	0.47	13	0	0	8.9E+09	20	
5.850	-1.0	2	822	82	0.53	8	0	0	2.5E+09	20	
5.925	-1.0	1	333	216	0.86	22	0	0	2.1E+07	20	
6.000	-1.0	2	398	54	0.99	5	0	0	5.7E+06	20	
6.075	-1.0	1	357	67	1.15	7	4	4	1.3E+06	20	
6.150	-1.0	2	506	77	0.72	8	0	0	1.2E+08	20	
6.225	-1.0	1	348	104	0.56	10	0	0	1.4E+09	20	
6.300	-1.0	2	377	48	1.06	5	0	0	2.8E+06	20	
6.375	-1.0	1	599	40	0.67	4	0	0	2.4E+08	20	
6.450	-1.0	2	583	141	0.62	14	0	0	5.1E+08	20	
6.525	-1.0	1	936	114	0.93	11	0	0	1.0E+07	20	
6.600	-1.0	2	159	64	1.35	6	80	80	2.6E+05	5	
6.675	-1.0	1	562	213	0.88	21	0	0	1.8E+07	20	
6.750	-1.0	2	226	39	1.52	4	128	128	8.3E+04	1	
6.825	-1.0	1	474	110	0.50	11	0	0	4.8E+09	20	
6.900	-1.0	2	613	235	0.45	24	0	0	1.4E+10	20	
6.975	-1.0	1	663	162	0.55	16	0	0	1.7E+09	20	
7.050	-1.0	2	353	103	0.83	10	0	0	3.2E+07	20	
7.125	-1.0	1	408	48	1.24	5	41	41	6.1E+05	11	
7.200	-1.0	2	482	51	0.90	5	0	0	1.4E+07	20	
7.275	-1.0	1	396	49	0.73	5	0	0	1.1E+08	20	
7.350	-1.0	2	651	63	0.72	6	0	0	1.2E+08	20	
7.425	-1.0	1	2339	640	0.58	64	0	0	1.0E+09	20	
7.500	-1.0	2	334	90	0.94	9	0	0	9.7E+06	20	
7.575	-1.0	1	453	303	0.60	30	0	0	7.0E+08	20	
7.650	-1.0	2	495	118	0.62	12	0	0	5.8E+08	20	
7.725	-1.0	1	765	118	0.55	12	0	0	1.9E+09	20	
7.800	-1.0	2	558	62	0.71	6	0	0	1.5E+08	20	
7.875	-1.0	1	493	44	0.70	4	0	0	1.7E+08	20	
7.950	-1.0	2	605	111	0.59	11	0	0	9.4E+08	20	
8.025	-1.0	1	665	140	0.88	14	0	0	1.7E+07	20	
8.100	-1.0	2	1421	232	0.33	23	0	0	2.8E+11	20	
8.175	-1.0	1	1637	36	0.40	4	0	0	3.9E+10	20	
8.250	-1.0	2	1380	598	0.23	60	0	0	8.4E+12	20	
8.325	-1.0	1	447	184	0.70	18	0	0	1.7E+08	20	
8.400	-1.0	2	905	285	0.33	28	0	0	3.0E+11	20	
8.475	-1.0	1	334	61	0.41	6	0	0	3.0E+10	20	

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted	Design Overlay Calculation (mm)			Remaining Life Calc's (Current Pavement)	
					Beam Deflection	Tested CBR	Rutting Failure	GRANULAR OVERLAY	ESA's	YEARS
8.550	-1.0	2	657	135	0.50	14	0	0	4.3E+09	20
8.625	-1.0	1	718	171	0.82	17	0	0	3.4E+07	20
8.700	-1.0	2	1181	318	0.28	32	0	0	1.5E+12	20
8.775	-1.0	1	667	75	0.37	8	0	0	9.7E+10	20
8.850	-1.0	2	615	212	0.49	21	0	0	6.0E+09	20
8.925	-1.0	1	280	78	0.44	8	0	0	1.7E+10	20
9.000	-1.0	2	1025	119	0.38	12	0	0	7.5E+10	20
9.075	-1.0	1	324	51	0.52	5	0	0	3.2E+09	20
9.150	-1.0	2	2068	70	0.35	7	0	0	1.4E+11	20
9.225	-1.0	1	414	135	0.28	14	0	0	1.3E+12	20
9.300	-1.0	2	894	242	0.35	24	0	0	1.3E+11	20
9.375	-1.0	1	647	154	0.48	15	0	0	6.8E+09	20
9.450	-1.0	2	1018	350	0.33	35	0	0	2.5E+11	20
9.525	-1.0	1	705	446	0.30	45	0	0	7.3E+11	20
9.600	-1.0	2	619	213	0.51	21	0	0	3.9E+09	20
9.675	-1.0	1	284	24	0.35	2	0	0	1.4E+11	20
9.750	-1.0	2	793	569	0.32	57	0	0	4.0E+11	20
9.825	-1.0	1	976	301	1.24	30	40	40	6.2E+05	11
9.900	-1.0	2	404	73	0.83	7	0	0	3.3E+07	20
9.975	-1.0	1	1271	363	0.36	36	0	0	1.2E+11	20
10.050	-1.0	2	579	81	0.63	8	0	0	4.5E+08	20
10.125	-1.0	1	705	212	0.51	21	0	0	3.8E+09	20
10.200	0.0	2	543	163	0.53	16	0	0	2.3E+09	20
10.275	-1.0	1	913	635	0.68	64	0	0	2.1E+08	20
10.350	0.0	2	516	36	0.94	4	0	0	9.2E+06	20
10.425	-1.0	1	727	97	1.06	10	0	0	2.9E+06	20
10.500	0.0	2	531	121	0.61	12	0	0	6.1E+08	20
10.575	-1.0	1	568	324	1.05	32	0	0	3.3E+06	20
10.650	0.0	2	608	138	0.56	14	0	0	1.4E+09	20
10.725	-1.0	1	782	346	0.63	35	0	0	5.0E+08	20
10.800	0.0	2	611	29	0.93	3	0	0	1.0E+07	20
10.875	-1.0	1	357	108	0.46	11	0	0	9.2E+09	20
10.950	0.0	2	788	150	0.45	15	0	0	1.3E+10	20
11.025	-1.0	1	643	248	1.00	25	0	0	5.1E+06	20
11.100	0.0	2	766	280	0.36	28	0	0	1.2E+11	20
11.175	-1.0	1	444	121	0.49	12	0	0	5.6E+09	20
11.250	0.0	2	770	304	0.40	30	0	0	4.4E+10	20
11.325	-1.0	1	804	283	0.54	28	0	0	2.2E+09	20
11.400	0.0	2	377	69	0.88	7	0	0	1.7E+07	20
11.475	-1.0	1	390	54	0.55	5	0	0	1.9E+09	20
11.550	0.0	2	647	165	0.47	17	0	0	8.0E+09	20
11.625	-1.0	1	597	61	0.87	6	0	0	2.1E+07	20
11.700	0.0	2	386	55	0.85	5	0	0	2.4E+07	20
11.775	-1.0	1	646	113	0.48	11	0	0	6.2E+09	20
11.850	0.0	2	853	185	0.40	19	0	0	3.7E+10	20
11.925	-1.0	1	624	87	0.51	9	0	0	3.4E+09	20
12.000	0.0	2	640	208	0.43	21	0	0	1.8E+10	20
12.075	-1.0	1	671	100	0.19	10	0	0	7.4E+13	20
12.150	0.0	2	708	106	0.51	11	0	0	3.8E+09	20
12.225	-1.0	1	465	114	0.83	11	0	0	3.2E+07	20
12.300	0.0	2	487	84	0.70	8	0	0	1.8E+08	20
12.375	-1.0	1	286	46	0.82	5	0	0	3.5E+07	20
12.450	0.0	2	592	127	0.47	13	0	0	8.4E+09	20
12.525	-1.0	1	630	107	0.44	11	0	0	1.4E+10	20
12.600	0.0	2	434	115	0.69	12	0	0	1.9E+08	20
12.675	-1.0	1	597	218	0.64	22	0	0	4.1E+08	20
12.750	0.0	2	598	142	0.45	14	0	0	1.1E+10	20
12.825	-1.0	1	294	101	0.49	10	0	0	5.9E+09	20
12.900	0.0	2	295	41	1.14	4	0	0	1.4E+06	20
12.975	-1.0	1	298	55	0.39	5	0	0	4.7E+10	20
13.050	0.0	2	526	54	0.81	5	0	0	3.9E+07	20
13.125	-1.0	1	424	158	0.87	16	0	0	1.9E+07	20
13.200	0.0	2	619	80	0.57	8	0	0	1.3E+09	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted	Tested CBR	Rutting Failure	Design Overlay Calculation (mm)	Remaining Life Calc's (Current Pavement)	
					Beam Deflection			GRANULAR OVERLAY	ESA's	YEARS
13.275	-1.0	1	501	186	0.77	19	0	0	6.7E+07	20
13.350	0.0	2	365	74	0.86	7	0	0	2.2E+07	20
13.425	-1.0	1	173	154	0.95	15	0	0	8.1E+06	20
13.500	0.0	2	280	94	0.95	9	0	0	8.6E+06	20
13.575	-1.0	1	273	102	0.68	10	0	0	2.2E+08	20
13.650	0.0	2	595	121	0.55	12	0	0	1.9E+09	20
13.725	-1.0	1	512	337	0.76	34	0	0	7.8E+07	20
13.800	0.0	2	534	67	0.70	7	0	0	1.7E+08	20
13.875	-1.0	1	351	40	0.78	4	0	0	5.6E+07	20
13.950	0.0	2	367	80	0.75	8	0	0	8.9E+07	20
14.025	-1.0	1	551	114	0.67	11	0	0	2.4E+08	20
14.100	0.0	2	583	27	0.77	3	0	0	6.9E+07	20
14.175	-1.0	1	359	189	1.05	19	0	0	3.2E+06	20
14.250	0.0	2	671	52	0.69	5	0	0	2.0E+08	20
14.325	-1.0	1	852	46	0.54	5	0	0	2.1E+09	20
14.400	0.0	2	364	166	0.73	17	0	0	1.2E+08	20
14.475	-1.0	1	676	75	0.74	8	0	0	9.5E+07	20
14.550	0.0	2	614	251	0.48	25	0	0	6.9E+09	20
14.625	-1.0	1	419	203	0.96	20	0	0	7.8E+06	20
14.700	0.0	2	534	147	0.53	15	0	0	2.8E+09	20
14.775	-1.0	1	667	295	0.69	30	0	0	1.9E+08	20
14.850	0.0	2	742	469	0.30	47	0	0	7.6E+11	20
14.925	-1.0	1	346	72	0.81	7	0	0	3.9E+07	20
15.000	0.0	2	660	341	0.36	34	0	0	1.1E+11	20
15.075	-1.0	1	370	76	0.94	8	0	0	8.9E+06	20
15.150	0.0	2	454	288	0.51	29	0	0	3.9E+09	20
15.225	-1.0	1	713	100	0.62	10	0	0	5.9E+08	20
15.300	0.0	2	583	297	0.46	30	0	0	1.1E+10	20
15.375	-1.0	1	244	78	0.31	8	0	0	4.5E+11	20
15.450	0.0	2	453	61	0.83	6	0	0	3.1E+07	20
15.525	-1.0	1	364	366	0.41	37	0	0	3.1E+10	20
15.600	0.0	2	546	260	0.50	26	0	0	4.6E+09	20
15.675	-1.0	1	629	98	0.52	10	0	0	3.3E+09	20
15.750	0.0	2	773	87	0.46	9	0	0	1.1E+10	20
15.825	-1.0	1	532	57	0.70	6	0	0	1.7E+08	20
15.900	0.0	2	462	165	0.56	16	0	0	1.6E+09	20
15.975	-1.0	1	459	120	0.94	12	0	0	9.5E+06	20
16.050	0.0	2	577	90	0.61	9	0	0	6.2E+08	20
16.125	-1.0	1	895	62	0.65	6	0	0	3.5E+08	20
16.200	0.0	2	331	39	1.01	4	0	0	4.8E+06	20
16.275	-1.0	1	432	78	0.63	8	0	0	5.0E+08	20
16.350	0.0	2	305	201	0.66	20	0	0	2.8E+08	20
16.425	-1.0	1	242	31	0.80	3	0	0	4.5E+07	20
16.500	0.0	2	199	35	1.45	3	109	109	1.3E+05	2
16.575	-1.0	1	1364	91	0.79	9	0	0	5.0E+07	20
16.650	0.0	2	385	81	0.77	8	0	0	6.7E+07	20
16.725	-1.0	1	553	106	0.57	11	0	0	1.3E+09	20
16.800	0.0	2	374	31	1.01	3	0	0	4.4E+06	20
16.875	-1.0	1	281	50	0.70	5	0	0	1.6E+08	20
16.950	0.0	2	760	64	0.58	6	0	0	1.1E+09	20
17.025	-1.0	1	1667	839	0.76	84	0	0	7.1E+07	20
17.100	0.0	2	336	184	0.67	18	0	0	2.6E+08	20
17.175	-1.0	1	347	117	0.58	12	0	0	1.1E+09	20
17.250	0.0	2	442	73	0.61	7	0	0	6.2E+08	20
17.325	-1.0	1	1384	236	0.74	24	0	0	9.5E+07	20
17.400	0.0	2	367	58	0.96	6	0	0	7.5E+06	20
17.475	-1.0	1	422	89	0.83	9	0	0	3.0E+07	20
17.550	0.0	2	259	50	1.18	5	16	16	1.0E+06	18
17.625	-1.0	1	1737	22	0.75	2	0	0	8.9E+07	20
17.700	0.0	2	430	25	0.97	2	0	0	6.7E+06	20
17.775	-1.0	1	827	155	0.86	15	0	0	2.3E+07	20
17.850	0.0	2	279	61	1.14	6	0	0	1.4E+06	20
17.925	-1.0	1	735	205	0.91	20	0	0	1.2E+07	20

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted	Tested CBR	Design Overlay Calculation (mm)			Remaining Life Calc's (Current Pavement)	
					Beam Deflection		Rutting Failure	GRANULAR OVERLAY	ESA's	YEARS	
18.000	0.0	2	373	74	0.84	7	0	0	0	3.0E+07	20
18.075	-1.0	1	949	622	0.96	62	0	0	0	7.4E+06	20
18.150	0.0	2	407	41	0.92	4	0	0	0	1.2E+07	20
18.225	-1.0	1	627	76	0.85	8	0	0	0	2.4E+07	20
18.300	0.0	2	242	51	1.19	5	19	19	19	9.5E+05	17
18.375	-1.0	1	178	39	0.62	4	0	0	0	5.6E+08	20
18.450	0.0	2	2468	35	0.45	3	0	0	0	1.3E+10	20
18.525	-1.0	1	755	219	0.82	22	0	0	0	3.4E+07	20
18.600	0.0	2	541	308	0.41	31	0	0	0	3.5E+10	20
18.675	-1.0	1	663	120	0.72	12	0	0	0	1.3E+08	20
18.750	0.0	2	379	120	0.58	12	0	0	0	1.0E+09	20
18.825	-1.0	1	822	108	0.78	11	0	0	0	6.1E+07	20
18.900	0.0	2	632	94	0.58	9	0	0	0	1.1E+09	20
18.975	-1.0	1	424	144	0.36	14	0	0	0	1.0E+11	20
19.050	0.0	2	449	33	0.89	3	0	0	0	1.5E+07	20
19.125	-1.0	1	634	119	1.05	12	0	0	0	3.0E+06	20
19.200	0.0	2	730	192	0.42	19	0	0	0	2.6E+10	20
19.275	-1.0	1	431	69	0.60	7	0	0	0	7.4E+08	20
19.350	-1.0	2	507	67	0.66	7	0	0	0	3.2E+08	20
19.425	-1.0	1	443	135	0.62	13	0	0	0	5.1E+08	20
19.500	-1.0	2	790	105	0.43	10	0	0	0	1.9E+10	20
SECTION DESIGN INFORMATION:											
MEAN			574	143	0.68	14					
STANDARD DEVIATIO			325	121	0.25	12					
DESIGN NUMBERS			286	43	1.00	4	0	0	0	5.1E+06	20

NOTE:

Base is the combined modulus value for the surface wearing course and the base layer (Base to a depth of 250mm).
 Subgrade represents the modulus value for the remaining material (depth 250mm to the limit of influence of the FWD).
 Remaining Life Calculations are based on Rutting being the predominant failure mechanism of the pavement
 Subgrade CBR Values are based on the Austroads conversion.
 Design Numbers are based on a 90th percentile confidence level
 Moduli values are based on a nominal pavement thickness of 250mm and as such are indicative only should a more detailed analysis using these results be needed soils testing will be required to determine the pavement thickness



**Pavement
 Management
 Services®**

STREET: Ardmore Park Transport Route
SECTION: Project entrance opposite Lumley Road to Hume Highway

WMAPT (Sydney) 28.0

DESIGN TRAFFIC INTENSITY 1.13E+06 20 year design traffic DATE TESTED
 TOLERABLE DEFLECTION 1.11 16th July 2004
 TOLERABLE CURVATURE 0.18

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation (n			Remaining Life Calc's.	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY	ESA's	YEARS
0.000	-1.0	2	543	163	0.57	0.21	16	0	13	13	4.9E+05	9
0.075	-1.0	1	474	128	0.67	0.27	13	0	47	47	1.6E+05	3
0.150	-1.0	2	653	42	0.77	0.25	4	0	38	38	2.2E+05	4
0.225	-1.0	1	779	64	0.77	0.32	6	0	65	65	7.7E+04	1
0.300	-1.0	2	477	56	0.81	0.24	6	0	33	33	2.6E+05	5
0.375	-1.0	1	253	62	0.59	0.17	6	0	0	0	1.6E+06	20
0.450	-1.0	2	385	48	0.92	0.38	5	0	84	84	3.2E+04	1
0.525	-1.0	1	787	319	0.68	0.25	32	0	39	39	2.1E+05	4
0.600	-1.0	2	728	266	0.43	0.19	27	0	0	0	7.8E+05	14
0.675	-1.0	1	340	120	0.54	0.19	12	0	0	0	8.3E+05	15
0.750	-1.0	2	356	200	0.63	0.23	20	0	23	23	3.6E+05	6
0.825	-1.0	1	408	76	0.57	0.17	8	0	0	0	1.2E+06	20
0.900	-1.0	2	510	78	0.69	0.27	8	0	46	46	1.7E+05	3
0.975	-1.0	1	349	69	0.46	0.17	7	0	0	0	1.6E+06	20
1.050	-1.0	2	492	101	0.65	0.22	10	0	17	17	4.4E+05	8
1.125	-1.0	1	452	142	1.67	0.61	14	98	118	118	3.4E+03	0
1.200	-1.0	2	406	97	0.76	0.29	10	0	54	54	1.2E+05	2
1.275	-1.0	1	401	68	0.58	0.22	7	0	17	17	4.3E+05	8
1.350	-1.0	2	270	37	1.15	0.50	4	0	106	106	8.4E+03	0
1.425	-1.0	1	246	115	0.27	0.12	11	0	0	0	7.1E+06	20
1.500	-1.0	2	439	43	0.90	0.31	4	0	62	62	8.7E+04	2
1.575	-1.0	1	288	66	0.44	0.16	7	0	0	0	1.7E+06	20
1.650	-1.0	2	574	144	0.54	0.21	14	0	15	15	4.6E+05	8
1.725	-1.0	1	336	83	0.41	0.12	8	0	0	0	6.2E+06	20
1.800	-1.0	2	627	54	0.74	0.22	5	0	17	17	4.4E+05	8
1.875	-1.0	1	386	72	0.55	0.20	7	0	0	0	7.1E+05	13
1.950	-1.0	2	499	101	0.61	0.25	10	0	36	36	2.4E+05	4
2.025	-1.0	1	797	23	0.62	0.34	2	0	73	73	5.5E+04	1
2.100	-1.0	2	1645	227	0.27	0.05	23	0	0	0	3.3E+08	20
2.175	-1.0	1	321	115	0.30	0.10	11	0	0	0	2.0E+07	20
2.250	-1.0	2	386	26	1.18	0.34	3	5	73	73	5.4E+04	1
2.325	-1.0	1	380	300	0.74	0.31	30	0	62	62	8.9E+04	2
2.400	-1.0	2	468	191	0.58	0.26	19	0	41	41	2.0E+05	4
2.475	-1.0	1	325	120	0.20	0.08	12	0	0	0	4.4E+07	20
2.550	-1.0	2	852	100	0.48	0.13	10	0	0	0	4.3E+06	20
2.625	-1.0	1	386	97	1.20	0.37	10	11	81	81	3.7E+04	1
2.700	-1.0	2	521	136	0.58	0.23	14	0	24	24	3.4E+05	6
2.775	-1.0	1	513	183	0.59	0.21	18	0	10	10	5.4E+05	9
2.850	-1.0	2	1023	181	0.37	0.13	18	0	0	0	5.0E+06	20
2.925	-1.0	1	394	62	0.40	0.14	6	0	0	0	4.0E+06	20
3.000	-1.0	2	346	89	0.88	0.34	9	0	73	73	5.5E+04	1
3.075	-1.0	1	263	129	1.46	0.51	13	66	107	107	7.9E+03	0
3.150	-1.0	2	617	168	0.52	0.17	17	0	0	0	1.4E+06	20
3.225	-1.0	1	415	208	0.86	0.28	21	0	50	50	1.4E+05	3
3.300	-1.0	2	461	115	0.76	0.26	11	0	45	45	1.7E+05	3
3.375	-1.0	1	337	242	0.55	0.19	24	0	0	0	8.0E+05	14
3.450	-1.0	2	508	47	0.75	0.23	5	0	26	26	3.3E+05	6
3.525	-1.0	1	253	113	0.69	0.25	11	0	39	39	2.2E+05	4
3.600	-1.0	2	286	98	1.02	0.31	10	0	65	65	7.9E+04	1
3.675	-1.0	1	849	30	0.77	0.24	3	0	33	33	2.6E+05	5
3.750	-1.0	2	276	77	0.99	0.28	8	0	53	53	1.3E+05	2

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation (nrRemaining Life Calc's)			AC OVERLAY	(Current Pavement)	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	ESA's		YEARS	
3.825	-1.0	1	464	167	0.61	0.22	17	0	19	19	4.0E+05	7	
3.900	-1.0	2	453	235	0.53	0.24	24	0	32	32	2.7E+05	5	
3.975	-1.0	1	551	456	0.53	0.20	46	0	5	5	6.0E+05	11	
4.050	-1.0	2	652	133	0.51	0.20	13	0	5	5	6.1E+05	11	
4.125	-1.0	1	1262	234	1.04	0.37	23	0	82	82	3.5E+04	1	
4.200	-1.0	2	260	70	0.98	0.43	7	0	95	95	1.7E+04	0	
4.275	-1.0	1	727	92	0.52	0.18	9	0	0	0	1.0E+06	18	
4.350	-1.0	2	354	117	0.77	0.32	12	0	68	68	7.0E+04	1	
4.425	-1.0	1	389	52	0.83	0.34	5	0	73	73	5.5E+04	1	
4.500	-1.0	2	220	37	1.35	0.51	4	44	107	107	8.0E+03	0	
4.575	-1.0	1	531	49	0.89	0.33	5	0	69	69	6.4E+04	1	
4.650	-1.0	2	302	157	0.71	0.35	16	0	76	76	4.8E+04	1	
4.725	-1.0	1	348	109	0.41	0.06	11	0	0	0	1.7E+08	20	
4.800	-1.0	2	336	186	0.67	0.36	19	0	78	78	4.3E+04	1	
4.875	-1.0	1	285	92	0.59	0.24	9	0	31	31	2.7E+05	5	
4.950	-1.0	2	1026	364	0.33	0.11	36	0	0	0	1.1E+07	20	
5.025	-1.0	1	367	116	0.61	0.23	12	0	25	25	3.4E+05	6	
5.100	-1.0	2	624	611	0.35	0.18	61	0	0	0	9.4E+05	17	
5.175	-1.0	1	725	104	0.65	0.25	10	0	35	35	2.5E+05	4	
5.250	-1.0	2	495	115	0.64	0.24	12	0	32	32	2.7E+05	5	
5.325	-1.0	1	401	31	0.63	0.30	3	0	60	60	9.7E+04	2	
5.400	-1.0	2	870	193	0.40	0.12	19	0	0	0	7.3E+06	20	
5.475	-1.0	1	398	177	0.60	0.21	18	0	14	14	4.8E+05	8	
5.550	-1.0	2	404	119	0.70	0.20	12	0	1	1	6.8E+05	12	
5.625	-1.0	1	479	49	1.06	0.34	5	0	74	74	5.1E+04	1	
5.700	-1.0	2	298	240	0.72	0.31	24	0	64	64	7.9E+04	1	
5.775	-1.0	1	271	129	0.47	0.21	13	0	14	14	4.7E+05	8	
5.850	-1.0	2	822	82	0.53	0.19	8	0	0	0	7.8E+05	14	
5.925	-1.0	1	333	216	0.86	0.29	22	0	57	57	1.1E+05	2	
6.000	-1.0	2	398	54	0.99	0.34	5	0	73	73	5.4E+04	1	
6.075	-1.0	1	357	67	1.15	0.59	7	0	116	116	4.1E+03	0	
6.150	-1.0	2	506	77	0.72	0.22	8	0	20	20	3.9E+05	7	
6.225	-1.0	1	348	104	0.56	0.18	10	0	0	0	9.7E+05	17	
6.300	-1.0	2	377	48	1.06	0.32	5	0	66	66	7.3E+04	1	
6.375	-1.0	1	599	40	0.67	0.27	4	0	47	47	1.6E+05	3	
6.450	-1.0	2	583	141	0.62	0.20	14	0	5	5	6.0E+05	11	
6.525	-1.0	1	936	114	0.93	0.36	11	0	79	79	4.1E+04	1	
6.600	-1.0	2	159	64	1.35	0.69	6	46	124	124	2.0E+03	0	
6.675	-1.0	1	562	213	0.88	0.36	21	0	80	80	3.9E+04	1	
6.750	-1.0	2	226	39	1.52	0.52	4	76	108	108	7.5E+03	0	
6.825	-1.0	1	474	110	0.50	0.20	11	0	5	5	6.1E+05	11	
6.900	-1.0	2	613	235	0.45	0.17	24	0	0	0	1.4E+06	20	
6.975	-1.0	1	663	162	0.55	0.18	16	0	0	0	1.1E+06	20	
7.050	-1.0	2	353	103	0.83	0.26	10	0	41	41	2.0E+05	3	
7.125	-1.0	1	408	48	1.24	0.41	5	21	91	91	2.1E+04	0	
7.200	-1.0	2	482	51	0.90	0.35	5	0	75	75	4.9E+04	1	
7.275	-1.0	1	396	49	0.73	0.22	5	0	20	20	4.0E+05	7	
7.350	-1.0	2	651	63	0.72	0.24	6	0	29	29	3.0E+05	5	
7.425	-1.0	1	2339	640	0.58	0.17	64	0	0	0	1.5E+06	20	
7.500	-1.0	2	334	90	0.94	0.32	9	0	66	66	7.3E+04	1	
7.575	-1.0	1	453	303	0.60	0.17	30	0	0	0	1.6E+06	20	
7.650	-1.0	2	495	118	0.62	0.21	12	0	13	13	4.9E+05	9	
7.725	-1.0	1	765	118	0.55	0.23	12	0	26	26	3.3E+05	6	
7.800	-1.0	2	558	62	0.71	0.25	6	0	39	39	2.1E+05	4	
7.875	-1.0	1	493	44	0.70	0.18	4	0	0	0	9.9E+05	18	
7.950	-1.0	2	605	111	0.59	0.22	11	0	18	18	4.3E+05	8	
8.025	-1.0	1	665	140	0.88	0.32	14	0	67	67	7.0E+04	1	
8.100	-1.0	2	1421	232	0.33	0.06	23	0	0	0	1.3E+08	20	
8.175	-1.0	1	1637	36	0.40	0.15	4	0	0	0	2.5E+06	20	
8.250	-1.0	2	1380	598	0.23	0.08	60	0	0	0	4.4E+07	20	
8.325	-1.0	1	447	184	0.70	0.23	18	0	28	28	3.1E+05	5	
8.400	-1.0	2	905	285	0.33	0.15	28	0	0	0	2.6E+06	20	
8.475	-1.0	1	334	61	0.41	0.16	6	0	0	0	2.0E+06	20	

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation			Remaining Life Calc's. (Current Pavement)	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY	ESA's	YEARS
8.550	-1.0	2	657	135	0.50	0.16	14	0	0	0	1.7E+06	20
8.625	-1.0	1	718	171	0.82	0.23	17	0	26	26	3.3E+05	6
8.700	-1.0	2	1181	318	0.28	0.12	32	0	0	0	6.5E+06	20
8.775	-1.0	1	667	75	0.37	0.16	8	0	0	0	1.9E+06	20
8.850	-1.0	2	615	212	0.49	0.17	21	0	0	0	1.3E+06	20
8.925	-1.0	1	280	78	0.44	0.18	8	0	0	0	9.7E+05	17
9.000	-1.0	2	1025	119	0.38	0.09	12	0	0	0	3.3E+07	20
9.075	-1.0	1	324	51	0.52	0.17	5	0	0	0	1.4E+06	20
9.150	-1.0	2	2068	70	0.35	0.14	7	0	0	0	3.4E+06	20
9.225	-1.0	1	414	135	0.28	0.11	14	0	0	0	1.0E+07	20
9.300	-1.0	2	894	242	0.35	0.13	24	0	0	0	5.4E+06	20
9.375	-1.0	1	647	154	0.48	0.16	15	0	0	0	1.7E+06	20
9.450	-1.0	2	1018	350	0.33	0.12	35	0	0	0	8.3E+06	20
9.525	-1.0	1	705	446	0.30	0.09	45	0	0	0	2.8E+07	20
9.600	-1.0	2	619	213	0.51	0.19	21	0	0	0	9.1E+05	16
9.675	-1.0	1	284	24	0.35	0.12	2	0	0	0	7.6E+06	20
9.750	-1.0	2	793	569	0.32	0.12	57	0	0	0	7.4E+06	20
9.825	-1.0	1	976	301	1.24	0.54	30	21	111	111	5.9E+03	0
9.900	-1.0	2	404	73	0.83	0.31	7	0	63	63	8.4E+04	1
9.975	-1.0	1	1271	363	0.36	0.15	36	0	0	0	2.6E+06	20
10.050	-1.0	2	579	81	0.63	0.24	8	0	30	30	2.8E+05	5
10.125	-1.0	1	705	212	0.51	0.18	21	0	0	0	1.0E+06	18
10.200	0.0	2	543	163	0.53	0.18	16	0	0	0	9.7E+05	17
10.275	-1.0	1	913	635	0.68	0.24	64	0	32	32	2.7E+05	5
10.350	0.0	2	516	36	0.94	0.26	4	0	43	43	1.9E+05	3
10.425	-1.0	1	727	97	1.06	0.39	10	0	86	86	2.8E+04	0
10.500	0.0	2	531	121	0.61	0.23	12	0	24	24	3.5E+05	6
10.575	-1.0	1	568	324	1.05	0.42	32	0	92	92	2.1E+04	0
10.650	0.0	2	608	138	0.56	0.15	14	0	0	0	2.3E+06	20
10.725	-1.0	1	782	346	0.63	0.18	35	0	0	0	9.8E+05	17
10.800	0.0	2	611	29	0.93	0.29	3	0	55	55	1.2E+05	2
10.875	-1.0	1	357	108	0.46	0.18	11	0	0	0	1.1E+06	19
10.950	0.0	2	788	150	0.45	0.16	15	0	0	0	2.0E+06	20
11.025	-1.0	1	643	248	1.00	0.38	25	0	84	84	3.1E+04	1
11.100	0.0	2	766	280	0.36	0.16	28	0	0	0	2.0E+06	20
11.175	-1.0	1	444	121	0.49	0.19	12	0	0	0	8.8E+05	16
11.250	0.0	2	770	304	0.40	0.12	30	0	0	0	8.5E+06	20
11.325	-1.0	1	804	283	0.54	0.12	28	0	0	0	7.3E+06	20
11.400	0.0	2	377	69	0.88	0.32	7	0	68	68	6.8E+04	1
11.475	-1.0	1	390	54	0.55	0.17	5	0	0	0	1.4E+06	20
11.550	0.0	2	647	165	0.47	0.14	17	0	0	0	3.1E+06	20
11.625	-1.0	1	597	61	0.87	0.29	6	0	55	55	1.2E+05	2
11.700	0.0	2	386	55	0.85	0.30	5	0	61	61	9.2E+04	2
11.775	-1.0	1	646	113	0.48	0.18	11	0	0	0	9.7E+05	17
11.850	0.0	2	853	185	0.40	0.15	19	0	0	0	2.3E+06	20
11.925	-1.0	1	624	87	0.51	0.23	9	0	23	23	3.6E+05	6
12.000	0.0	2	640	208	0.43	0.16	21	0	0	0	1.8E+06	20
12.075	-1.0	1	671	100	0.19	0.06	10	0	0	0	1.5E+08	20
12.150	0.0	2	708	106	0.51	0.19	11	0	0	0	8.2E+05	14
12.225	-1.0	1	465	114	0.83	0.28	11	0	54	54	1.2E+05	2
12.300	0.0	2	487	84	0.70	0.25	8	0	38	38	2.2E+05	4
12.375	-1.0	1	286	46	0.82	0.28	5	0	52	52	1.3E+05	2
12.450	0.0	2	592	127	0.47	0.21	13	0	11	11	5.2E+05	9
12.525	-1.0	1	630	107	0.44	0.18	11	0	0	0	1.0E+06	18
12.600	0.0	2	434	115	0.69	0.23	12	0	28	28	3.0E+05	5
12.675	-1.0	1	597	218	0.64	0.22	22	0	19	19	4.1E+05	7
12.750	0.0	2	598	142	0.45	0.22	14	0	18	18	4.2E+05	7
12.825	-1.0	1	294	101	0.49	0.19	10	0	0	0	8.0E+05	14
12.900	0.0	2	295	41	1.14	0.42	4	0	92	92	2.0E+04	0
12.975	-1.0	1	298	55	0.39	0.12	5	0	0	0	8.5E+06	20
13.050	0.0	2	526	54	0.81	0.24	5	0	34	34	2.6E+05	5
13.125	-1.0	1	424	158	0.87	0.23	16	0	25	25	3.4E+05	6
13.200	0.0	2	619	80	0.57	0.24	8	0	30	30	2.9E+05	5

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted		Tested CBR	Design Overlay Calculation			Remaining Life Calc's. (Current Pavement)	
					Beam Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY	ESA's	YEARS
13.275	-1.0	1	501	186	0.77	0.30	19	0	60	60	9.7E+04	2
13.350	0.0	2	365	74	0.86	0.34	7	0	73	73	5.4E+04	1
13.425	-1.0	1	173	154	0.95	0.39	15	0	86	86	2.9E+04	1
13.500	0.0	2	280	94	0.95	0.36	9	0	79	79	4.1E+04	1
13.575	-1.0	1	273	102	0.68	0.31	10	0	64	64	8.2E+04	1
13.650	0.0	2	595	121	0.55	0.23	12	0	23	23	3.6E+05	6
13.725	-1.0	1	512	337	0.76	0.32	34	0	67	67	7.2E+04	1
13.800	0.0	2	534	67	0.70	0.26	7	0	44	44	1.7E+05	3
13.875	-1.0	1	351	40	0.78	0.27	4	0	45	45	1.7E+05	3
13.950	0.0	2	367	80	0.75	0.34	8	0	72	72	5.6E+04	1
14.025	-1.0	1	551	114	0.67	0.21	11	0	11	11	5.2E+05	9
14.100	0.0	2	583	27	0.77	0.30	3	0	59	59	9.9E+04	2
14.175	-1.0	1	359	189	1.05	0.41	19	0	90	90	2.2E+04	0
14.250	0.0	2	671	52	0.69	0.26	5	0	42	42	1.9E+05	3
14.325	-1.0	1	852	46	0.54	0.16	5	0	0	0	1.8E+06	20
14.400	0.0	2	364	166	0.73	0.30	17	0	62	62	8.9E+04	2
14.475	-1.0	1	676	75	0.74	0.31	8	0	64	64	8.2E+04	1
14.550	0.0	2	614	251	0.48	0.22	25	0	20	20	4.0E+05	7
14.625	-1.0	1	419	203	0.96	0.37	20	0	82	82	3.5E+04	1
14.700	0.0	2	534	147	0.53	0.21	15	0	15	15	4.6E+05	8
14.775	-1.0	1	667	295	0.69	0.32	30	0	68	68	6.8E+04	1
14.850	0.0	2	742	469	0.30	0.11	47	0	0	0	1.1E+07	20
14.925	-1.0	1	346	72	0.81	0.32	7	0	68	68	6.7E+04	1
15.000	0.0	2	660	341	0.36	0.16	34	0	0	0	1.8E+06	20
15.075	-1.0	1	370	76	0.94	0.34	8	0	73	73	5.4E+04	1
15.150	0.0	2	454	288	0.51	0.24	29	0	33	33	2.6E+05	5
15.225	-1.0	1	713	100	0.62	0.14	10	0	0	0	3.3E+06	20
15.300	0.0	2	583	297	0.46	0.19	30	0	0	0	7.5E+05	13
15.375	-1.0	1	244	78	0.31	0.10	8	0	0	0	1.6E+07	20
15.450	0.0	2	453	61	0.83	0.31	6	0	62	62	8.8E+04	2
15.525	-1.0	1	364	366	0.41	0.21	37	0	11	11	5.2E+05	9
15.600	0.0	2	546	260	0.50	0.23	26	0	24	24	3.5E+05	6
15.675	-1.0	1	629	98	0.52	0.25	10	0	34	34	2.5E+05	4
15.750	0.0	2	773	87	0.46	0.19	9	0	0	0	8.9E+05	16
15.825	-1.0	1	532	57	0.70	0.17	6	0	0	0	1.4E+06	20
15.900	0.0	2	462	165	0.56	0.30	16	0	60	60	9.8E+04	2
15.975	-1.0	1	459	120	0.94	0.47	12	0	101	101	1.2E+04	0
16.050	0.0	2	577	90	0.61	0.21	9	0	13	13	4.8E+05	8
16.125	-1.0	1	895	62	0.65	0.33	6	0	69	69	6.5E+04	1
16.200	0.0	2	331	39	1.01	0.43	4	0	94	94	1.8E+04	0
16.275	-1.0	1	432	78	0.63	0.28	8	0	52	52	1.3E+05	2
16.350	0.0	2	305	201	0.66	0.32	20	0	65	65	7.6E+04	1
16.425	-1.0	1	242	31	0.80	0.37	3	0	80	80	3.8E+04	1
16.500	0.0	2	199	35	1.45	0.55	3	64	112	112	5.6E+03	0
16.575	-1.0	1	1364	91	0.79	0.31	9	0	64	64	8.1E+04	1
16.650	0.0	2	385	81	0.77	0.29	8	0	57	57	1.1E+05	2
16.725	-1.0	1	553	106	0.57	0.17	11	0	0	0	1.3E+06	20
16.800	0.0	2	374	31	1.01	0.39	3	0	87	87	2.7E+04	0
16.875	-1.0	1	281	50	0.70	0.30	5	0	59	59	1.0E+05	2
16.950	0.0	2	760	64	0.58	0.14	6	0	0	0	3.2E+06	20
17.025	-1.0	1	1667	839	0.76	0.30	84	0	61	61	9.1E+04	2
17.100	0.0	2	336	184	0.67	0.29	18	0	58	58	1.0E+05	2
17.175	-1.0	1	347	117	0.58	0.23	12	0	24	24	3.5E+05	6
17.250	0.0	2	442	73	0.61	0.26	7	0	41	41	2.0E+05	4
17.325	-1.0	1	1384	236	0.74	0.36	24	0	79	79	4.1E+04	1
17.400	0.0	2	367	58	0.96	0.31	6	0	63	63	8.5E+04	1
17.475	-1.0	1	422	89	0.83	0.25	9	0	38	38	2.2E+05	4
17.550	0.0	2	259	50	1.18	0.43	5	5	94	94	1.8E+04	0
17.625	-1.0	1	1737	22	0.75	0.31	2	0	64	64	8.2E+04	1
17.700	0.0	2	430	25	0.97	0.36	2	0	78	78	4.3E+04	1
17.775	-1.0	1	827	155	0.86	0.30	15	0	61	61	9.2E+04	2
17.850	0.0	2	279	61	1.14	0.40	6	0	88	88	2.5E+04	0
17.925	-1.0	1	735	205	0.91	0.39	20	0	86	86	2.9E+04	1

Chainage (km)	Temp (°C)	Lane	Base	Subgrade	Temp Adjusted Beam		Tested CBR	Design Overlay Calculation (nRemaining Life Calc's)				
					Deflection	Curvature		Rutting Failure	Fatigue Failure	AC OVERLAY	ESA's (Current Pavement)	YEARS
18.000	0.0	2	373	74	0.84	0.32	7	0	67	67	7.1E+04	1
18.075	-1.0	1	949	622	0.96	0.37	62	0	82	82	3.4E+04	1
18.150	0.0	2	407	41	0.92	0.33	4	0	72	72	5.8E+04	1
18.225	-1.0	1	627	76	0.85	0.29	8	0	56	56	1.2E+05	2
18.300	0.0	2	242	51	1.19	0.45	5	7	98	98	1.4E+04	0
18.375	-1.0	1	178	39	0.62	0.18	4	0	0	0	1.2E+06	20
18.450	0.0	2	2468	35	0.45	0.16	3	0	0	0	2.1E+06	20
18.525	-1.0	1	755	219	0.82	0.33	22	0	69	69	6.6E+04	1
18.600	0.0	2	541	308	0.41	0.14	31	0	0	0	3.3E+06	20
18.675	-1.0	1	663	120	0.72	0.30	12	0	60	60	9.7E+04	2
18.750	0.0	2	379	120	0.58	0.30	12	0	60	60	9.7E+04	2
18.825	-1.0	1	822	108	0.78	0.37	11	0	82	82	3.5E+04	1
18.900	0.0	2	632	94	0.58	0.23	9	0	22	22	3.7E+05	7
18.975	-1.0	1	424	144	0.36	0.14	14	0	0	0	3.8E+06	20
19.050	0.0	2	449	33	0.89	0.36	3	0	79	79	4.0E+04	1
19.125	-1.0	1	634	119	1.05	0.45	12	0	98	98	1.4E+04	0
19.200	0.0	2	730	192	0.42	0.17	19	0	0	0	1.5E+06	20
19.275	-1.0	1	431	69	0.60	0.20	7	0	6	6	5.9E+05	10
19.350	-1.0	2	507	67	0.66	0.27	7	0	49	49	1.5E+05	3
19.425	-1.0	1	443	135	0.62	0.24	13	0	30	30	2.9E+05	5
19.500	-1.0	2	790	105	0.43	0.18	10	0	0	0	1.2E+06	20

SECTION DESIGN INFORMATION:

MEAN	574	143	0.68	0.25	14							
STANDARD DEVIATIO	325	121	0.25	0.10	12							
DESIGN NUMBERS	286	43	1.00	0.37	4	0	82	82	3.4E+04	1		

NOTE:

Base is the combined modulus value for the surface wearing course and the base layer (Base to a depth of 250mm).
 Subgrade represents the modulus value for the remaining material (depth 250mm to the limit of influence of the FWD).
 Remaining Life Calculations are based on Rutting being the predominant failure mechanism of the pavement
 Subgrade CBR Values are based on the Austroads conversion.
 Design Numbers are based on a 90th percentile confidence level
 Moduli values are based on a nominal pavement thickness of 250mm and as such are indicative only should a more detailed analysis using these results be needed soils testing will be required to determine the pavement thickness

