Updated as at 2 May 2012

Index of Provisionally Approved Mix Designs
Anderson Asphalt Limited

I. Normal Mix

Bituminous Material	HyD Mix No.	Supplier's Mix No.	Date of Design	Approval Date	Expiry Date
10mm Wearing Course	10WC/AND/LT/008	10WC/AND/LT/008	22-Apr-2010	9-Jun-2010	8-Jun-2013
10mm Friction Course	10FC/AND/LT/009	10FC/AND/LT/009	16-Dec-2010	25-Jan-2011	24-Jan-2014
20mm Wearing Course	20WC/AND/LT/010	20WC/AND/LT/010	15-Apr-2010	17-May-2010	16-May-2013
28mm Base Course	28BC/AND/LT/008	28BC/AND/LT/008	8-Apr-2010	17-May-2010	16-May-2013
37.5mm Base Course	40BC/AND/LT/009	40BC/AND/LT/009	31-Mar-2010	17-May-2010	16-May-2013
37.5mm Roadbase (recipe mix)	40RB/AND/LT/009	40RB/AND/LT/009	4-Apr-2007	--	--

II. Reclaimed Asphalt Pavement (RAP) Mix

Bituminous Material	HyD Mix No.	Supplier's Mix No.	Date of Design	Approval Date	Expiry Date
10mm Wearing Course	10WC/AND/LT/RAP15/001	10WC/AND/LT/RAP15/001	10-Nov-2011	3-Jan-2012	2-Jan-2015
20mm Wearing Course	20WC/AND/LT/RAP/002	20WC/AND/LT/RAP15/001	21-Jul-2010	16-Aug-2010	15-Aug-2013
28mm Base Course	28BC/AND/LT/RAP15/001	28BC/AND/LT/RAP15/001	6-Jul-2011	28-Nov-2011	27-Nov-2014
37.5mm Base Course	40BC/AND/LT/RAP15/001	40BC/AND/LT/RAP15/001	19-Jul-2011	28-Nov-2011	27-Nov-2014
37.5mm Roadbase (recipe mix)	40RB/AND/LT/RAP/001	40RB/AND/LT/RAP/001	8-Sep-2008	--	--

Bituminous Material	HyD Mix No.	Supplier's Mix No.	Date of Design	Approval Date	Expiry Date
10mm Wearing Course	--	--	--	--	--
20mm Wearing Course	20WC/AND/LT/RAP30/001	20WC/AND/LT/RAP30/001	22-Mar-2012	23-Apr-2012	22-Apr-2015
28mm Base Course	28BC/AND/LT/RAP30/001	28BC/AND/LT/RAP30/001	27-Mar-2012	23-Apr-2012	22-Apr-2015
37.5mm Base Course	--	--	--	--	--

III. Polymer Modified Mix

Bituminous Material	HyD Mix No.	Supplier's Mix No.	Date of Design	Approval Date	Expiry Date
10mm Polymer Modified Friction Course	10PMFC/AND/LT/PG/003	10PMFC/AND/LT/PG/003	29-Dec-2010	21-Jan-2011	20-Jan-2014
3.35mm Polymer Modified Cushion Course	CC/AND/LT/PG/001	CC/AND/LT/PG/001	6-Oct-2011	26-Oct-2011	25-Oct-2014

IV. Special Mix

Bituminous Material	HyD Mix No.	Supplier's Mix No.	Date of Design	Approval Date	Expiry Date
10mm Stone Mastic Asphalt	10SMA/AND/LT/VIA/002	10SMA/AND/LT/VIA/002	24-Nov-2010	17-Dec-2010	16-Dec-2013
20mm Stone Mastic Asphalt	20SMA/AND/LT/VIA/003	20SMA/AND/LT/VIA/003	26-Oct-2010	15-Nov-2010	14-Nov-2013

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Remark: Mix design details are tabled in the appropriate spreadsheets.

Updated as at 2 May 2012

Summary of Provisionally Approved Mix Designs
Anderson Asphalt Limited
(Normal Mix)

1. Plant Location : Lam Tei Quarry

2. Source and Type of Constituent Materials :

Constituent Material	Source	Type
Bitumen	Shell (Hong Kong) Limited	Grade 60/70 pen
Coarse Aggregate (retained on 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Fine Aggregate (passing 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Filler (passing 75 μm BS sieve)	Lam Tei Quarry Hydrated lime - Sun Man Lee, China	Crushed rock filler for WC & BC Mixture of crushed rock filler and hydrated lime for FC

3. Mix Designs

Bituminous Material	10mm Wearing Course		10mm Friction Course		20mm Wearing Course		28mm Base Course		37.5mm Base Course		37.5mm Roadbase (recipe mix)	
HyD Mix No.	10WC/AND/LT/008		10FC/AND/LT/009		20WC/AND/LT/010		28BC/AND/LT/008		40BC/AND/LT/009		40RB/AND/LT/009	
Supplier's Mix No.	10WC/AND/LT/008		10FC/AND/LT/009		20WC/AND/LT/010		28BC/AND/LT/008		40BC/AND/LT/009		40RB/AND/LT/009	
Date of Design	22-Apr-2010		16-Dec-2010		15-Apr-2010		8-Apr-2010		31-Mar-2010		4-Apr-2007	
Approval Date	9-Jun-2010		25-Jan-2011		17-May-2010		17-May-2010		17-May-2010		--	
Expiry Date	8-Jun-2013		24-Jan-2014		16-May-2013		16-May-2013		16-May-2013		--	
	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*
Binder content (%)	6.0	5.5 - 6.5	4.5	4.0 - 5.0	5.0	4.5 - 5.5	4.5	4.0 - 5.0	4.1	3.6 - 4.6	3.5	3.0 - 4.0
B.S. Sieve (mm)	% Passing		% Passing		% Passing		% Passing		% Passing		% Passing	
50									100	100	100	100
37.5							100	100	96	92 - 100	96	90 - 100
28					100	100	96	92 - 100	93	86 - 100	88	70 - 94
20					97	93 - 100	89	82 - 96	82	75 - 89	72	62 - 84
14	100	100	100	100	87	80 - 94	78	71 - 85	71	64 - 78	--	--
10	96	92 - 100	96	92 - 100	80	73 - 87	69	62 - 76	63	56 - 70	56	49 - 67
5	70	63 - 77	26	19 - 33	68	61 - 75	49	42 - 56	46	39 - 53	46	37 - 55
2.36	50	43 - 57	14	7 - 21	48	41 - 55	34	27 - 41	33	26 - 40	33	27 - 43
1.18	35	28 - 42	--	--	34	27 - 41	24	17 - 31	24	17 - 31	--	--
0.600	26	21 - 31	--	--	26	21 - 31	18	13 - 23	19	14 - 24	19	13 - 28
0.300	18	13 - 23	--	--	18	13 - 23	13	8 - 18	15	10 - 20	14	7 - 21
0.150	11	8 - 14	--	--	12	9 - 15	8	5 - 11	10	7 - 13	--	--
0.075	5.7	3.7 - 7.7 8.7#	2.5 (including 1.5% hydrated lime)	0.5 - 4.5	7.9	5.9 - 9.9 10.9#	5.5	3.5 - 7.5 8.5#	7.8	5.8 - 9.8 10.8#	6.5	2.0 - 8.0 8.0@
	Marshall Properties		Marshall Properties		Marshall Properties		Marshall Properties		Marshall Properties		Marshall Properties	
Air voids in mix, VIM (%)	3.5	3.0 - 5.0	21.9	18 - 25	3.5	3.0 - 5.0	3.9	3.0 - 5.0	4.0	3.0 - 5.0	--	--
Voids in mineral aggregate, VMA (%)	16.5	≧16	29.5	≧25	14.6	≧14	13.8	≧13	13.0	≧12.5	--	--
Marshall stability (kN)	13.1	≧10	--	--	15.0	≧10	14.1	≧10	15.6	≧10	--	--
Flow (mm)	2.5	≦4.0	--	--	2.5	≦4.0	2.6	≦4.0	2.4	≦4.0	--	--

* For reference only

The precentage passing the 0.075mm BS test sieve shall not deviate from the approved design value by more than 3%.

@ The precentage passing the 0.075mm BS test sieve shall not exceed 8.0%.

Updated as at 2 May 2012

Summary of Provisionally Approved Mix Designs
Anderson Asphalt Limited
(RAP Mix)

1. Plant Location : Lam Tei Quarry

2. Source and Type of Constituent Materials :

Constituent Material	Source	Type
Bitumen	Shell (Hong Kong) Limited	Grade 60/70 pen
Coarse Aggregate (retained on 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Fine Aggregate (passing 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Filler (passing 75 μm BS sieve)	Lam Tei Quarry	Crushed rock filler

3. Mix Designs

Bituminous Material	10mm Wearing Course		20mm Wearing Course		28mm Base Course		37.5mm Base Course		37.5mm Roadbase (recipe mix)	
HyD Mix No.	10WC/AND/LT/RAP15/001		20WC/AND/LT/RAP/002		28BC/AND/LT/RAP15/001		40BC/AND/LT/RAP15/001		40RB/AND/LT/RAP/001	
Supplier's Mix No.	10WC/AND/LT/RAP15/001		20WC/AND/LT/RAP15/001		28BC/AND/LT/RAP15/001		40BC/AND/LT/RAP15/001		40RB/AND/LT/RAP/001	
Date of Design	10-Nov-2011		21-Jul-2010		6-Jul-2011		19-Jul-2011		8-Sep-2008	
Approval Date	3-Jan-2012		16-Aug-2010		28-Nov-2011		28-Nov-2011		--	
Expiry Date	2-Jan-2015		15-Aug-2013		27-Nov-2014		27-Nov-2014		--	
	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*
Binder content (%)	6.1	5.6 - 6.6	5.0	4.5 - 5.5	4.5	4.0 - 5.0	4.1	3.6 - 4.6	3.5	3.0 - 4.0
B.S. Sieve (mm)	% Passing		% Passing		% Passing		% Passing		% Passing	
50							100	100	100	100
37.5					100	100	96	92 - 100	96	90 - 100
28			100	100	96	92 - 100	93	86 - 100	87	70 - 94
20			96	92 - 100	89	82 - 96	83	76 - 90	72	62 - 84
14	100	100	87	80 - 94	76	69 - 83	71	64 - 78	--	--
10	96	92 - 100	79	72 - 86	67	60 - 74	62	55 - 69	57	49 - 67
5	69	62 - 76	67	60 - 74	49	42 - 56	47	40 - 54	46	37 - 55
2.36	48	41 - 55	48	41 - 55	35	28 - 42	34	27 - 41	34	27 - 43
1.18	35	28 - 42	35	28 - 42	26	19 - 33	25	18 - 32	--	--
0.600	26	21 - 31	27	22 - 32	19	14 - 24	20	15 - 25	19	13 - 28
0.300	19	14 - 24	18	13 - 23	14	9 - 19	14	9 - 19	13	7 - 21
0.150	10	7 - 13	12	9 - 15	9	6 - 12	10	7 - 13	--	--
0.075	4.5	2.5 - 6.5 7.5#	7.9	5.9 - 9.9 10.9#	5.0	3.0 - 7.0 8.0#	6.4	4.4 - 8.4 9.4#	5.5	2.0 - 8.0 8.0@
	(Including 15% RAP)		(Including 15% RAP)		(Including 15% RAP)		(Including 15% RAP)		(Including 15% RAP)	
	Marshall Properties		Marshall Properties		Marshall Properties		Marshall Properties		Marshall Properties	
Air voids in mix, VIM (%)	4.4	3.0 - 5.0	4.3	3.0 - 5.0	3.8	3.0 - 5.0	4.7	3.0 - 5.0	--	--
Voids in mineral aggregate, VMA (%)	17.5	≧16	15.3	≧14	13.7	≧13	13.7	≧12.5	--	--
Marshall stability (kN)	11.2	≧10	14.5	≧10	15.3	≧10	14.5	≧10	--	--
Flow (mm)	2.4	≦4.0	2.9	≦4.0	2.5	≦4.0	3.1	≦4.0	--	--

* For reference only

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@ The precentage passing the 0.075mm BS test sieve shall not exceed 8.0%.

RAP Mix

Updated as at 2 May 2012

Summary of Provisionally Approved Mix Designs
Anderson Asphalt Limited
(RAP Mix)

1. Plant Location : Lam Tei Quarry

2. Source and Type of Constituent Materials :

Constituent Material	Source	Type
Bitumen	Shell (Hong Kong) Limited	Grade 60/70 pen
Coarse Aggregate (retained on 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Fine Aggregate (passing 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Filler (passing 75 μm BS sieve)	Lam Tei Quarry	Crushed rock filler

3. Mix Designs

Bituminous Material	10mm Wearing Course		20mm Wearing Course		28mm Base Course		37.5mm Base Course	
HyD Mix No.	--		20WC/AND/LT/RAP30/001		28BC/AND/LT/RAP30/001		--	
Supplier's Mix No.	--		20WC/AND/LT/RAP30/001		28BC/AND/LT/RAP30/001		--	
Date of Design	--		22-Mar-2012		27-Mar-2012		--	
Approval Date	--		23-Apr-2012		23-Apr-2012		--	
Expiry Date	--		22-Apr-2015		22-Apr-2015		--	
	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*	Design Data	GS Requirement*
Binder content (%)	--	--	5.1	4.6 - 5.6	4.6	4.1 - 5.1	--	--
B.S. Sieve (mm)	% Passing		% Passing		% Passing		% Passing	
50							--	--
37.5					100	100	--	--
28			100	100	96	92 - 100	--	--
20			96	92 - 100	89	82 - 96	--	--
14	--	--	87	80 - 94	78	71 - 85	--	--
10	--	--	79	72 - 86	67	60 - 74	--	--
5	--	--	67	60 - 74	47	40 - 54	--	--
2.36	--	--	48	41 - 55	35	28 - 42	--	--
1.18	--	--	35	28 - 42	26	19 - 33	--	--
0.600	--	--	27	22 - 32	19	14 - 24	--	--
0.300	--	--	18	13 - 23	15	10 - 20	--	--
0.150	--	--	12	9 - 15	10	7 - 13	--	--
0.075	--	-- --	7.8	5.8 - 9.8 10.8#	6.0	4.0 - 8.0 9.0#	--	-- --
	(Including 20% RAP)		(Including 30% RAP)		(Including 30% RAP)		(Including 30% RAP)	
	Marshall Properties		Marshall Properties		Marshall Properties		Marshall Properties	
Air voids in mix, VIM (%)	--	3.0 - 5.0	4.5	3.0 - 5.0	4.4	3.0 - 5.0	--	3.0 - 5.0
Voids in mineral aggregate, VMA (%)	--	≧16	15.2	≧14	14.1	≧13	--	≧12.5
Marshall stability (kN)	--	≧10	14.8	≧10	15.0	≧10	--	≧10
Flow (mm)	--	≦4.0	2.9	≦4.0	3.4	≦4.0	--	≦4.0

* For reference only

The precentage passing the 0.075mm BS test sieve shall not deviate from the approved design value by more than 3%.

@ The precentage passing the 0.075mm BS test sieve shall not exceed 8.0%.

Updated as at 2 May 2012

Summary of Provisionally Approved Mix Designs
Anderson Asphalt Limited
(Polymer Modified Mix)

1. Plant Location : Lam Tei Quarry

2. Source and Type of Constituent Materials :

Constituent Material	**Source**	**Type**	
Bitumen	Shell (Hong Kong) Limited	Cariphalte PG 76	
Coarse Aggregate (retained on 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)	Not applicable
Fine Aggregate (passing 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)	
Filler (passing 75 μm BS sieve)	Lam Tei Quarry Hydrated lime - Sun Man Lee, China	Mixture of crushed rock filler and hydrated lime	

3. Mix Designs

Bituminous Material	**10mm Polymer Modified Friction Course**		**3.35mm Polymer Modified Cushion Course**	
HyD Mix No.	10PMFC/AND/LT/PG/003		CC/AND/LT/PG/001	
Supplier's Mix No.	10PMFC/AND/LT/PG/003		CC/AND/LT/PG/001	
Date of Design	29-Dec-2010		6-Oct-2011	
Approval Date	21-Jan-2011		26-Oct-2011	
Expiry Date	20-Jan-2014		25-Oct-2014	
	Design Data	PS Requirement*	Design Data	PS Requirement*
Polymer modified binder content (%)	5.5	5.0 - 6.0	10.0	9.5 - 10.5
B.S. Sieve (mm)	% passing		% passing	
14	100	100		
10	96	92 - 100		
6.3	--	--	100	100
5	22	15 - 29	--	--
3.35	--	--	95	91 - 99
2.36	12	5 - 19	--	--
1.18	--	--	65	58 - 72
0.300	--	--	33	28 - 38
0.075	2.5 (including 1.5% hydrated lime)	0.5 - 4.5	15.0 (including 2% hydrated lime)	13.0 - 17.0
	Marshall Properties		Marshall Properties	
Air voids in mix, VIM (%)	21.1	$\geqq$20	--	--
Marshall quotient (kN/mm)	--	--	1.0	0.7 - 1.2
Binder drainage test	Pass	Tmax > Binder content	--	--

* For reference only

Updated as at 2 May 2012

Summary of Provisionally Approved Mix Designs
Anderson Asphalt Limited
(Special Mix)

1. Plant Location : Lam Tei Quarry

2. Source and Type of Constituent Materials :

Constituent Material	**Source**	**Type**
Bitumen	Shell (Hong Kong) Limited	Grade 60/70 pen
Coarse Aggregate (retained on 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Fine Aggregate (passing 5mm BS sieve)	Lam Tei Quarry	Crushed rock (Granite)
Filler (passing 75 μ m BS sieve)	Lam Tei Quarry Hydrated lime - Sun Man Lee, China	Mixture of crushed rock filler and hydrated lime
Fibre	J. Rettenmaier & Sohne (Germany)	Cellulose Fibre (Viatop66)

3. Mix Designs

Bituminous Material	**10mm Stone Mastic Asphalt**		**20mm Stone Mastic Asphalt**	
HyD Mix No.	10SMA/AND/LT/VIA/002		20SMA/AND/LT/VIA/003	
Supplier's Mix No.	10SMA/AND/LT/VIA/002		20SMA/AND/LT/VIA/003	
Date of Design	24-Nov-2010		26-Oct-2010	
Approval Date	17-Dec-2010		15-Nov-2010	
Expiry Date	16-Dec-2013		14-Nov-2013	
	Design Data	PS Requirement*	Design Data	PS Requirement*
Binder content (%)	6.1	5.6 - 6.6	6.1	5.6 - 6.6
B.S. Sieve (mm)	% Passing		% Passing	
28			100	100
20			96	92 - 100
14	100	100	87	80 - 94
10	96	92 - 100	73	66 - 80
5	36	29 - 43	28	21 - 35
2.36	26	19 - 33	20	13 - 27
1.18	--	--	--	--
0.600	--	--	14	9 - 19
0.300	--	--	12	7 - 17
0.150	--	--	--	--
0.075	9.0	7.0 - 11.0 12.0#	8.5	6.5 - 10.5 11.5#
	(including 2% hydrated lime)		(including 2% hydrated lime)	
	Marshall Properties		Marshall Properties	
Air voids in mix, VIM (%)	4.2	3.0 - 4.5	4.2	3.0 - 4.5
Voids in mineral aggregate, VMA (%)	17.1	$\geqq$17	17.3	$\geqq$17
Marshall stability (kN)	6.8	$\geqq$6	6.5	$\geqq$6
Flow (mm)	3.4	$\leqq$4	3.7	$\leqq$4
Binder draindown (%)	0.0	$\leqq$0.3	0.1	$\leqq$0.3

* For reference only

The precentage passing the 0.075mm BS test sieve shall not deviate from the approved design value by more than 3%.