**TABLES** 

Ling         Ling         200         Ling         Ling         Ling         200         Ling         200         2	River	Sub-Basin	Total Area					Each Land Use						
LA 2         LA 3         BAT         BAT </td <td></td> <td></td> <td></td> <td>Residential</td> <td>Commercial</td> <td>Industry</td> <td>Institutional</td> <td>Recreation</td> <td>Natural</td> <td>Paddy</td> <td></td> <td>Road</td> <td>Others</td>				Residential	Commercial	Industry	Institutional	Recreation	Natural	Paddy		Road	Others	
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LB-3         94         54         0         14         1         1         2         4           ubbal         37         124         1         12         3         37         38         57           Cb-1         123         19         1         123         37         38         58         7           Cb-1         13         14         1         121         40         14         63         1         5           Cb-13         130         25         130         26         13         60         14         60         160	Layar Besar				0									
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S. Petani         PPC-1         160         38         0         26         0         27         117         18         33         1           PE-3         143         0         20         100         1         33         1         33         1           PE-5         141         1         1         134         -         4         1           PE-5         414         1         1         134         -         18         27           PE-7         132         9         26         -         9         7         6           PE-10         82         13         1         19         3         344         2           PE-13         76         0         2         4         2         43         3           PE-14         113         76         0         0         1							4					7		
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PE-34         484         124         11         1         233         54         62           sub total         3,772         1,483         75         548         195         18         255         220         720         230           Pair         76         39         39         36         36         36         371           PA-1         76         39         7         38         255         220         720         230           PA-2         361         18         62         54         39         33         33         34         7         36         36         370         36         370         36         370         36         370					8	71			1					
sub total         3,772         1,483         75         548         195         18         255         220         720         230           Pasir         PA 1         76         39         39         36         327         36         37         39         36         37         36         37         36         37         36         37         36         36         37         36         36         37         36         36         36         36         36         36         36         36         36         37         36         37         36         37         37         37         37         37         37         37         37         37         37         38         37 <td< td=""><td></td><td></td><td></td><td></td><td></td><td>1</td><td>18</td><td>1</td><td></td><td></td><td>10</td><td></td><td> </td></td<>						1	18	1			10			
PA. 1         76         39         36         36           PA. 2         361         18         62         54         7         50         4           PA. 3         136         73         3         7         50         4           PA. 4         240         75         46         12         46         61           PA. 5         105         92         6         7         7         7         7           PA. 6         144         119         157         1         12         46         61           PA. 7         391         157         1         12         4         24         46         147           PA. 8         227         55         2         10         18         142         0           PA. 9         176         139         1         16         2         19         173           PA. 10         488         15         173         299         173         299         174           sub total         2,343         743         75         166         46         199         76         967         71		PE- 34									1			
PA-1         76         39         39         36         327           PA-2         361         18         62         54         7         50         4           PA-3         136         73         3         7         50         4           PA-4         240         75         46         12         46         61           PA-5         105         92         6         15         10         7         7           PA-6         144         119         157         1         12         46         147         7           PA-7         391         157         1         12         4         24         46         147           PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19         173           PA-10         488         15         173         299         173         299         173           sub total         2,343         743         75         166         46         199         76         967         71		sub total	3,772	1,483	75	548	195	18	255	220	720	230	2	
PA-2         361         18         62         54         227           PA-3         136         73         3         7         50         4           PA-3         136         73         3         7         50         4           PA-4         240         75         46         12         46         61           PA-5         105         92         6         7         7         7         7           PA-6         144         119         15         10         7         7         7         7           PA-7         391         157         1         12         4         24         46         147         7           PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19         173         299         173         299         173         299         173         173         299         173         14         16         19         76         967         71         14         16         173         173         16         16         17         16	Pasir		76			39					36			
PA-3         136         73         3         6         7         50         4           PA-4         240         75         46         12         46         61           PA-5         105         92         6         7         7         7         7           PA-6         144         119         15         10         7         7         7           PA-7         391         157         1         12         4         24         46         147         7           PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19         1           PA-10         488         15         173         299         173         299         1           sub total         2,343         743         75         166         46         199         76         967         71				18	62			1	1				1	
PA-4         240         75         46         12         46         61           PA-5         105         92         6         15         10         7         7           PA-6         144         119         155         10         7         7         7           PA-7         391         157         1         12         4         24         46         147           PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19         19           PA-10         488         15         173         299         173         299         112           sub total         2,343         743         75         166         46         199         76         967         71						1	7	1	1			4		
PA-5         105         92         6         7           PA-6         144         119         15         10         7           PA-7         391         157         1         12         4         24         46         147           PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19         173           PA-10         488         15         -         -         173         299         -           sub total         2,343         743         75         166         46         199         76         967         71					, j	44	1 '	1		12			1	
PA-6         144         119         15         10						+0	l	1			-		I	
PA-7         391         157         1         12         4         24         46         147           PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19           PA-10         488         15         1         173         299           sub total         2,343         743         75         166         46         199         76         967         71					°.			1			1	1 '		
PA-8         227         55         2         10         18         142         0           PA-9         176         139         1         16         2         19         19           PA-10         488         15         173         299         16         173         299           sub total         2,343         743         75         166         46         199         76         967         71								1						
PA-9         176         139         1         16         2         19           PA-10         488         15         173         299           sub total         2,343         743         75         166         46         199         76         967         71									24			l .	ł	
PA- 10         488         15         173         299           sub total         2,343         743         75         166         46         199         76         967         71						1				18		0	1	
sub total 2,343 743 75 166 46 199 76 967 71					1	l	16	1					1	
							L	Į					I	
grand total 10,063 2,758 245 853 634 103 601 570 3,789 415		sub total	2,343	743	- 75	166	46		199	76	967	71	<u> </u>	
grand total 10,063 2,758 245 853 634 103 601 570 3,789 415		34.4-1												
	gran	ki (Olal	10,063	2,758	245	853	634	103	601	570	3,789	415	,	

## Table 2-1 (1/2) Present Land Use (Sungai Petani)

River	Sub-basin	Sub-Basin	Total Area				Area for I	Each Land Use Cate	gory (ha)			
Basin		No.	(ha)	Residential	Commercial	Industry	Institutional	Recreation	Natural	Paddy/Dry Crop	Road	Others
Lelch	Udang	UD- 1	385	79	1		0	1	290 234	171	9 15	5 75
		UD-2 UD-3	734 402	99 252		135 74	6		234	43	10	23
	S. Gajah	GA-1	583	18			ů	ļ	39	494	9	24
		GA- 2	134					1		124	4	5
		GA- 3	102	28					. 1	49	5	19
		GA-4	67	5		3	1		1	54 633	8 12	1 286
	Leich	LE- 1 total	1,075	137 618	4	212	5		563	1,567	74	438
Malim	Ayer Salak	AS-1	848	5		219	2			469	10	143
		AS- 2	337	20	1	24	0			74	8	210
		AS- 3	315	5	0	12	1			215 105	10 7	72 35
	Ayer Hitam	AS- 4 AH- 1	168 953	16 14	2 3	4	1			762	9	131
	Ауса пікаш	AH- 2	262	25	,	28			1	125	7	78
		AH- 3	150	11						74	5	60
		AH- 4	104	14	6		3			33	10	38
		AH- 5	224	49				6		71 167	5	93 30
	Malim	AH-6 MA-1	210 464	4 34		132	3			153	9	136
	Matun	MA-1 MA-2	226	42	3	1,52	3			137	4	37
		MA- 3	276	23	i					198	6	47
		MA- 4	416	100	4	48		1		155	10	97
	ļ	MA- 5	240	49	0	1	1	6		151 2,890	9	29
Melaka (1)	Sub- Melaka	total UM- 1	5,193 497	411 29	19	<u>502</u> 2	13	•		312	115	27
micianii (1)	WICIARA	UM-1 UM-2	361	139	1	18	15			115	8	65
		UM- 3	42		4	0	14				4	20
		total	900	167	5	20	141	-		427	28	113 51
Melaka (2)	Melaka	ME-1 ME-2	80 389	8	2 3	10 10	2 37	5		87	20	142
		ME-2 ME-3	225	67	9	31	6	2		19	8	85
		ME-4	86	40		_	8			1	4	32
		ME-5	236	49	4	63	37	1		48	8	26
	ļ	ME- 6	240	109	7		27 4	1		71 5	10 3	15 1
	ł	ME-7 ME-8	45 183	25 70	5 18		4	2		64	8	22
	1	ME- 8 ME- 9	225	64	6	1	1			135	11	8
		ME- 10	143	81	3					40	7	13
		ME-11	52	18	4					15	6	8
		ME- 12	33	15	2					5 13	3	8
		ME- 13 ME- 14	51 43	23 19	3		6			6	3	0
		ME- 14 ME- 15	86	44	18		5			3	7	9
		ME- 16	100	33	3		18			2	9	34
		ME- 17	110	23	43		1			515	5	38 500
Chana	Sub S. Bangsal	-total	2,326	771 29	138	115 4	154	,	•	47	6	43
Cheng	5. Bangsai	SB- 1 SB- 2	140	6		5				119	5	5
	Arang	AR- 1	289	8						260	9	12
		AR- 2	216	12	. 0	1	0	1		149	5	48 - 17
		AR- 3	178	44						111 676	7	
	Jenuang	JN- 1 JN- 2	685 280		2	0				270	6	2
	·	JN- 3	1,281	18	3	49				1,208	2	
	1	JN- 4	263	13		3	0			185	4	57
	Cheng	СН- 1	229	19	2	63	8	1		100 3,124	10 64	90 274
Putat		-total PU- 1	3,691	149	1 1	63	5	<u> </u>		54	9	163
rutat	Putat	PU- 2	68					28		4	7	27
1		PU- 3	91	5			58			14	6	9
		PU- 4	203		1		16				12	149 59
1	1	PU-5	100			109	38 50				3 5	59
		PU- 6 PU- 7	336 366				4			50	7	86
		PU- 8	560				43			45		215
1		PU- 9	.356	116		10	16			1	7	121
	Sub	-total	2,310						·	168	<u>57</u>	887 25
Minor		CD-1	97 44				2		1	1	4	23 7
Basin	- ·	CD- 2 CD- 3	214				1	0		67	5	29
I	1	CD-4	371						1	205	10	31
1		CD-5	87	29			1	1	1	41	8	9
	1	CD- 6	56					1	l	20	6	7
		CD- 7	245						1	203	8	13 7
l		CD- 8 CD- 9	77 66			60 61				l °	4	'
I	Sul	-total	1,256		40			12	•	542	57	128
				1	1				563	9,233	518	3,577
I	grand total	I	19,157	3,007	246	1,221	556	236	263	5,233	518	3,377

## Table 2-1(2/2) Existing Land Use (Melaka)

Code	Catchment Area (km <sup>2</sup> )	Key Drainage System	Urban Area in Catchment (%)	Average Drai Discharge (m <sup>3</sup> /s)	Average Drainage Capacity           Discharge         Return Period           (m <sup>3</sup> /s)         (Year)	Functional Detention Pond	Area Affected by Flooding	Remarks
Lalang Bas	sin (Total Dra	Sg. Lalang Basin (Total Drainage Area : 24.53 km <sup>2</sup> )	n <sup>2</sup> )					
LA-1	2.29	Sg. Lalang	0.0	4.0	less than 2			
LA-2	2.53	Sg. Lalang	0.0	-				
L.A-3	3.47	Sg. Lalang	0.0	1				
LA-4	2.73	Alur C	0.0	2.0	less than 2			
LA-5	1.14	Alur A	0.0	1.7	less than 2			
LA-6	2.88	Alur A	6.7	•	•			
LA-7	1.18	Internal Drain	100.0	1.8	less than 2	19. Kaw. Industri LPK(148,140 m <sup>3</sup> )		Taman Ria Jaya & Kaw. Industri LPK
LA-8	2.39	Sg. Bakap	82.8	2.0	less than 2			
LA-9	3.17	Sg. Bakap	44.0	•	•			
LA-10	1.80	Sg. Lalang	34.9	•	8			
LA-11	0.95	Sg. Lalang	9.5		1			
<b>Cukang Ba</b>	sin (Total Dr	Sg. Tukang Basin (Total Drainage Area : 7.93 km <sup>2</sup> )	1 <sup>2</sup> )					
TU-1	1.35	Internal Drain	98.6	4.0	less than 2	2. Taman Ria (46,520 m <sup>3</sup> )		Taman Ria
TU-2	1.45	Sg. Tukang	20.6	0.8	less than 2		Kg. Huda	
TU-3	0.49	Cabang I-M	4.4	2.0	less than 2			
TU-4	0.18	Sg. Tukang	22.4	6.0	less than 2			
TU-5	2.09	Cabang H-L	100.0	10.0	less than 2			
TU-6	0.89	Sg. Tukang	75.7		•			
TU-7	1.48	Internal Drain	26.2	(unknown)	•			Taman Laguna Merbok (under construction)
ayar Besa	tr Basin (Tota	Sg. Layar Besar Basin (Total Drainage Area : 3.77	3.77 km <sup>2</sup> )					
LB-1	0.66	Sg. Layar Besar	86.9	2.0	less than 2			
LB-2	1.32	Sg. Layar Besar	88.6	3.8	less than 2			
8	0.94	Cabang D-E	76.9	7.0	less than 2			
LB-4	0.85	Sg. Layar Besar	6.9	0	less than 2			
Che Bima I	Basin (Total	Sg. Che Bima Basin (Total Drainage Area : 3.27 km <sup>2</sup> )	km²)					
CB-1	1.25	Sg. Che Bima	23.4	0.2	less than 2			
CB-2	1.19	Sg. Che Bima	9.6	1.3	less than 2			
CB-3	0.83	Sg. Che Bima	34.5	0	less than 2			

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Table 2-2(1/3) Present Drainage Conditions in Sg. Petani

Sub-basin Catchment Code Area (km <sup>2</sup> )	Kev Drainage	TT-Law Aura	A verges Drai		Emerican	Area Affaated	
Area (km <sup>2</sup> )	Sammer for	Urban Area	AVCIAGE DIA	Average Drainage Capacity	T.MIMMIN	Alea Allected	Remarks
	System	in Catchment (%)	Discharge (m <sup>3</sup> /s)	Return Period (Year)	Detention Pond	by Flooding	
Sg. Petani Basin (Total Drainage Area :	1age Area : 37.72 km <sup>2</sup> )						
1.60	Sg. Pasir Kechil	27.2	4.0	less than 2			
	Sg. Pasir Kechil	90.2	2.2	less than 2			
1.43	Line A1	76.5	35.0	more than 2			
1.41	Line A1	96.8	2.4	less than 2			
0.41	Line A1	15.8	-	•			
. 0.96	Sg. Petani	53.1	5.0	less than 2			
1.32	Line A	19.6	1.5	less than 2			
	Line A	78.9	2.0	less than 2			
	Sg. Petani	7.3	•	J			
0.82	Line B	42.3	3.5	less than 2			
	Sg. Petani	80.6	1			Kg. Haji Wahab	-
	Line C	72.4	4.0	less than 2	4. Taman Ria Jaya (366,320 m <sup>3</sup> )		
0.76	Sg. Petani	41.2	•	•			
1.13 1	Line D	84.2	2.0	less than 2	3. Taman Ria Jaya (70,600 m <sup>3</sup> )		
0.32	Sg. Petani	100.0	•	T			
	Line E	97.5	1.5	less than 2		Kg. Raja	
0.55 1	Line F	58.0	3.0	less than 2			
0.46	Sg. Petani	71.7	•	-			
1.98 1	Line G	41.5	3.0	less than 2	15. Taman Keladi (89,500 m <sup>3</sup> )		
1.21	Line G	63.8	3.5	less than 2	14. Taman Sri Wang $(6,190 \text{ m}^3)$		
0.21	Sg. Petani	98.8	-	•			
0.43 1	Line H	56.0	1.5	less than 2			
0.71	Sg. Petani	9.66	-	-			
1.18 1	Line N	95.3	10.0	less than 2			
1.14 5	Sg. Air Mendidih	59.0	1.0	less than 2		Kg. Benggali (Line P)	
1.08	Sg. Air Mendidih	94.2	0	less than 2			
0.45	Sg. Petani	85.5	•	-			
1.46	Sg. Gelugor	100.0	2.5	less than 2	13. Taman Sri Wang $(6,570 \text{ m}^3)$		•
1.30 5	Sg. Gelugor	98.2	0	less than 2			
I 0.91 I	Line Q	100.0	1.8	less than 2			
0.39 5	Sg. Petani	86.8	-	•			
-	Sg. Bakar Arang	96.6	0	less than 2			
	Line R	64.9	11.0	less than 2			
4.84 5	Sg. Petani	40.8	1	•			

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Table 2-2(2/3) Present Drainage Conditions in Sg. Petani

	_			_	<del></del>	<u> </u>				_		-			_	
	Remarks			-			Taman Keladi (under	construction)								
	Area Affected	by Flooding										Kg. Pokok Limau	Kg. Pasir			
(2/2) I I COCHI DI AIHAGE COMMINIONS III DG. I CIAIH	Functional	Detention Pond								more than 2   12. Taman Sejati Indah (101,850 m <sup>3</sup> )	18. Taman Kempas (6,810 m <sup>3</sup> )		9. Taman Semarak I $(34,530 \text{ m}^3)$ , 10.	( III (4,220 III ), 111 .111 ( III 0CC,4) II		
coult Di alliag	Average Drainage Capacity	Return Period	(Year)		less than 2	-	•		•	more than 2	-	•	1		less than 2	1
11 (010)7-7	Average Dra	Discharge	(m²/s)		0.3	-	(unknown)		-	10.0	-	•	,		25.3	-
T anne T	Urban Area	in Catchment	(%)	(	52.2	37.2	63.0		75.6	100.0	100.0	44.5	29.7		88.1	3.2
	Key Drainage	System		Sg. Pasir Basin (Total Drainage Area : 23.44 km <sup>2</sup>	Sg. Pasir	3.61 Sg. Pasir	Internal Drain		Sg. Pasir	Drain I & II	Sg. Pasir	Sg. Pasir	Sg. Pasir		Drain III & IV	4.88 Sg. Pasir
	Catchment	Area	(km <sup>-</sup> )	isin (Total Drain	0.76	3.61	1.36		2.40	1.05	1.44	3.91	2.27		1.76	4.88
	Sub-basin	Code		Sg. Pasir Ba	PA-1	PA-2	PA-3		PA-4	PA-5	PA-6	PA-7	PA-8		PA-9	PA-10

Table 2-2(3/3) Present Drainage Conditions in Sg. Petani

Catchment Ke	Key Drainage	Urban Area	Average Drai	Average Drainage Capacity	Area Affected	Remarks
	System	in Catchment (%)	Discharge (m <sup>3</sup> /s)	Return Period (Year)	by Flooding (Functional Detention Pond)	
Sg. Lereh Basin (Total Drainage Area : 34.82 km <sup>2</sup> )	tm²)					
Sg. Udang		23.1	1			
Sg. Udang		34.5				
Sg. Udang		83.7	•	•		
Sg. Seberang Gajah	ıh	4.6	•	•		
Sg. Seberang Gajah	ıh	3.2	•	•		
Sg. Seberang Gajah	th	33.1	•	•		
Sg. Seberang Gajah	th	18.7				
Sg. Lereh		14.6	1			
Sg. Malim Basin (Total Drainage Area : 51.93 km <sup>2</sup> )	km²) .					
Sg. Ayer Hitam		6.3	•			
Sg. Ayer Hitam		22.6	•			
Sg. Ayer Hitam		10.7	•			
Sg. Ayer Hitam		31.8	•	1		
Pt. Cheng Besar		26.7	5.0	less than 2		
Pt. Cheng Kecil		5.9	1.5	less than 2		
Sg. Ayer Salak		27.8	-	•	Taman Rambai Indah	
Sg. Ayer Salak		15.7	•		(1.Kaw. Industri Bukit Rambai: 23,450 m <sup>3</sup> )	
3.15 Pt. AB I		8.8	10.0	less than 2	Tanjung Minyak (Sg. Ayer Hitam)	
Sg. Ayer Salak		17.0	-	•		
Sg. Malim		37.7	•	•		
Sg. Malim		23.2	-			
2.76 Pt. Setulang Daing	50	10.9	1.5	less than 2		
Sg. Malim		39.3	•			
Sg. Malim		24.9	•	•		
ream of Merdeka Bai	Sg. Melaka Basin [Downstream of Merdeka Barrage] (Total Drainage Area : 23.27 ${ m km}^2$ )	: 23.27 km²)				
0.80 Sg. Melaka and Sn	Sg. Melaka and Small Individual Drains	35.5	-	•		
Drain I		40.9	8.8	less than 2		
Sg. Melaka and Sn	Sg. Melaka and Small Individual Drains	54.0	•		Kg. Bachang	
0.86 Drain II		61.1	(unknown)	•		
Sg. Melaka and Sn	Sg. Melaka and Small Individual Drains	68.8	-	•		
Drain III		64.2	22.1	less than 2		
Drain IV		86.2	(unknown)	•		
Sg. Melaka and Sn	Sg. Melaka and Small Individual Drains	53.0	•	•		
Drain V (Pt. Line A Selatan)	A Selatan)	36.5	45	less than 2		

Table 2-3(1/3) Present Drainage Conditions in Melaka

Suh-hasin	Catchment	Kev Drainage	I Irhan Area	I Ithan Area Average Drainage Canacity	Average Drainage Canacity	Area Affected	Ramarke
Code	Area	System	in Catchment	Discharge	Return Period	by Flooding	WUILIN NO
	(km <sup>-</sup> )		(%)	(m²/s)	(Year)	(Functional Detention Pond)	
ME-10	1.43	Drain VI	63.4	12.5	less than 2		
ME-11	0.52	Drain VII	55.2	2.9	less than 2	Kg. Lapan	
ME-12	0.33	Drain VIII	61.5	2.9	less than 2	Kesidang	
ME-13	0.51	Sg. Melaka and Small Individual Drains	59.7		1		
ME-14	0.43	Drain IX	85.9	17.5	more than 2		
ME-15	0.86	Sg. Melaka and Small Individual Drains	85.6	•	1		
ME-16	1.00	Drain X	63.4	4.8	less than 2	Durian Daun	
ME-17	1.10	Sg. Melaka and Small Individual Drains	65.3	•	•		
Melaka	Basin (Upstreau	Sg. Melaka Basin (Upstream of Merdeka Barrage)					
JN-1	6.85	Sg. Jenuang	1.3				
JN-2	2.80	Sg. Jenuang	2.9	•	•		
JN-3	12.81	Sg. Jeram	5.7	•			
JN-4	2.63	Sg. Jeram	8.0	•	•		
AR-1	2.89	Sg. Paya Rumpat	5.9	5.0	less than 2		
AR-2	2.16	Sg. Paya Rumpat	9.0	•	•		
AR-3	1.78	Sg. Paya Rumpat	28.5	•			
SB-1	1.29	Sg. Solo Bangsal	30.5	1.5	less than 2		
SB-2	1.40	Sg.Solo Bangsal	11.0	0.4	less than 2		
CH-1	2.29	Sg. Cheng	17.4	-			
UM-1	4.97	Internal Drain of Melaka Air Port	31.7	•	-		
UM-2	3.61	Internal Drain of Taman Merdeka	50.2	66.2	more than 2		
UM-3	0.42	Sg. Melaka and Small Individual Drains	52.5	•	1		
utat B¿	asin (Total Drai	Sg. Putat Basin (Total Drainage Area : 23.11 km <sup>2</sup> )					
PU-1	2.31	Sg. Ayer Keroh	6.0	•			Reservoir Area
PU-2	0.68	Sg. Ayer Keroh	54.8	•	•		
PU-3	0.91	Sg. Ayer Keroh	75.3	•			
PU-4	2.03	Sg. Ayer Saga	26.3	10.0	less than 2		
PU-5	1.00	Sg. Ayer Keroh	41.3	•	•		
PU-6	3.36	Sg. Bt. Bruang	82.6	40.0	less than 2	Jalan Ayer Keroh Height	
PU-7	3.66	Sg. Ayer Manggis	62.7	100.0	more than 2		
PU-8	5.60	Sg. Putat	53.5	ı	ł	Kg. Sg. Putat	
PU-9	3.56	Sg. Putat	65.7	•		Kg. Pulau Nibong	

Table 2-3(2/3) Present Drainage Conditions in Melaka

Curb basin Cat		Var. Daringer	TILLAR Acco	V V V V		A A DT - 1	•
Ľ.	Catcoment	ney uramage	Urban Area	Average Dra	Average Drainage Capacity	Area Attected	Kemarks
7	Area	System	in Catchment	Discharge	Return Period	by Flooding	
5	(km <sup>2</sup> )		(%)	(m <sup>3</sup> /s)	(Year)	(Functional Detention Pond)	
nage	Coastal Drainage System						
	0.97	Drain XI	74.3	64.7	more than 2		
	0.44	Drain XII	83.4	8.0	less than 2		
	2.14	Drain XIII	55.3	111.1	less than 2	Kg. Sembilam & Taman Usrah Jaya	
	3.71	Drain XIV (Pt. Pokok Mangga)	36.3	1.3	less than 2	Kg. Pokok Mangga	
	0.87	Drain XV	42.6	4.8	less than 2		
	0.56	0.56 Drain XVI	50.2	4.4	less than 2		
	2.45	Drain XVII	11.8	9.5	less than 2		
	0.77	Drain XVIII	83.6	25.3	more than 2		
	0.66	0.66 Internal Drain of PETRONAS Refinery	100.0	4	ſ		

Table 2-3(3/3) Present Drainage Conditions in Melaka

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No.	Name of Development	Area of Development	Catchment	Area	Depth	Storage	Drainage System	Equivalent
Sunga	Sungai Petani	manidatatat				Capavity		outage Capacity
. 1	Taman Wira Jaya	17.1 ha	17.1 ha	2,000 m <sup>2</sup>	3.0 m	4,800 m <sup>3</sup>	Sg. Air Mendidih, Sg. Petani [PE-25]	280 m³/ha
. 2	Taman Ria	111.7 ha	111.7 ha	$23,260 \text{ m}^2$	3.0 m	55,820 m <sup>3</sup>	Sg. Tukang [TU-1]	500 m <sup>3</sup> /ha
3	Taman Ria Jaya (Makyong)	240.8 ha	76.6 ha	$14,120 \text{ m}^2$	6.0 m	$76,200 \text{ m}^3$	Line D, Sg. Petani [PE-14]	990 m <sup>3</sup> /ha
4	Taman Ria Jaya (Kaw. Industri Ringan)		94.7 ha	45,790 m <sup>2</sup>	9.0 m	384,640 m <sup>3</sup>	Line C, Sg. Petani [PE-12]	4,060 m³/ha
5	Taman Mutiara Indah	18.9 ha	18.9 ha	$2,040 \text{ m}^2$	3.5 m	$5,920 \mathrm{m}^3$	Line E, Sg. Petani [PE-16]	$310 \text{ m}^3/\text{ha}$
9	Taman Cengal Indah	6.3 ha	6.3 ha	$270 \text{ m}^2$	3.0 m	650 m <sup>3</sup>	Line F, Sg. Petani [PE-17]	$100  {\rm m}^3/{\rm ha}$
6	Taman Sutera	9.9 ha	9.9 ha	$840 \text{ m}^2$	2.5 m	$1,600  {\rm m}^3$	Sg. Petani [PE-11]	160 m <sup>3</sup> /ha
∞	Taman Arked	45.0 ha	29.9 ha	$3,450 \text{ m}^2$	2.5 m	6,560 m <sup>3</sup>	Sg. Bakar Arang, Sg. Petani [PE-32]	220 m <sup>3</sup> /ha
6	Taman Semarak (I)	57.3 ha	26.2 ha	$13,280 \text{ m}^2$	3.6 m	$39,840 \text{ m}^3$	Sg. Pasir [PA-8]	$1,520 \text{ m}^3/\text{ha}$
10	Taman Semarak (II)		9.6 ha	2,560 m <sup>2</sup>	2.7 m	$5,380  {\rm m}^3$	Sg. Pasir [PA-8]	560 m <sup>3</sup> /ha
11	Taman Semarak (III)		15.7 ha	$4,770 \text{ m}^2$	4.8 m	$20,030 \text{ m}^3$	Sg. Pasir [PA-8]	1,280 m <sup>3</sup> /ha
12	Taman Sejati Indah	136.6 ha	92.4 ha	$20,370 \text{ m}^2$	6.0 m	$110,000 \mathrm{m}^3$	Sg. Pasir [PA-5]	1,190 m <sup>3</sup> /ha
13	Taman Sri Wang (K/Api)	54.1 ha	16.4 ha	4,380 m <sup>2</sup>	2.5 m	8,320 m <sup>3</sup>	Sg. Gelugor, Sg. Petani [PE-28]	510 m <sup>3</sup> /ha
14	Taman Sri Wang (J/Raya)		37.7 ha	$6,190 \text{ m}^2$	1.5 m	$5,570  {\rm m}^3$	Line G, Sg. Petani [PE-20]	150 m <sup>3</sup> /ha
15	Taman Keladi	116.9 ha	149.6 ha	$17,900 \text{ m}^2$	6.0 m	96,660 m <sup>3</sup>	Line G, Sg. Petani [PE-19]	650 m <sup>3</sup> /ha
16	Taman Permai	18.7 ha	18.7 ha	$540 \text{ m}^2$	1.6 m	$540 \mathrm{m}^3$	Sg. Pasir [PA-7]	$30 \text{ m}^3/\text{ha}$
17	Taman Desa Meranti	17.9 ha	17.9 ha	$1,340  { m m}^2$	1.5 m	$1,210 \text{ m}^3$	Sg. Pasir [PA-7]	70 m³/ha
18	Taman Kempas (Atas)	185.3 ha	50.4 ha	$4,540 \text{ m}^2$	2.5 m	8,630 m <sup>3</sup>	Sg. Pasir [PA-6]	170 m <sup>3</sup> /ha
19	Kawasan Industri LPK	322.9 ha	121.7 ha	$24,690 \text{ m}^2$	7.0 m	$158,020 \text{ m}^3$	Sg. Lalang [LA-7]	$1,300  {\rm m}^{3}/{\rm ha}$
20	Taman Nilam	24.1 ha	90.9 ha	$9,250 \text{ m}^2$	1.5 m	$8,330 \mathrm{m}^3$	Sg. Pasir [PA-9]	$90 \text{ m}^3/\text{ha}$
Melaka	e							
-1	Kaw. Industri Bukit Rambai	64.2 ha	61.1 ha	26,060 m <sup>2</sup>	1.5 m	23,450 m <sup>3</sup>	Sg. Ayer Salak [AS-2]	380 m³/ha

Table 2-4 Existing Detention Pond in the Study Area

T- 9

	River	Channel	Distanc	$(m)^{*1}$	-	ow Capacity 3/s)	Probal	ble Discharge	(m3/s)
		No.	Downstream	Upstream	Average	Minimum	2 year	5 year	100 year
Lalang	Bakap	CLA-7	0.0	2840.5	4.4	0.1	76	92	137
		CLA-6	2840.5	4045.0	77.1	1.7	41	50	72
	Line A	CLA-5	0.0	3556.5	6.9	0.6	45	55	85
	Main Stream	CLA-4	0.0	1549.0	Nil	Nil	162	193	296
		CLA-3	1549.0	3016.0	8.7	Nil	160	199	304
		CLA-2	3016.0	5239.0	4.1	0.7	53	66	101
		CLA-1	5239.0	6989.0	4.8	1.9	36	44	70
Tukang	Main Stream	CTU-3	0.0	1825.0	6.3	Nil	53	67	105
		CTU-2	1825.0	2542.0	5.9	0.8	32	39	58
		CTU-1	2542.0	3900.0	2.3	0.3	27	32	47
Petani	Line A1	CPE-13	0.0	870.0	0.6	Nil	50	67	101
		CPE-12	870.0	2200.0	140.1	2.2	55	61	91
	Main Stream	CPE-10	0.0	4193.0	Nil	Nil	150	196	325
		CPE-9	4193.0	4723.0	Nil	Nil	174	220	348
		CPE-8	4723.0	5711.0	Nil	Nil	158	199	311
		CPE-7	5711.0	6691.0	Nil	Nil	149	183	279
		CPE-6	6691.0	7193.0	Nil	Nil	152	185	282
		CPE-5	7193.0	8193.0	28.3	Nil	140	170	256
		CPE-4	8193.0	8900.0	7.2	5.1	139	168	255
		CPE-3	8900.0	9482.0	7.1	3.0	138	167	251
		CPE-2	9482.0	10400.0	14.8	4.8	125	154	233
		CPE-1	10400.0	11200.0	5.5	2.5	112	135	201
Pasir	Main Stream	CPA-6	0.0	1400.0	Nil	Nil	131	165	262
		CPA-5	1400.0	4254.0	8.3	Nil	119	149	233
		CPA-4	4254.0	4954.0	3.3	1.0	112	138	211
		CPA-3	4954.0	6554.0	2.7	0.5	96	120	185
		CPA-2	6554.0	7654.0	8.4	0.3	83	103	159
		CPA-1	7654.0	10054.0	8.6	0.2	63	77	115

Table 2-5(1/2) Average Flow Capacity and Probable Discharge (Sg. Petani)

Note :

\*1 : Distance from river mouth or confluence with mainstream.

	River	Channel	Distanc	e (m) <sup>*1</sup>	Ű,	ow Capacity 3/s)	Probat	ole Discharge (	(m3/s)
		No.	Downstream	Upstream	Average	Minimum	2 year	5 year	100 year
Lereh	Main Stream	CLE-1	0.0	2800.0	14.9	7.2	117	172	334
	Udang	CLE-2	4383.0	7231.0	10.0	2.7	85	112	191
		CLE-3	0.0	4383.0	7.1	Nil	101	134	227
	S.Gajah	CLE-4	0.0	1800.0	9.0	2.4	32	47	93
Malim	Main Stream	CMA-1	365.7	2682.1	288.2	239.0	180	261	507
	Ayer Salak	CMA-2	0.0	1200.0	470.3	346.4	69	91	155
		CMA-3	1200.0	3000.0	167.6	84.9	70	97	174
		CMA-4	3000.0	4800.0	135.6	81.7	82	116	210
	Bertam ULU	CMA-5	0.0	600.0	31.8	15.5	41	58	111
	Ayer Hitam	CMA-6	4000.0	4650.0	51.9	39.6	54	76	143
		CMA-7	3100.0	4000.0	42.9	28.4	58	81	153
		CMA-8	1500.0	3100.0	30.0	23.2	58	158	158
		CMA-9	0.0	1500.0	41.8	20.4	64	92	174
Melaka	Main Stream (1)*2	CME-1	13536.0	14451.2	440.1	383.5	155	221	425
	Main Stream (2)*	CME-2	11400.0	13600.0	13.5	10.7	11	14	21
		CME-3	9600.0	11400.0	20.1	10.5	60	82	141
		CME-4	8400.0	9600.0	14.7	5.8	148	210	380
		CME-5	7400.0	8400.0	9.9	5.9	147	208	382
		CME-6	5200.0	7400.0	12.0	6.0	146	208	387
		CME-7	4400.0	5200.0	12.6	5.3	148	211	393
		CME-8	2800.0	4400.0	22.9	5.3	148	211	393
		CME-9	2000.0	2800.0	56.6	46.0	144	206	384
		CME-10	1000.0	2000.0	61.1	6.0	138	200	377
Cheng	Main Stream	CCH-1	0.0	2000.0	14.7	Nil	123	184	368
	Paya Rumput	CCH-3	0.0	1400.0	2.8	1.1	26	37	69
	Jenuang	CCH-5	0.0	2400.0	1.9	Nil	33	50	102
	Jeram	CCH-6	0.0	1800.0	21.5	17.0	82	121	245
Putat	Ayer Keroh	CPU-1	0.0	1400.0	9.5	1.2	17	22	39
	Main Stream	CPU-2	5625.0	6500.0	9.6	1.8	54	71	117
		CPU-3	4200.0	5625.0	10.2	2.8	128	171	294
		CPU-4	1800.0	4200.0	10.2	1.5	128	171	294
		CPU-5	0.0	1800.0	Nil	Nil	122	163	283

Table 2-5(2/2) Average Flow Capacity and Probable Discharge (Melaka)

Note: \*1 Distance from river mouth or confluence with mainstream. \*2 Upstream from Diversion point \*3 Downstream from Diversion point

		-	1 4 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	I adje 2-0 F Ioounig Comundis in fiablical inungation Afea	
Area	Key		Flooding Situation	Major Causes of Flooding	Remarks
	Drainage			)	
	System	_			
Sungai Petani					
Kg. Benggali	Line P	•	0.3 to 0.5 m in depth twice to three times a year	Overflow along Line P due to poor drainage	
		•	Flooding for 1 to 2 hours	capacity	
		+		<ul> <li>Development activities in upper reaches</li> </ul>	
Kg. Haji Wahab	Sg. Petani	• •	0.3 to 0.5 m in depth Flooding hy coincidence with heavy downsom	• Poor channel capacity due to sharp bend	
			and high tide		
Kg. Pokok Limau	Sg. Pasir	• •	0.5 to 1 m in depth after every heavy downpour Flooding for 1 to 3 hours	Poor capacity of channel and culvert	
Kg. Hi Rashid	Sg. Pasir	•	0 3 m in denth	<ul> <li>Door channel connectes</li> </ul>	
<b>P</b>			Elonding hy onincidence with hours december		
×			r roouning by connence with neavy downpour and high tide		
Kg. Huda	Sg.	٠	0.5 to 1 m in depth after every heavy downpour	Poor drainage capacity	
	Iukang			<ul> <li>Development activities in upper reaches</li> </ul>	
Melaka					
Kg. Sg. Putat	Sg. Putat	•	0.5 to 1 m in depth after every heavy downpour	Overflow along Sg. Putat due to poor drainage	Affected families: 32 in May 1998,
& Kg. Pulau	<i></i>	•	Flooding for 1 week	capacity	38 in Nov. 1998
INIDOING		_		<ul> <li>Development activities in upper reaches</li> </ul>	
JI. Ayer	Sg. Bt.	•	Flooding along national road after every heavy	<ul> <li>Poor drainage pipe capacity</li> </ul>	
Keron Height	Bruang	$\downarrow$	downpour	<ul> <li>Industrial development in upper reaches</li> </ul>	
Tanjung	Sg. Ayer	•	Flooding along right bank after every heavy	<ul> <li>Poor drainage capacity</li> </ul>	Affected families: 8 in Oct. 1996
INTILIYAR		$\downarrow$	downpour	<ul> <li>Development activities in upper reaches</li> </ul>	
I aman	Sg. Ayer	•	Flooding on lower portion of estate after every	<ul> <li>Lack of enough platform level</li> </ul>	Affected families: 44 in Jan. 1997,
kamoal indan	Salak	_	heavy downpour	<ul> <li>Development activities in upper reaches</li> </ul>	81 in Aug. 1998, 52 in Nov. 1998
Kg. Durian	Trunk	•	0.4 m in depth after 1-hour heavy downpour	<ul> <li>Poor capacity of roadside drain</li> </ul>	
Daun Dalam	draın	_		Depressed hinterland in entire drainage basin	
Kg. Lapan,	Roadside	•	Flooding on lower portion after every heavy	<ul> <li>Poor capacity of roadside drain</li> </ul>	
bacnang	arain	_		Depressed hinterland in entire drainage basin	
Kesidang	Trunk	•	Flooding on lower portion after 1-hour heavy	<ul> <li>Poor capacity of roadside and trunk drain</li> </ul>	
	araın		downpour	<ul> <li>Depressed hinterland in entire drainage basin</li> </ul>	
Kg. Sembilan	Trunk drain	•	0.5 m in depth after every heavy downpour	Poor capacity of trunk drain	
	main	•	rioouing situation lasting for 30 years		

Table 2-6 Flooding Conditions in Habitual Inundation Area

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