Table 3.2.1 THE SPECIFICATION OF CORE DRILLING

A. West Floodway / Garang River

2 RB - 2 15 14 1 13 - Sep - 97 14 - 14 3 RB - 3 15 14 1 23 - Sep - 97 24 - 24 - 24 - 24 - 24 - 24 - 24 - 24 -	0.00
2 RB - 2 15 14 1 13 - Sep - 97 14 - 14 3 RB - 3 15 14 1 23 - Sep - 97 24 - 24 - 24 - 24 - 24 - 24 - 24 - 24 -	Aug - 97
3 RB - 3 15 14 1 23 - Sep - 97 24 - 4 4 RB - 4 15 14 1 26 - Sep - 97 27 - Sep - 97 22 - Sep - 97 23 - Sep - 97 22 - Sep - 97 23 - Sep - 97 23 - Sep - 97 22 - Sep - 97 23 - Sep - 97 24 - Sep - 97 25 - Sep - 97 25 - Sep - 97 25 - Sep - 97 26 - Sep - 97 26 - Sep - 97 27 - Sep - 97 26 - Sep - 97 27 - Sep	Sep - 97
4 RB - 4 15 14 1 26 - Sep - 97 26 - Sep - 97 22 - Sep - 97 12 - Sep - 97 23 - Sep - 97 23 - Sep - 97 24 - Sep - 97 25 - Sep - 97 26 - Sep - 97 27 - Sep - 97 27 - Sep - 97 27 - Sep - 97 29 - Sep - 97 20 - Sep	Sep - 97
5 RB - 5 25 23 2 21 - Sep - 97 22 - 6 6 RB - 6 30 28 2 10 - Sep - 97 12 - 7 7 RB - 7 15 14 1 22 - Sep - 97 23 - 23 - 23 - 23 8 RB - 8 15 14 1 24 - Sep - 97 24 - 24 - 24 - 24 - 24 - 24 - 24 - 24 -	Sep - 97
7 RB - 7 15 14 1 22 - Sep - 97 23 - 24 - 24 - 24 - 24 - 24 - 24 - 24 -	Sep - 97
8 RB - 8 15 14 1 24 - Sep - 97 24 - 97 9 RB - 9 25 23 2 18 - Sep - 97 19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	Sep - 97
9 RB - 9 25 23 2 18 - Sep - 97 19 - 19 - 19 - 19 - 19 - 19 - 10 - 19 - 10 - 10	Sep - 97
10 RB - 10 15 14 1 21 - Sep - 97 22 - 20 11 RB - 11 25 23 2 18 - Sep - 97 20 - 20 - 20 12 RB - 12 15 14 1 19 - Sep - 97 20 - 20 - 20 13 RB - 13 15 14 1 16 - Sep - 97 17 - 25 - 25 14 RB - 14 15 14 1 24 - Sep - 97 25 - 25 15 RB - 15 15 14 1 16 - Sep - 97 16 - 16 16 RB - 16 15 14 1 17 - Sep - 97 17 - 17 17 RB - 17 35 33 2 30 - Aug - 97 03 - 17 18 RB - 18 40 38 2 30 - Aug - 97 04 - 18 19 RB - 19 15 15 1 01 - Sep - 97 03 - 20 20 RB - 20 15 14 1 02 - Sep - 97 04 - 22 21 RB - 21	Sep - 97
11 RB - 11 25 23 2 18 - Sep - 97 20 - 12 12 RB - 12 15 14 1 19 - Sep - 97 20 - 13 13 RB - 13 15 14 1 16 - Sep - 97 17 - 17 14 RB - 14 15 14 1 24 - Sep - 97 25 - 25 15 RB - 15 15 14 1 16 - Sep - 97 16 - 16 16 RB - 16 15 14 1 17 - Sep - 97 17 - 17 17 RB - 17 35 33 2 30 - Aug - 97 03 - 18 18 RB - 18 40 38 2 30 - Aug - 97 04 - 18 19 RB - 19 15 15 1 01 - Sep - 97 03 - 18 20 RB - 20 15 14 1 02 - Sep - 97 04 - 18 21 RB - 21 20 19 1 30 - Aug - 97 31 - 18 22 RB - 22 20	Sep - 97
12 RB - 12 15 14 1 19 - Sep - 97 20 - 13 13 RB - 13 15 14 1 16 - Sep - 97 17 - 14 14 RB - 14 15 14 1 24 - Sep - 97 25 - 15 15 RB - 15 15 14 1 16 - Sep - 97 16 - 16 16 RB - 16 15 14 1 17 - Sep - 97 17 - 17 - 17 - 17 - 18 - 17 - 18 - 18 -	Sep - 97
13 RB-13 15 14 1 16-Sep-97 17-14 14 RB-14 15 14 1 24-Sep-97 25-15 15 RB-15 15 14 1 16-Sep-97 16-16 16 RB-16 15 14 1 17-Sep-97 17-16 17 RB-17 35 33 2 30-Aug-97 03-17 18 RB-18 40 38 2 30-Aug-97 04-17 19 RB-19 15 15 1 01-Sep-97 03-17 20 RB-20 15 14 1 02-Sep-97 04-17 21 RB-21 20 19 1 30-Aug-97 31-17 22 RB-22 20 19 1 30-Aug-97 01-17 23 RB-23 15 14 - 01-Sep-97 03-17 24 RB-24 15 14 1 11-Sep-97 12-17	Sep - 97
14 RB - 14 15 14 1 24 - Sep - 97 25 15 RB - 15 15 14 1 16 - Sep - 97 16 16 RB - 16 15 14 1 17 - Sep - 97 17 17 RB - 17 35 33 2 30 - Aug - 97 03 18 RB - 18 40 38 2 30 - Aug - 97 04 19 RB - 19 15 15 1 01 - Sep - 97 03 20 RB - 20 15 14 1 02 - Sep - 97 04 21 RB - 21 20 19 1 30 - Aug - 97 31 - 22 RB - 22 20 19 1 30 - Aug - 97 01 23 RB - 23 15 14 - 01 - Sep - 97 03 24 RB - 24 15 14 1 11 - Sep - 97 12 25 RB - 25 15 14 1 02 - Sep - 97 04 26 RB - 26 15 15 - <td< td=""><td>Sep - 97</td></td<>	Sep - 97
15 RB-15 15 14 1 16-Sep-97 16 16 RB-16 15 14 1 17-Sep-97 17 17 RB-17 35 33 2 30-Aug-97 03 18 RB-18 40 38 2 30-Aug-97 04 19 RB-19 15 15 1 01-Sep-97 03 20 RB-20 15 14 1 02-Sep-97 04 21 RB-21 20 19 1 30-Aug-97 31- 22 RB-22 20 19 1 30-Aug-97 01 23 RB-23 15 14 - 01-Sep-97 03 24 RB-24 15 14 1 11-Sep-97 12 25 RB-25 15 14 1 02-Sep-97 04 26 RB-26 15 15 - 08-Sep-97 09 27 <td>Sep - 97</td>	Sep - 97
16 RB-16 15 14 1 17 - Sep - 97 17 - 17 - 17 - 17 - 17 - 17 - 17 - 17 -	Sep - 97
17 RB-17 35 33 2 30 - Aug - 97 03 - 40 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 03 - 97 04 - 97 03 - 97 03 - 97 03 - 97 03 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 01 - 97 01 - 97 01 - 97 01 - 97 01 - 97 01 - 97 01 - 97 03 - 97 01 - 97 03 - 97 01 - 97 03 - 97 02 - 97 03 - 97 03 - 97 04 - 97 03 - 97 04 - 97 03 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 04 - 97 05 - 97 09 - 97 07	Sep - 97
18 RB-18 40 38 2 30 - Aug - 97 04- 19 RB-19 15 15 1 01 - Sep - 97 03- 20 RB-20 15 14 1 02 - Sep - 97 04- 21 RB-21 20 19 1 30 - Aug - 97 31- 22 RB-22 20 19 1 30 - Aug - 97 01- 23 RB-23 15 14 - 01 - Sep - 97 03- 24 RB-24 15 14 1 11 - Sep - 97 12- 25 RB-25 15 14 1 02 - Sep - 97 04- 26 RB-26 15 15 - 08 - Sep - 97 09- 27 RB-27 15 15 - 30 - Aug - 97 31-	Sep - 97 Sep - 97
19 RB-19 15 15 1 01 - Sep - 97 03 - 20 20 RB-20 15 14 1 02 - Sep - 97 04 - 20 21 RB-21 20 19 1 30 - Aug - 97 31 - 22 22 RB-22 20 19 1 30 - Aug - 97 01 - 22 23 RB-23 15 14 - 01 - Sep - 97 03 - 22 24 RB-24 15 14 1 11 - Sep - 97 12 - 22 25 RB-25 15 14 1 02 - Sep - 97 04 - 22 26 RB-26 15 15 - 08 - Sep - 97 09 - 27 27 RB-27 15 15 - 30 - Aug - 97 31 - 31 - 31 - 32	Sep - 97
20 RB - 20 15 14 1 02 - Sep - 97 04 21 RB - 21 20 19 1 30 - Aug - 97 31 - 22 RB - 22 20 19 1 30 - Aug - 97 01 23 RB - 23 15 14 - 01 - Sep - 97 03 24 RB - 24 15 14 1 11 - Sep - 97 12 25 RB - 25 15 14 1 02 - Sep - 97 04 26 RB - 26 15 15 - 08 - Sep - 97 09 27 RB - 27 15 15 - 30 - Aug - 97 31 -	Sep - 97
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22 RB - 22 20 19 1 30 - Aug - 97 01 23 RB - 23 15 14 - 01 - Sep - 97 03 24 RB - 24 15 14 1 11 - Sep - 97 12 25 RB - 25 15 14 1 02 - Sep - 97 04 26 RB - 26 15 15 - 08 - Sep - 97 09 27 RB - 27 15 15 - 30 - Aug - 97 31 -	Aug - 97
23 RB - 23 15 14 - 01 - Sep - 97 03 24 RB - 24 15 14 1 11 - Sep - 97 12 25 RB - 25 15 14 1 02 - Sep - 97 04 26 RB - 26 15 15 - 08 - Sep - 97 09 27 RB - 27 15 15 - 30 - Aug - 97 31 -	Sep - 97
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26 RB - 26 15 15 - 08 - Sep - 97 09 27 RB - 27 15 15 - 30 - Aug - 97 31 -	Sep - 97
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1 28 1 RR = 28 15 13 2 15 Sep = 07 15	Aug - 97
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30 RB - 30 15 14 1 13 - Sep - 97 14	Sep - 97
31 RB - 31 15 15 - 10 - Sep - 97 11	Sep - 97
	- Sep - 97 - Sep - 97
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	Aug - 97
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37 RB - 37 10 10 - 03 - Sep - 97 04	Sep - 97
38 RB – 38 10 10 - 09 - Sep - 97 10	- Sep - 97
39 RB – 39 10 10 - 05 - Sep - 97 05	- Sep - 97
40 RB-40 10 10 - 07-Sep-97 08	- Sep - 97
41 RB - 41 10 10 - 05 - Sep - 97 06	- Sep - 97
42 RB - 42 10 10 - 05 - Sep - 97 06	- Sep - 97
43 RB - 43 10 9 - 02 - Sep - 97 03	- Sep - 97
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45 RB - 45 10 9 - 31 - Aug - 97 01	
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	- Sep - 97 - Aug - 97 - Aug - 97 - Sep - 97 - Aug - 97
TOTAL 870 824 39	- Sep - 97 - Aug - 97 - Aug - 97 - Sep - 97

B. Simongan Weir

No.	Hole	Depth (m)	SPT	UDS	Commenced	Completed
1	SB - 1	20	18	3	01 – Sep - 97	03 - Sep - 97
2	SB - 2	20	14	3	30 – Aug - 97	31 - Aug - 97
3	SB - 3	20	20	3	01 - Sep - 97	03 - Sep - 97
4	SB – 4	20	20	4	09 - Sep - 97	12 - Sep - 97
5	SB - 5	20	9	1	26 – Sep - 97	28 - Sep - 97
6	SB - 6	20	7	-	l 6 - Sep - 97	21 - Sep - 97
		120	88	10	1.5	

Table 3.2.2(1/5) SUMMARY OF LABORATORY TEST

S.P.T		VALUE	m	0	13	က		0	м	φ	2	m	м	0	6			8	4	,	~	m	2	4	m	m	7	~	m	e	च	15	3. 4
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S CONSOLIDATION	PROPERT I ES	P.c. (kg://cm2)		0.35	t	1	0.42	ì	0.32	-	-	 '	0.42	1	 I	0.30	1	í	1	0.84			0.76	!	-	l:	1		 t	1	1	1	1.20
PROPERTIE:		• •	3.47	-	-	1	-	,	,	12.39	_	_	1	1	_	1	_	1	1		,	1	1	8.24	25.08	22.92	17.30	9.02	10.27	17.62	9.83	30.78	1 1
ICAL PRI	2	C *	0 0 19	-		1	1	ı	-	9 0.24	1		-	ı	_	_	1	1	-	1	,	1		0.20	0.06	0.22	0.08	0.13	0.1	0.27	3 0.43	0.15	
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SHEAR		C (kaf/cm2)	0.19	1	21 ~	19	-	28 -	1	0	- 17	- 29	i.	. 88	17 -	<u>'</u>	47 -	. 43 -	84 -	-	82 _	19	1	0.3	0.02	0.2	0.0	0.1	0.0	0.1	0.4	0.17	1 T
	Ω	C \$			0.02 1.	0.05 1.	-	03 1.		1	0.05 4.	0.02		0.05 1.	02 1.	'	0.04 2.	0.01	0.12 5.	-	0.10 6.	0.04 2.	1	<u>'</u>	1	-	-			1	1	,	08 7. 18 12.
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<u>*</u>		1108	77	73.95 (45	37	47	12	29	64	2	의	53.15	64.09 C	ळ	92	22	73.14	96	2	4	28	22	<u>.</u>	9	. 15	07	6	23	45	71	23	7.2
	STENCY	F. P. 1	8 5	30, 38 73	36.08 78.	26. 80 83.	34.38.78.	28. 10 66.	5, 36 65.	36. 24 69.	38.80 82.	35, 93 75.	.22	32.74 64	36,00 83.	36.26 70.	1, 43 64.	32.35 73	33.83 80.	2.47 70.	7.34 80.	3.21 74.	26.77 41	34.00 62.	32. 57 53.	35.75 61	5. 42 59.	1.81 50	1.94 43.	5. 42 48.	5. 93 23.	3.65 39.	4 6 8
	CONS	FL 11	- -	104.33 3	53	110, 18 2	112.84 3	94.23 2	1.65 36.	88	8	12	80, 37 27	96, 83 3	26	5	95.70 31	49	79	2, 66 32	7.78 27	2.48 28.	86	96.21 3	85.77 3.	96, 90	95.49 36.	84.88 34.	75, 17 31	84.87 36.	49.64 25.	68, 18 28,	48, 43, 24
	-	CL.NY <0.002mm	43, 40 9	27. 07 10	26.05 114.	39, 02 11	36, 01 11	31.88 9	30, 63 101.	28.36 105.	39, 18 120.	35. 89 111.	24.97 8	27.96 9	29. 72 119.	29.16 106.	19, 78 9	37, 39 105.	37, 35 114,	30.96 102.	30.40 107	31.07 102.	21, 43 67.	34, 18 9	29, 55 8	36, 81 9	25, 58 9	29, 21, 8	30, 18 7	16, 27 8	8.15 4	34.91 6	2 08 4
S	1ZE (%)	-270.0 mm500.0	54.90 4	53	62. 25	88	59, 49	62.82	62.07	65.44	61. 22	60.51	69.33	68.14 2	60.88	68.14 2	66.52	60.51	59.05	64.74	66.40	65, 13	64.87	61.12 3	62.95	57.89 3	59.82	63.48	55.62	56.03	37.35	46, 59	200
OPERTIES	GRAIN SIZ	5.75-0,075mm 7.18	1.70	L.		2.00	المنا		7.30	6.20	8		5.70	3.20	9.40	2.70	13.70 (2.10			3.20	3,80	13.70		7.50	5.30	1	7.40	14.20	27.70	54.50	18.50	88
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		S. S.	12	99.73			99.29	99,69	97.16	99, 57	97.36	96.67	. 67 100,00	98.51		51 100.00	94.41	1.47 100,00	1, 56 100, 00	98,69	59 100.00	58 100.00	99.69	58 100.00	1.61 100.00	1,58 100,00	98.52	95.91	99,38	97.07	93. 24	93, 23	99, 49
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		LOCATION													• •			4. 4.	是ST		FLOODWAY					\							·

Table 3.2.2(1/5) SUMMARY OF LABORATORY TEST

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		ISTENCY	<u>a.</u> §	30 57	73.	78		78.	10 65.	36 65.	24 69.	80 82.	93 75.		74 64.09	00 83.	261 70.	43 64.	35 73.	83 80.	47 70.	34 80.	21 74.	77 41.	00 62.	57 53, 19	75 61.	42 59.		94 43.	42 48,	93 23.	65, 39.	54.2
		CONSIST	목 🧞	35.	30	36.			23 28.	65 36.	88 36.	94 38.	12 35.	37 27.		84 36.	91 36.	70 31.	49 32.	79 33.	66 32.	78 27.	48 28.	99 26.	21 34.	77 32.	90 35.	49 36.	88 34.	17 31.	87 36.	64 25.	181 28.	43 26.
			그 용	40 93	104			01 112.	88 94.7	63 101.	36 105.	18 120.	89 111.	97 80.3	96 96.	72 119.8	16 106.	78 95.7	39 105.	35 114.		40 107.7	07 102.	43 67.	18 96,2	55 85.7	81 96.8	58 95.	84.	18 75.1	27 84.8	5 49.6	91 68.1	20 20 20
		(%)	0.002mm CLAY <0.002mm	50 43.4	27	38	39	36.	82 31.8	39.	44 28.	22 39. 1	35.	33 24.9	14 27. 9	88 29.7	14 29.1	52 19.7	37.		74 30.9	40 30.4	13 31.0	87: 21.4	12 34.1	95 29.5	89 36.8	82 25.5	29.	62 30.1	03 16.2	35 8.1	34.	32, 23.0
TIES		SIZE	0.075- 0.075-	5.4	65.	62.	58.	59.	62.	62.	65.	61.	.09	69	68	9	68.	. 99	0 60, ق	59.	64.	66.	65,	64.	61.	62.	57.	59.	63.	55.	56.	37.	46.	99
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£			 	79 1 97	<u> </u>	1	L	2	-	-		36 2.45				2			l	7	_		2.	69 1.43		1.66	1.70		-	38 1.8	07 1.5	24 1.12	23 1.08	6 3
			ر ان ان ا	=	57 99 73		ii	99	99	97.		97.	96.	100	98	97.	100	62 94.41	47 100,00	56 100, 00	57 98.	90.	58 100. (1.70 99.6	58 100.00	51 100.00	581100.00	64 98.	95.	. 99.	97.	93.	81 93.	96
			٠	1,5	~	-	Ŀ	-		-	00							82 1. (-			20 1.	-	54 1.7	1.		43 1.	-	-		85 1.6	59 1.7		
			¥ §	66 74	63 70	9	78 80	77 17	7	=	69	88.	72.	∞.	73.	78.	88.	5	9.	77	65.	69	78	70 52.	80.		67.	58.	.09		77 53.		76 36.	22
-			§	207	70 2	200	16	50 2	50	70 2.	~i	70 2.	2	2	50 2.	I	L	70 2.	12	2	2	2	7	2.	6	7	50 2.	55 2.	60 2.	50 2.	\ci	2	50 2	8
			SAMPLING DEPTH	£ 1] ,	[- 10	- 7	133	- 7.	- 13.	- 10.	- 10	- 7	13	10	ı	-	Lι	1	1	1	1	1	1		- 10.	- 30.	- 10.	5	9.	٦ 5	O)	LO.
			క్	10.00	+	厂	+-	+			13		 	╂	<u>i</u> '.	0.		13.00	┺	1	↓ —		↓	!	10, 60	7,	10.00	<u> </u>		├	S,	9	<u> </u>	5.00
			BORE HOLE No.	BB 1	BR = 2	1	1	1		RB - 6		RB - 7	1	i		RB - 10	J		RB - 12	- 1	1		1	1		RB - 18		RB - 19	1		1	١.	1	;
	-		LOCATION		.1	1_	<u> </u>	1		L.,		<u>. </u>	1			1	1 4	 _	1.	FST.	-	FLOODWAY F		L		1.5		1	1	T	1	T	T.,	1

Table 3.2.2(2/5) SUMMARY OF LABORATORY TEST

											=	3				7			-		
														SHEATING	2	5		2	100 TO TO STON	4 44.0	
	-	-	_			GRAIN S	SIZE (%)		SSSS	CONSISTENCY		i	ΩΩ			੩		PROP	PROPERTIES		
SAMPLING DEPTH	Ğ	£	<u> </u>	Š	CRAVEL CRAVEL	CNA2 mm3√0.0-3√.1	1112 -270.0 mm200.0	CLAY ≪0.002mm	-	ᇫ	110S -	SOLE CLASSIFICATI 900	٠ <u>٠</u> ن	IJ	*9.	ပ	*9	Pc	ర్ర	SYMBOL	N VALUE
(m)		(%) (%)		i Se					86	8	ક્ર	•	f/cm2) (*	(kg f/	-) (2)) (kg//a	्	(kgf/cm2	-		
4.00 - 4.70	2.58 6				1	15.40	67.42	17.18	90. 26	8	53. 92	ਨ	0.01	16 -	1	1	1	. 1	ı	Ac	,
7.10 - 7.65	2, 53 8	•	1, 58 100		3	4.58	63, 38	32.04	99.16	83	59. 27	ਣ	t	-	!	i	-	0.61	0.59	Ac	0
3.00 - 3.60	2.66 5		1.74 100		1	17. 20	60.15	20.65		. 1	0.78	ਨ	7	84	1		ı	ı	1	œ	ა
7.00 - 7.60	2.66 8			. 1	80	17.90	63. 52	18, 58	4	27	7.17	ੱ	-		1	1	1	ı	1	Ąç	m
11.00 - 11.60	2.75 6				- 2	7.40	60.97	31, 63	2	81	33. 91	<u>.</u> ਜ਼		7	1	_	1	ŀ	1	Àc	2
14.55 - 15.15	2.74 30		1.86 98		- c	57.80	29.02	13.18	78	. 1	7.61	SC	1	0	17.	0.	0 28.86	- 10	1	As	11
16.15 - 16.75	2.56 4		1.72 100		2	23. 60	59, 29	17.11	61.65	15, 36 3	6.30	ਨ	- - -	-	_		1	0.58	0.38	Ac	-
17.70 - 18.30	2.66 4.	_	1.77 100		- 8	38. 20	47.66	14.14	58.44	16.29 3	12. 15	ᆼ	- 	o		୍ର	4 31.14	1	ı	Ac	14
8.55 - 9.15	2.68 4.	L.	1,83 100		1	45.40	37.13	15.27	8	J	9.82	ਲ	1	o				1	1	Ş.	ю
11.40 - 12.00	2.60 4		1.76 100	_	-	13, 30	56. 20	30, 50	95	29	6.66	<u>.</u>	 	1			ı	1.23	3 0.44	Ac	12
13.60 - 14.20	2.53 4	20.7	.72 100	2).	2.40	63.00	34.60	98		2.04	₹	1	0	29 20. 5	c	8	I	1	පු	20
11.00 - 11.55	2.71 46	_	1.78 100		1	15.10	48.85	36,05	2	5	9. 62	공	; ;	<u> </u>	-	- -	-	1.40	0.31	As	17
13.00 - 13.55	2.78 4	7	1.85 100			43.10	41.81	15.09	8	60	0.37	ਠ	l I	o,	5	ं	6 21, 45	1	1	As	92
17.00 - 17.55		7.69		Ľ		3, 20	65.80	31.00 7	5	36	6.55	<u>ਨ</u>	1	ı	1	1	1	0.93	3 0.26	Ą	ŭ
4.50 - 5.10	59 6	dille	16 39			09.4	64 15	36/16	99	HH.	26/5	Ha		9				1/1/1/2	0.40		
4,00 - 4,50	2.26 36			11.5	3	3.90	60, 50	35, 60 8	5	- 1	3, 45	ੱ ਨ	44 15.	73		3	- <u>-</u> -	1	1	Ac	7
4.50 - 4.90	2.76 48	5, 75	. 82 100		_	6.70	60, 52	32.78	97	;	7.88	픙	ξ,	13	-			1	1	γc	80
			- (%) 2.58 64.39 2.53 86.39 2.53 88.87 2.66 89.26 2.74 36.04 2.56 49.64 2.66 45.32 2.68 42.88 2.60 48.24 2.73 49.00 2.73 49.00 2.73 42.76 2.73 42.76 2.74 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60	- (%) 2.58 64.39 2.53 86.39 2.53 88.87 2.66 89.26 2.74 36.04 2.56 49.64 2.66 45.32 2.68 42.88 2.60 48.24 2.73 49.00 2.73 49.00 2.73 42.76 2.73 42.76 2.74 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60 2.77 46.60	2. 58 64.39 1.57 97.43 2. 58 64.39 1.57 97.43 2. 53 88.87 1.58 100.00 2. 66 56.24 1.74 100.00 2. 75 64.54 1.61 97.50 2. 75 64.54 1.61 97.50 2. 75 64.54 1.77 100.00 2. 66 45.32 1.77 100.00 2. 66 45.32 1.77 100.00 2. 66 45.32 1.77 100.00 2. 68 42.88 1.83 100.00 2. 73 49.00 1.78 100.00 2. 73 49.06 1.78 100.00 2. 73 49.76 1.85 100.00 2. 73 45.76 1.85 100.00 2. 74 48.75 1.85 100.00 2. 76 48.75 1.85 100.00	2. 58 64.39 1.57 97.43 1.70 2.58 64.39 1.57 97.43 1.70 2.53 88.87 1.58 100.00 2.03 2.53 88.87 1.58 100.00 1.38 2.75 64.54 1.61 97.50 1.82 2.75 64.54 1.61 97.50 1.22 2.74 36.04 1.22 1.77 100.00 1.20 2.66 45.32 1.77 100.00 1.20 2.66 45.32 1.77 100.00 1.20 2.60 48.24 1.75 100.00 1.20 2.53 49.00 1.72 100.00 1.20 2.71 46.60 1.78 100.00 1.20 2.73 45.06 1.78 100.00 1.20 2.73 45.06 1.78 100.00 1.20 2.73 45.06 1.78 100.00 1.20 2.73 45.76 1.85 100.00 1.25 2.73 45.76 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.25 2.75 45.75 1.85 100.00 1.21 2.75 2.75 45.75 1.82 100.00 1.21	2. 58 64.39 1.57 97.43 1.70 2. 58 64.39 1.57 97.43 1.70 2. 53 88.87 1.58 100.00 2.03 2. 66 56.24 1.74 100.00 1.38 2. 66 89.26 1.49 99.83 2.38 2. 75 64.54 1.61 97.50 1.82 2. 74 36.04 1.86 98.60 1.00 2. 66 45.32 1.77 100.00 1.22 2. 66 45.32 1.77 100.00 1.18 2. 66 45.32 1.77 100.00 1.10 2. 60 48.24 1.76 100.00 1.20 2. 60 48.24 1.76 100.00 1.20 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.24 2. 78 42.76 1.85 100.00 1.21 2. 76 45.75 1.82 100.00 1.21	- (%) (ϕ -cas) (%) - <	2. 58 64.39 1.57 97.43 1.70 - 15.40 67.42 17.18 2.58 64.39 1.57 97.43 1.70 - 15.40 67.42 17.18 2.53 88.87 1.58 100.00 2.03 - 4.58 63.38 32.04 2.66 89.26 1.61 97.50 1.82 - 7.40 60.97 31.63 2.75 64.54 1.61 97.50 1.82 - 7.40 60.97 31.63 2.75 64.54 1.61 97.50 1.82 - 7.40 60.97 31.63 2.75 64.54 1.71 100.00 1.22 - 23.60 59.29 17.11 2.66 45.32 1.77 100.00 1.18 - 38.20 47.66 14.14 2.66 45.32 1.77 100.00 1.18 - 45.40 37.13 15.27 2.60 48.24 1.76 100.00 1.10 - 45.40 37.13 15.27 2.60 48.24 1.76 100.00 1.10 - 45.40 37.13 15.27 2.73 45.60 1.72 100.00 1.10 - 45.40 37.13 15.00 2.73 45.60 1.72 100.00 1.10 - 45.40 37.13 15.00 2.73 45.60 1.72 100.00 1.10 - 45.40 37.13 15.00 2.73 45.60 1.72 100.00 1.20 - 13.30 56.20 34.60 2.73 45.60 1.72 100.00 1.20 - 13.30 56.20 34.60 2.75 37.60 37.	- (%) (%-a-a) (%) - (%) 2. 58 64.39 1.57 97.43 1.70 - 15.40 67.42 17.18 90.26 2. 58 64.39 1.57 97.43 1.70 - 15.40 67.42 17.18 90.26 2. 53 88.87 1.58 100.00 2.03 - 4.58 63.38 32.04 99.16 2. 66 89.26 1.74 100.00 1.38 - 17.20 60.15 20.65 67.22 2. 75 64.54 1.61 97.50 1.82 - 7.40 60.97 31.63 92.72 2. 74 36.04 1.86 98.60 1.00 - 57.80 29.02 13.18 49.78 2. 74 36.04 1.72 100.00 1.12 - 23.60 59.29 17.11 61.65 2. 56 49.64 1.72 100.00 1.18 - 37.13 15.27 <	- (¾) (¾) - (¾)	- (%)	- (%) (φ,σω) (%) - 15.40 67.42 17.18 90.26 26.34 63.92 CH 2.58 64.39 1.57 97.43 1.70 − 15.40 67.42 17.18 90.26 26.34 63.92 CH 2.58 64.39 1.57 100.00 2.03 − 4.58 63.38 32.04 99.16 29.89 69.27 CH 2.66 89.26 1.49 99.83 2.38 − 17.20 60.15 20.65 67.22 26.44 40.78 CH 2.75 64.54 1.61 97.50 1.82 − 7.40 60.97 31.63 92.72 28.81 63.91 CH 2.75 64.54 1.77 100.00 1.22 − 23.60 59.29 17.11 61.65 15.36 36.30 CH 2.66 45.32 1.77 100.00 1.18 − 38.20 47.66 14.14 58.44 16.29 32.15 CH 2.66 45.32 1.77 100.00 1.18 − 45.40 37.13 15.27 54.96 25.14 29.82 CH 2.66 45.32 1.77 100.00 1.10 − 45.40 37.13 15.27 54.96 25.14 29.82 CH 2.67 49.00 1.72 100.00 1.10 − 45.40 37.13 15.27 54.96 20.73 39.62 CH 2.78 42.76 1.78 100.00 1.20 − 13.30 56.20 34.60 82.86 40.83 42.04 White 2.78 42.76 1.85 100.00 1.12 − 45.40 63.00 34.60 82.86 40.83 42.04 White 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.85 100.00 1.15 − 43.10 41.81 15.09 58.48 28.09 30.37 CH 2.78 42.76 1.81 39.33 0.98 − 3.90 60.50 35.60 88.45 25.00 63.45 CH 2.76 45.75 1.82 100.00 1.21 − 6.70 60.52 32.78 83.97 26.09 57.88 CH	- (%)	- (¾) <th></th> <th>CM (W) (W)</th> <th>CKO (KV cm.sh) (KY) (KY)</th> <th>CM CM CM<</th> <th>4.8 6.0 6.0 6.0 6.0 6.0 7 7 9 7 9 1.0 6.0 1.0 1.1 1.0 9 1.0 2.0</th> <th>4% 6%<</th>		CM (W) (W)	CKO (KV cm.sh) (KY) (KY)	CM CM<	4.8 6.0 6.0 6.0 6.0 6.0 7 7 9 7 9 1.0 6.0 1.0 1.1 1.0 9 1.0 2.0	4% 6%<

Table 3.2.2(2/5) SUMMARY OF LABORATORY TEST

ا. ت			VALUE																	~r	
(S)						C.	ç	<u> </u>	2	=	=	 	Ω	12	26	_	23		æ		93)
GEOLOGICAL	STRATA		SYMBOL		5.	Åc	82.	Q.		SK	ς. Σ		Ac	ψ.	Dc	A.S.	S.	er,	S	ć	Åc
¥.	oaTion{	TIES	ప	_	1	0.59	L	ı i	í	1	0,38		,	0 4.		0.31	ı	200	0,40		
S	CONSOLIDATION	PROPERT	ů	1.5m2/1g2	1	0.61		1			0.58		1	1.23		1.40		6.93	1.17		
PROPERTIES			.e	•	1	i	1	1	-	28.85	ı	31.14	26.87	1	30.34	1	21.45			-	
	HETH	CU	Û	(kgf/cm2)	1	1	-	1		0.20	1	0.24	0.14	ı	0.21	ı	0.25	1		-	_
MECHANICAL	S STRENGTH		•	$\hat{\cdot}$	1	1	1	1	1	17.01	ı	17,83	17.37	1	20, 99		15.74	i		1	_
N.	SHEARING		U	(kg f/cm2)	1	-	_	1	- 1	0.21	4	0.31	0.14	1	0.29	1	0.30	1		1	
	S		æ		9 .	,	2.84	1.52	2.7	ı	ł	-	1	1				1	. 188 1	5, 73	23. 13
		m	U	(kg://cm2)	0.01		90.0	0.01	0.01	1		······		_		1	-	1	0,45	0.44	0.15/2
SOSD			UTASTETCATI NO	-	공	공	ਨ	공	공	SC	끙	£	핑	ਸ਼	Æ	됩	동	ਨੌ		공	ੱ ਨ
Sin			7108		92	27	78	7	91	61	30	15 (82 0	99	04 14	62 C	37	55 C	2 66	45	38 88
		ζ	<u>a.</u>	8	34 63.	89 69.	40	27 47.	1 63.	17 27.	36 36.	32.	4 29.	36.	42.	33	30.	36 46.	35	63.	57.
		CONSISTENCY	<u>o</u> .	8	9	29.	26.44	38.	28.81	22.	15	16, 29	25.14	26. 29	40.83	29.07	28.09	30.3	(9).63	25,00	26.09
		8	٦	(§	90, 26	99.16	67, 22	85.44	92.72	49, 78	61,65	58.44	54.96	62.95	82.86	68.70	58, 48	75.91	63, 60	88, 45	83.97
			CLAY <0,002mm		17.18	32.04	20.65	18, 58	31.63	13. 18	17.11	14.14	15.27	30, 50	34.60	36.05	15.09	37.00	31:28	35.60	32. 78
(S		E (%)	-270.0 mm200.0		67.42	63.38	60.15	63.52	60.97	29.02	59, 29	47.56	37.13	56.20	63.00	48.85	41.81	65.80	64, 12	60,50	50.52
PERT I ES		GRAIN SIZE	0,75-0.075mm ₹JIS		15.40	4.58 (17.20	7. 90	7.40	57.80	23.60	38, 20 4	45.40	3.30	40	15, 10 4	43, 10 4	3, 20 6	60	3.90 6	6.70 8
PHYSICAL PROPER		GR	CRAYEL,		-		-		1	1	-	1	- 4				1	-			-
PHYS I			Φ	1	1. 70	2.03	1.38	2.38	1.82	1.00	1. 22	1.18	1.10	1. 20	1.17	1,24	1.15	1.13	1.59	0.98	1.21
			ý	(%)	97, 43			99.83	97.50	8. 60	00.00	0.00	0.00	0.00				91.40	11.	98, 33	l. i
			د د ک	(g/cm3)	1.57	1, 58 100, 00	1.74 100.00	. 49	1.61	.86 98.60	1,72 100,00	1. 77 100.00	. 83 100.00	1.75 100.00	. 72 100.00	1.78 100.00	. 85 100.00	1.77	. 85 91, 40	1.81	1.82 100.00
		-	¥	(%)	64.39	88.87	56.24	89. 26	64.54	36.04	49.64	45, 32	42.88	48.24	49.00	46.60	42.76	37, 69	9.43	36.86	45.75
		-	s _S		2.58 €	2.53 8	2,66 5	2.66 8	75	2.74 3	2.56 4	2.66 4	2.68 4	2.60 4	2.53 4	2.71 4	2.78 4	2.73 3	2,53 69,43	2.26 3	2.76 4
-		İ	(2)		4.70	. 65	3.60	. 60	11.60	15	16.75	8	9.15	12.00	20	11.55	55	17, 55	4.	4.50	4.90
			SAMPLING DEPTH	(m)	ı	0 - 7	١,	0 - 7	1	55 - 15.	1	0 - 18.	55 - 5	1.40 - 12	0 - 14.	0 - 11	0 - 13.	0 - 17		,	, ,
-			<i>\$</i>		4.00	7.10	3.00	7.00		14.5	16.15	17.70	85	1.4	13,60	ļ	13.00	17.00	4.50	4.00	4.50
			BORE HOLE No.		B - 51		8 - 52			SB - 1			SB - 2			SB - 3			SB 5	FB - 29	3 - 30
-					82	;;	OWAY RB			S			T _s	IGAN		Ц.			0.7	 	1
			LOCATION			WEST	FLOODWAY							SIMONGAN		A H				648416	RIVER

Table 3.2.2(3/5) SUMMARY OF LABORATORY TEST (GRAIN SIZE ANALYSIS) 1/3

	S.	NVALUE		3	9	က	0	0	9	0	က	0	7	83	အ	8	ç	60	7	4	m	-	13	æ	83		16	51	ç	e	က	3	7	و	m	ĸ	3	13	(")	٧٢
	STATE	SYMBOL		Ac.	Ac	ş	ΥC	æ	AC.	æ	¥	YC.	⊃V	8	ą	સ્ર	Ą	સ્ર	Ac	સ્	Ş	æ	ឧ	ය.	Ą¢	ઝ	Ą	ප	સ્	Ą	Ac	Э¥	γ	Ş	AS	ප	\$	SK.	9 4	Ą
	CONSOLIDATION PROPERTIES	S																			-		,																	
	CONSOL	ر م	(kg/cm2)																																					
Ş		•	(;)												-																									
MECHANICAL PROPERTIES	3	Ö	(kg/cm2)													_																								
CHANICAL	O O	0	(,)																																					
(X)	Second Control	ပ	(kg/cm2)																																					
	an	•	3																				1				-		-											
		ပ	(kg/cm2)														Ì																					:		
	SOSI	SOIL CLASSIFIC ATION		5	균	NS	<u>₽</u>	퓬		Н	유	당	공	중			공	푱	돤	СН	ᆼ	ᆼ	픙	S.	용	S	용	£	품	동	용	СН	픙	픙	ਲ	ᆼ	중	ᆼ	ᆼ	3
П		ā	(X)	24.78	85.48	٠	87.00	99.99	77.41	35.98	56.49	44.10	81.14	63.40	34:02	95.13	90.59	56.83	79.58	45.62	19.61	81.40	68.59	59.86	77.01	67.19	50.54	96.09	48.14	72.46	91.73	83.44	97.46	79.25	83.39	57.13	63.30	56.47	62.16	41.22
	CONSISTENCY	ā.	32	26.24	39.44		37.04	2.2	31.96	30.46	29.03	26.21	32.02	27.59	23.56	35.15	27.38	25.52	24.75	22.39	21.13	21.53	21.15	21.05	19.89	29.63	22,99	25.53	25.86	28.66	28.98	32.70	25.45	25.00	33.52	25.00	32.93	25.50	38.69	28.49
	•	=	3	51.02	124.92	•	124.04		109.37	66.44	85.52	70.31	113.16			130.28	117.97	82.35	104.33	68.01	70.74	102.93	89.74	80.91	96.91	96.82	75.53	86.49	74.00		120.71		1	104.25		82.13	96.23	81.97	100.85	69.71
		CLAY		10.61	20.82		35.69	36.79	35.87	9.50	29.81	19.57	33.97	33.19	16.84	35.48	31.92	17.77	35.42	34.88	20.64	32.81	·	28.76			27.05	26.03	26.73		29.10		38.56	35.13	5.43	24.65	33.70	33.32		15.58
8	GRAIN SIZE (%)	T.JI.2 mm\$00.0-270	0.0	53.39	65.88	ļ	62.11	61.81	61.73	56.80	63.39	67.33	59.43	64.91		63.72		64.43		58.62	61.06	61.99	٠.								63.30	1		61.57		}				
ROPERTIES	GRAIN	CMVS	*	36.00	L		2.20	1.40	1.90	33.70	6.80	13.10	9.90	1.90	25.20	0.90	3.40	17.90	2.10	6.50	18.30	5.20	1.60	11.40	3.20	4.30	12.10	11.40	14.50	6.60	7,60	3.00	3.90	3.30	33.50	12.60	7.10	7.40	13.40	23.20
PHYSICAL PROPER	. 1 - 1 - 1	GRAVEL GRAVEL		Ĺ	3.60		,	,	•	-				٠	5.00	•	•	•		,	•					•	-	1.90				•					,	•		
		Ф																															L							
		ঠ	3																			_																		
		Ε.	(g/cm3)				2.																																	
		≨ ×	3		<u> </u>		7 95.42	75.81	83.32	3 48.13	30.08	11.87	98.00	38.88	47.82	90.47	43.59	67.24	1 69.35		59.29	371.58	3 46.48	42.28			54.98	1	77.79	3 74.65	3 75.97	74.93	51.80	5 63.57	49.66	1 49.46	5 82.83		L	52.77
		S		2,70	:		277	2.78		2.68		2.55	2.75			2.62	2.66		2.64				L				2.65		2.79	2.66	2.66	<u> </u>	2.62		_	2.70	2.75			2.66
		теат оертн	<u>(E</u>	7.50 - 8.00	12.50 - 13.00	3.50 - 4.00	12.50 - 13.00	4.50 - 5.00	14.50 15.00	3.50 4.00	6.50 - 7.00	4.50 - 5.00	18.50 - 19.00	22.50 - 23.00	3.50 4.00	9.50 - 10.00	16.50 - 17.00	3.50 - 4.00	14.50 - 15.00	2.50 3.00	5.50 6.00	4.50 - 5.00	19.50 - 20.00	23.50 - 24.00	3.50 - 4.00	4.50 5.00	17.50 18.00	20.50 - 21.00	5.50 - 6.00	14.50 - 15.00	4.50 - 5.00	6.50 - 7.00	2.50 - 3.00	14.50 - 15.00	3.50 - 4.00	14.50 - 15.00	4.50 - 5.00	14.50 - 15.00	3.50 4.00	5.50 - 6.00
		BORE- HOLE No.	1	78		RB-2		RB-3		78.4		RB - 5			9-8H			F18-7		RB -8		RB - 9			RB - 10	HB - 11			RB - 12		RB - 13		AB - 14		RB - 15		RB - 16		HB - 17	
	N	госудо	3															٨	۸۷	DA	00)T:	1 T	S 3	M				:			••••		-		_				

Table 3.2.2(3/5) SUMMARY OF LABORATORY TEST (GRAIN SIZE ANALYSIS) 1/3

	8. 9.	N VALUE		(7)	(2)	m	0	زد	(n)	ω.	e (0	~	81	m	m	വ	m	•	٠,	(*)		53	25	:8	-	19	55	'n	'n	7	. ده	r.	ю.	**)	Z,	6)	90		
1000	STATE	SYMEOL		₽	3.	જ	뀾	ક	ગ્ર	Ą	¥	ş	2	8	¥	32	¥	2	Ş	ş	Ş	:₹	ය.	മ	3		2	ጸ	2	3	3	3	€	¥	:2	8	3	æ	æ	₹.
	CONSOLIDATION PROPERTIES	ပိ												1								:		:	:				:			:			:					
	COMSOL	ဂ္ဂ	(kg/cm2)																								:		:	1				:	:			:		
20		`o.	c																											 ! !					1				-	
MECHANICAL PROPERTIES		ŭ	(kg/cm2)																	-			,																	
CHANICAC	3	Φ-	0																							İ									~			_		
ME HEARING		O	(kg/cm2)															—																						
	3	-0-	i.											_													-													
)	O	(kg/cm2)								-]				,																				
	SOSO	SOIL CLASSIFIC ATION	لسل	СН	СН	SM	ж	동	5	끙	5	.	H H	ᆼ	-	ᆼ	ᆼ	5	£.	5	3	8	H	8	8	8	<u>ਤ</u>	핑	8	8	ᆼ	8	8	8	ይ	.	ъ	8	ਨ	공
	>	ā	(%)	24.78	85.48		87.00	99.99	77,41	35.98	56.49	44,10	81,14	63.40	34.02	95.13	90.59	56.83	79.58	45.62	19.61	81.40	68.59	59.86	10.77	67.19	50.54	96.09	48.14	72.46	91.73	83.44	97,46	79.25	83.39	57.13	63.30	56.47	62.15	41.22
	CONSISTENCY	4	(%)	26.24	39.44		37.04	34.94	31.96	30.46	29.03	26.21	32.02	27.59	23.56	35.15	27.38	25.52	24.75	22.39	21.13	21.53	21.15	21.05	19.89	29.53	22.99	25.53	25.86	28.66	28.98	32.70	25.45	25.00	33.52	25.00	32.93	25.50	38.69	28.49
	ŏ		(%)	51.02	124.92		124.04	101.60	109.37	66.44	85.52	70.31	113.16	90.99	57.58	130.28	117.97	82.35	104.33	68.01	70.74	102.93	89.74	80.91	96.91	96.82	75.53	86,49	74.00	101.11	120.71	118.15	122.91	104.25	118.91	82.13	96.23	81.97	100.85	69.71
		CLAY 40.002mm	i	10.61	20.82	0.42	35.69	36.79	35.87	9.50	29.81	19.57	33.97	33.19	16.84	35.48	31.92	17.77	35.42	34.88	20.64	32.81	38.37	28.76	43.02	33.18	27.05	26.03	26.73	29.09	29.10	30.10	38.56	35.13	5.43	24.55	33 70	33.32	26.15	15.58
	GRAIN SIZE (%)	T.JI.2 mrt500.0-210):0	53.39	65.68	21.58	62.11	61.81	61.73	56.80	63.39	67.33	59.43	64.91	52.96	63.72	64.68	64.43	62.48	58.62	61.06	61.99	60.03	59.84	53.78	62.52	60.85	60.67	58.77	64.31	63.30	99.30	57.54	61.57	61.07	62.75	59.20	59.28	59.55	61.22
OPERTIES	GRAINS	GWA2 mm&10.0-81	` ?	36.00	9.70	78.00	2.20	1.40	1.90	33.70	6.80	13.10	6.60	1.90	25.20	0.80	3.40	17.80	2.10	6.50	18.30	5.20	1.60	11,40	3.20	4.30	12.10	11.40	14.50	9.60	7.60	3.00	3.90	3.30	33.50	12.60	7.10	7,40	13.40	23.20
PHYSICAL PROPERT		GRAVEL mm27.4<			3.60		•			,	•				5.00				•		,		,		•			1.90			,	,					,		,	
£ -		ø.	-																																				—	
		રું	(%)	_																														 						
		۳ ۲	(g/cm3)														•																						-	
		W	(%)	40.36	59.39	37.52	95.42	75.81	83.32	48.13	80.08	49.11	98.00	38.88	47.82	90.47	43.59	67.24	69.35	56.52	59.29	71.58	46.48	42.28	52.65	82.45	54.98	36.89	67.77	74.65	75.97	74.93	51.80	63.57	49.66	49.46	82.83	59.85	79.60	52.77
		g		2.70	2.64	2.79	2.77	2.78	2.71	2.68	2.68	2.55	2.75	2.55	2.66	2.62	2,56	2.66	2.64	2.75	2.70	2.78	2.66	2.76	2.78	2.67	2.65	2.65	2.79	2.66	2.66	2.67	2.62	2.75	2.67	2.70	2.75	2.64	2.54	2.66
		TEST DEPTH	Ē	7.50 · 8.00	12.50 - 13.00	3.50 - 4.00	12.50 - 13.00	4.50 5.00	14.50 - 15.00	3.50 • 4.00	6.50 - 7.00	4.50 - 5.00	18.50 - 19.00	22.50 - 23.00	3.50 - 4.00	9.50 - 10.00	16.50 - 17.00	3.50 - 4.00	14.50 - 15.00	2.50 - 3.00	١.	4.50 - 5.00	19.50 - 20.00	23.50 - 24.00	3.50 - 4.00	4.50 - 5.00	17.50 - 18.00	20.50 - 21.00	5.50 - 6.00	14.50 - 15.00	4.50 - 5.00	6.50 7.00	2.50 - 3.00	14.50 - 15.00	3.50 - 4.00	14.50 - 15.00	4.50 - 5.00	14,50 - 15.00	3.50 - 4.00	5.50 - 6.00
		BORE- HOLE No.		RB - 1		RB - 2		AB - 3		AB - 4		RB - 5	-		RB - 6			RB - 7		RB - 8		RB - 9			RB - 10	BB . 11			RB - 12	1	RB - 13		RB - 14		RB - 15		RB - 16	-	RB - 17	
		госудон											•					٨	<u>Α</u> ν	DA	00	בר(ΙΤ	EZ	M									·						

	F.e.S	NVALUE		25	40	က	w	23	~	55	£	9	60	m	~	9	E	ន	60	_ش	₆	R	ı.		67	Œ	સ	0	92	ti	#	š	ģ	ģ	સ્	26	9	9
	GEOLOGICAL STATE	SYMBOL		ය	පු	શ	×	8	Ą	SA.	¥	¥	æ	¥	æ	Ş	SA.	ద	Ao Ao	A Se	Ą	8	As	S.	2	Ac	ප	Ą	ය	Ş	ප	g	Pa Oa	Da	8	చ	ප	8
		క	,										-	-	-		-				<u></u>											ļ <u>.</u>						
	CONSOLIDATION PROPERTIES	ပို	(kg/cm2)									-		<u></u>				<u> </u>			_										-							
ES		`	Ω																											-								
MECHANICAL PROPERTIES	ੂ ਤ	ŭ	(kg/cm2)		·																													-				
ECHANICAL STRENCT		•	(J)																																			
N SHOYDING		O	(ко/ст2)																							•												
	33	0	()																																			
		ပ	(kg/cm2)																												÷							
	SOSA	SOIL CLASSIFIC ATION	•	CH.	CH	5	ᆼ	3	ઝ	но	Ж	5	ರ	5	သွ	5	ਨ	용	ភ	*	픙	H	บ	퓽	<u>ਲ</u>	₽	SM	풍	СН	H	ᆼ	MS	SM	СН	CH	5	ರ	5
	} ;	۵	(%)	26.91	43.48	51.06	33.21	82.76	55.94	12.36	37.96	53.08	13.99	43.27	24.07	40.02	49.33	46.41	44.05	58.69	47.25	68.27	23.98	27.65	39.45	48.53		76.34	50.13	85.14	52.16			28.51	55.46	71.55	81.96	42.91
	CONSISTENCY	ದ	(X)	28.07	31.33	23.43	23.98	40.85	27.47	42.03	42.58	22.99	38	30.52	21.13	31.40	34.36	30.12	27.85	27.68	32.34	30.67	22.80	22.86	28.05	25.00		25.71	26.76	27.50	29.41			22.36	25.39	27.60	19.17	31.52
	8	3	8	54.98	74.80	74.49	57.19	123.62	83.42	54.39	90.54	76.07	37.02	73.79	45.19	71.42	83.69	76.53	71.89	36.36	79.59	98.94	46.78	50.51	05.79	73.53		102.05	76.89	112,64	81.57			50.87	80.85	99.15	101.15	74.43
		CLAY		10.62	28.39	11.42	24.09	36.33	31.77	3.92	26.89	23.85	8.45	26.92	3.71	19.78	19.20	26.89	15.15	30.77	28.65	31.55	0.67	5.30	18 10	33.31	1.80	31.17	34.94	38.25	34.27	0.00	00:0	8.68	27.79	32.00	24.66	21.58
	SIZE (%)	T.JI.2 mm500.0-210	10	55.88	64.71	54.58	67.41	57.57	55.33	49.68	63.81	59.15	63.05	86.09	43.09	50.72	60.10	66.14	67.95	58.13	62.25	65.55	50.03	47.10	00 69	57.19	25.40	61.13	99.09	59.95	63.23	15.70	25.80	53.92	62.01	61.50	61.04	89.82
ROPERTIES	GRAIN	GNA2 mm210.0-61.	,	33.50	6.90	34.00	8.50	6.10	12.90	46.40	9.30	17.00	18.50	12.10	53.20	21.50	20.70	6.70	12.90	11.10	9.10	2.90	49.30	47.60	12.90	9.50	72.80	7.70	4.40	1.80	2.50	73.20	74.20	33.30	10.20	6.50	12.60	9.60
PHYSICAL PROPERTIES		JEVA9∂ mmčv.i≺		•	•		•					•			·			•	•			•	•						٠		-	11.10		4.10	•		1.70	7
		σ.																				ĺ	}			- "						7						
		హ	(%)																				ì	-														
		r.	(g/cm3)																																	7		
		W	(%)	95.2E		96'05	50.92		46.65	46.54	58.26	48.24	46.77	57.41	41.28	52.70	60.30	40.59	52.44	59.20	51.23	43.70	41.81	43.89	35.70	44.61	35.61	44.06	44.46	68.17	55.58	36.72	46.47	26.81	41.55	51.23	29.05	47.68
		S		2.55	2.55	2.56	2.60	2.62	2.73	2.71	2.62	2.63	2.68	2.83	2.64	2.58	2.73	2.62	2.58	2.74	2.56	2.65	2.68	2.61	2.64	2.64	2.75	2.57	2.57	2.65	2.50	2.78	2.74	2.64	2.66	2.64	2.68	2.70
		тезт рерти	[w]	16.50 - 17.00	27.50 - 28.00	3.50 - 4.00	5.50 - 6.00	17,50 - 18,00	4.50 - 5.00	8.50 - 9.00	14.50 - 15.00	2.50 - 3.00	6.50 7.00	12.50 13.00	4.50 5.00	6.50 7.00	13.50 - 14.00	18.50 - 19.00	250 - 300	6.50 7.00	12.50 - 13.00	16.50 - 17.00	6.50 - 7.00	9.50 - 10.00	11.50 - 12.00	2.50 3.00	12.50 - 13.00	2.50 - 3.00	12.50 - 13.00	4.50 - 5.00	14.50 - 15.00	7.50 8.00	11.50 - 12.00	4.50 - 5.00	13.50 - 14.00	16.50 - 17.00	24.50 - 25.00	3.50 - 29.00
		BORF. HOLE No.	L	-	2	RB - 18		-	RB - 19		-	RB - 20	-		RB - 21	-	-	7	RB - 22	Ŀ	2	=	HB - 23		11	HB-24	Щ.	RB 25	-	RB - 26	=	RB 27 7	1	HB - 28	RB - 51 13	16	7.4	RB 52 28
		COCATIO				<u> </u>	L		ـــــ		<u> </u>	L	- 11		ь <u> —</u>	<u> </u>	ķ	۸۷	٠	Щ.	<u>'</u> בר:	T	ES	<u>.</u> М		•	L	L <u>.</u>	L		<u>L. </u>	<u> </u>	l		E	Ш	Ш	

Table 3.2.2(5/5) SUMMARY OF LABORATORY TEST (GRAIN SIZE ANALYSIS) 3/3

	0	i.	NVALUE		9	~ 8	3 ~	, e	137	ន	24	8,	, 5	E	1	15	80	જ઼	5	Ş	2	23	ر ۵	0 5	? =	52	99	ខ	27	38	t5	ន	77 5	2 4	3 5	S	53	27	15	35	83	Š	23 ~	, š	
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	- NOTA	ATIES	ပိ	•									1																 				1			-		 -				+	1	+	
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83			ф	(,)																																								1	
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MECHANICAL PROPERTIES	STRENGTH	ö	0	(.)																																-									
×	SPEARING		Ö	(kg/cm2)																																								T	
-		3	•	(,)	-										ŀ																		-	-										T	
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		S	SOIL CLASSIFIC ATION		Ж	ಕ	5 5	5 8	d.	NS.	₩S	3	58	5 3	ပ္တ	5	ಕ	S.P	SM	SM	3	ပ္တ	3	ತ ಕ	3 8	3	₹	ਲ ਹ	5 5	5 5	SM	ક	5	5 8	£ 6	j &	ਲ	동	5	ds	ರ	g (3 3	3 d	
	_	Շ	ā			57.72						41.48	*	34 53	15.95	62.31	44.31				25	18.92	92.53	3 13	42.25		34.56	29.82	38.27	30.24	15.82	30.51	50.29	8	1.	44,92	38.28	32.33	31.12		26.41		15.61	3	1
		CONSISTENCY	4			22.94		- [1.			21.18	87.0	26.49	21.70	25.75	30.43				26.58	19.41	29.63	21.93	2121	,	30.00	28.57	23.67	31.15	28.37	25.26	28.64	500		21.43	21.95	24.54	30.18		22.34	00.70	21.88	,	
			П	(%)	54.83	80.66	24.43	5 82				62.66	3	61 01	37.65	90 88	74.74				80.59	38.33	86.98	4 %	53.46		64.66	58.40	61.94	61.38	44.19	55.77	1.8	27.73	. .	66.35	60.23	56.87	61.30	,	48.75	- 100	37.48	3	
			CLAY -0.002m		20.62	29.32	53 18	15.66	1.08	1.87	0.14	4.61	27.08	30.89	3.77	19.79	19.61	0.00	1.83	1.84	28.72	1.38	37.06	14.63	9.88	1.81	19.45	11.56	21.74	28.68	0.81	7.43	5.9	24.10	8 8	21.43	17.18	14.27	15.15	0.00	1.51	0.00	0.05	8.0	
		GRAIN SIZE. (%)	T.#2 mm\$00.0-210				- 1	2	1.		1			1	1			1		·				4	48.12	1.	1 -				1	Ιi	- 1		1.		1		11			1	CZ: /4		ı
ROPERTIES		GRAIN	GVA2 mm2T0.0-2T.	,	20.90	02.6	31.30	23.00	71.12	59.45	82.20	42.10	14.30	076	59.50	8.80	20.50	68.65	75.60	43.35	12.10	64.50	2.30	22.80	20.30	39.11	20.10	24.10	17.60	13.80	49.60	41.50	26.90	28.20	31.75	11.60	16.50	37.40	-	1 1			ı	34.70	
PHYSICAL PROPERT			GRAVEL M™ZGNm		,	•			16.97	17.23			04.7		5.70		2.10	25.84		41.95		3,30	•			48.17		1.80	1.60		3.60	2.20	6.40	16.0	52.53	Š		4.30		43.67	3.80	63.09	07.0	55.74	
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			ග්	3																																									
	_		7.	(g/cm3)																																									
	L	11 s 11 s 1	*				•			1			1	1	1.	1			1	1				1	20.21	. _	ì									ŀ		I.				-	27.84		
		·: ·:.	SS S					ı				$ \cdot $	·				1	1							2.68	Ι.											1		.		1 1				
			теят DEPTH	(E)	2.50 3.00	9.50 · 10.00	3.50 4.0	9.50 - 10.00	8.50	11.50 - 12.00	10.50 - 11.00	12.50 13.00	3.4	20 00 00 00	350 400	7.50 - 8.00	3.50 - 4.00	8.50 - 9.00	3.50 - 4.00	8.50 - 9.00	3.50 - 4.00	9.50 - 10.00	4.50 - 5.00	8.50 9.00	9.50 10.00	9.50	4.50 5.00	5.50 - 6.00	3.50 - 4.00	450 - 500	5.50 - 6.00	4.50 - 5.00	7.50 8.00	2.50 3.00	4.50 DC 4	8 6 6	2.50 3.00	1.50 2.00	2.50 - 3.00	2.50 - 3.00	8.50 - 9.00	3.50 - 4.00	5.50 - 6.00	٠١,	ı
	1		BORE- HOLE No.	~	88.29	11	8. 8.	80	_		RB 32	_	8		2		25. 25	+	RB - 36		AB - 37	1	PB - 38	\rightarrow	88 8	+	18-41	+ 1	88.42	_		RB-44	1	HB 45		98 46	+	HB - 47	1	RB - 48	1 1	RB - 49	9	3	1
		N	госудо	- 4.			4					: -		7			: = =					H :	۸E	ıЫ	ופ	4	H١	פּי									1.		_						

able 3.3.1 HYDROLOGICAL STATIONS AND DATA COLLECTION

		Table 3.3.1		HYDROLOGICAL STATIONS		2	7	IAI	<u> </u>		AND DATA COLLECTION	717	ار	7	וַק	3									
δ N	Station	Organi-	Start					:		/	Year of Record	of Re	corc												
7		zation	Year	67 *	*	¥. 0.	*	*	75	*	*	*	80	*	*	*	85 *	*	*	*	90	*	*	*	¥ 96
<u> </u>				by Fe	easibility	1	Study in	in1993											-		_	Additional		Data	
(1)	(1) Daily Rainfall Data									4 1, 1,		. :	. :		1										
25	Kebonadem	PU,BMG	1951	<u>۷</u>	∢	\ \ \	¥	∀	a	B A	∢:	<	∢ ✓	∢ .	∢	₹	4	۷	ш	⋖	<				
33	Karangtengah	PU,BMG	1948	۷ ۷	⋖	∀	A	V	∢	V V	∢.	₹	۷ ۲	₹	<	<	Y Y	۷	⋖	∢	<				
34		PU,BMG	1951	<u>ح</u> ح	∢	4	⋖	ВА	∢	¥.	- 4	∢	∢ .	۲.	∢	∢	× ×	<u> </u>	4	ထ	<u>m</u>				
37	Boja	PU,BMG	1969		m	∀ ∀	₹	∀	Δ	8 A	മ	₹	A B	0 0	∢	⋖	Α B	٧	<u>m</u>	മ	<u> </u>			-	
39	Limbangan	PU,BMG	1951	Y V	∢	A B	<	a	∢	A B	00	m	۷ V	∀	<	\ \	۷ ۷	۷	00	∢	≺				
410	Bringinmangkang	BMG	1958	Β	4	A B			∢	Y	∢		⋖ ⋖	∢	⋖	< .	∢. ∢	٧	Ω	⋖	∀				
41e		BMG	1968	∢	∢	∀ .∀	₹	۷ ۷	4	A	×	4	∢ ∢	∢	∢		∀ ∀	4	∢	≺	\	A	⋖	∀	A
44		PU,BMG	1958	⋖	<	۷. ۷	<		****	В	. 4		-	⋖	⋖		<u>۸</u>	٨	∢	∢		4	∢	\ \	٧ ٧
59	Candi	BMG	1958	∀	∢	۷ ۷	<	4	m	¥ .	4	₹	∀	m	∢	m	8	4	∢	⋖	<u> </u>			-	
650	Sumurjurang	PU,BMG	1952	8	٠,	A B	3.			Y Y	∢.	∢.	Α Β	⋖	⋖	٠.	٠.	∢	4	<	<u>~</u>	ВА	<	⋖	В
989	Klepu	BMG	1951	В	m	В	in ali	ВВ	_ m	¥ B	4		A B	∢	Ω	<u></u>	ВВ	m L							
97	Plamongan	PU,BMG	1958	В	₹.	∀	` ∢	∀	₹	V	∢	¥	۷ ۷	<	⋖	\ 4	۷ ۷	∢	⋖	∢	<				
66	99 Banyumeneng	PU,BMG	1956	B A	Ω	AA	8	∀ ∀	¥	4	4	₹	۷ ۷	٨	4	4	۷ ۷	4	⋖	4	A				
(2)	(2) Hourly Rainfall Data										. :		4.								-				
41e	BMG Semarang	BMG	1959 (195	(1959	9-1966=A	₩ -				A B	∢	₹	Y Y	∢,	⋖	4	4	∢	<	ď	<u> </u>	4	∢	¥	A A
ស	Kaligading	ፗ	1980										B	4	4	4	B	4	<u>m</u>	В	A B	20	⋖	8	∀ ∀
			<i>i</i>												1										
(3)	(3) Daily Discharge Data										•		,												. 4
	Panjangan	뿔	1983	<u></u>	Garang River	River	A=1	192.6km2	km2)								-	∢	∢	∢	4	ا	⋖	₹	Υ Υ
:	Patemon	里	1992	ຶ	Garang River	Rive		A= 75.0km2)	m2)		•					-						0	⋖	₹	∢ ∀
	Kalipancur	里	1992	S	Kreo River	Ver)=-	66.1km2)	m2)			.										ω	∢	¥	∀ ∀
(4) H	Hourly Water Level Data			14						٠								•							
	Simongan Weir	2	1987	<u> </u>	Garang River	River	Α= <u>ζ</u>	A=204.0km2)	cm2)	<u>.</u>								on c	a	a	<u>a</u>	00 0	a (<u>aa</u> (ea c
			1301	\$	(Annual Maximum Water Level = 1901 - 1995)	Maxii	mnu	water	é	- -	201	1880	_					اد		- 1		- 1	اد	- 1	

Note: Symbol=A means complete data, Symbol=B means incomplete data, Symbol=C means intermittent data

Table 3.3.2 ANNUAL MAXIMUM RAINFALL FOR EACH DURATION AT BMG-SEMARANG STATION

Vos Year Train 10-min. 15-min. 30-min. 45-min. 60-min. 120-min. 15-min. 15-min. 15-min. 15-min. 15-min. 15-min. 65-min. 15-min. 15-min												_	Unit: mm
1969 20 25 30 50 53 53 55 57 71 71 1966 11 20 25 30 35 38 40 44 65 73 716 1966 11 20 25 38 40 44 65 73 76 1966 11 15 18 40 44 62 73 76 1966 27 30 34 43 50 54 72 89 10 11 11 11 10 11 10 11 11 11 10 11 11 11 11 11 11 11 11 11 11 11	o Z	year	nım-c	10-min.]5−min.	30-min.	45-min.	60-min.	120-min.	3-hours	6-hours	12-hours	1-day
2 1960 18 22 32 46 46 47 51 57 71 1961 21 26 28 40 43 44 50 66 87 116 1962 11 20 25 30 40 44 50 70 118 1964 22 24 25 38 40 44 62 70 118 1965 11 15 18 28 38 40 44 62 70 118 1966 27 30 34 43 50 64 70 107		1959	20	25	30	20	53	53	55	55	55	55	75
3 1967 21 26 28 40 43 44 50 66 87 116 1962 21 20 25 30 40 44 65 73 76 1964 21 31 42 62 78 40 44 62 73 76 1965 11 15 18 28 38 40 44 62 70 118 1966 27 30 34 43 50 54 72 80 91 100 1976 17 20 32 43 50 54 72 80 91 100 1978 17 20 32 43 50 54 72 80 91 100 1980 17 17 20 32 43 50 54 70 112 1980 17 20 32 43 50	~	1960	<u>-18</u>	22	32	46	46	47	51	57	67	71	87
4 1982 11 20 25 30 35 38 45 52 73 76 1964 21 24 25 38 40 44 62 70 118 1965 11 15 18 28 38 40 44 62 70 118 1966 27 30 34 43 50 54 72 80 90 110 1976 17 20 32 43 50 54 72 80 90 91 1978 17 20 32 43 50 56 98 102 115 1980 17 20 32 43 50 56 98 114 41 91 115 1981 17 20 32 43 50 54 72 80 91 91 115 1982 10 11 12 <th>က</th> <th>1961</th> <th>21</th> <th>26</th> <th>28</th> <th>40</th> <th>43</th> <th>44</th> <th>20</th> <th>99</th> <th>87</th> <th>116</th> <th>124</th>	က	1961	21	26	28	40	43	44	20	99	87	116	124
5 1963 22 24 25 38 40 44 62 70 118 1964 21 31 42 62 78 80 89 91 98 100 1965 11 15 18 28 38 40 41 44 91 100 1966 27 30 34 43 50 54 72 80 91 100 1976 17 20 32 43 50 54 72 80 91 115 1978 17 20 32 43 50 56 99 114 91 125 1980 17 20 37 50 56 99 116 125 1981 20 41 47 58 69 90 91 91 1982 15 16 47 58 69 90 113 12 </th <th>4</th> <th>1962</th> <th>/</th> <th>ଛ</th> <th>25</th> <th>30</th> <th>35</th> <th>38</th> <th>45</th> <th>55</th> <th>73</th> <th>76</th> <th>100</th>	4	1962	/	ଛ	25	30	35	38	45	55	73	76	100
6 1964 21 31 42 62 78 80 89 91 96 100 1 965 11 15 18 28 38 40 41 44 91 125 1 966 17 20 34 43 50 54 72 80 91 115 125 1 976 17 20 32 43 50 56 99 114 126 125 183 1 978 15 24 29 37 50 56 99 114 126 126 126 196 197 197 195 183 183 196 197 196 <th>သ</th> <th>1963</th> <th>22</th> <th>24</th> <th>22</th> <th>38</th> <th>40</th> <th>40</th> <th>44</th> <th>62</th> <th>70</th> <th>118</th> <th>120</th>	သ	1963	22	24	22	38	40	40	44	62	70	118	120
1 965 11 15 18 28 38 40 41 44 91 125 1 966 27 30 34 43 50 54 72 80 90 91 1 976 17 20 32 43 50 54 75 107 107 135 183 1 978 17 20 32 43 50 56 99 107 175 185	9	1964	21	31	42	62	78	80	88	91	98	100	100
1966 27 30 34 43 50 54 72 80 90 91 1976 17 20 32 43 59 75 107 107 135 183 1978 17 26 36 60 72 85 98 102 115 183 115 183 115 116 117 118 110 11 11 11 11 11 11 11 11 11 11 </th <th>_</th> <th>1965</th> <th></th> <th>ट</th> <th>18</th> <th>28</th> <th>38</th> <th>40</th> <th>4</th> <th>44</th> <th>91</th> <th>125</th> <th>166</th>	_	1965		ट	18	28	38	40	4	44	91	125	166
1976 17 20 32 43 59 75 107 107 135 183 1978 17 26 36 60 72 85 98 102 115 115 1979 17 24 29 37 50 56 99 114 126 126 1980 14 28 62 82 91 175 185 192 192 1981 20 40 65 70 80 113 120 204 228 1982 10 11 126 126 192 1	∞	9961	27	30	34	43	50	54	72	80	8	91	91
1978 17 25 36 60 72 85 98 102 115 126 127 128 129	6	1976	4	20	32	43	59	75	107	107	135	183	206
1979 15 24 29 37 50 56 99 114 126 126 1980 14 28 62 82 91 175 185 192 192 1981 20 40 50 65 70 80 113 120 204 228 1982 10 16 47 58 69 80 131 131 1983 16 27 35 47 61 67 79 83 85 81 1984 15 25 35 47 61 67 79 83 85 81 1985 31 46 62 72 86 100 105 149 149 149 149 149 1988 15 26 36 51 71 81 100 100 100 100 100 110 1989 16 26	2	1978	17	22	36	09	72	82	86	102	115	115	115
1980 14 28 62 82 91 175 185 192 192 1981 20 40 50 65 70 80 113 120 204 228 1982 10 10 16 47 58 69 80 103 131 131 1983 18 36 54 73 83 93 96 149 149 149 247 149		1979	15	24	29	37	50	26	66	114	126	126	126
1981 20 40 50 65 70 80 113 120 204 228 1982 10 10 16 47 58 69 80 103 131 131 1983 18 36 54 73 83 93 96 96 96 96 96 96 96 96 96 96 96 96 96 96 96 96 96 96 96 97 96 97 96 149 149 149 247 149 149 149 247 149 149 149 149 149 247 149	12	1980	<u> </u>	28	62	82	82	6	175	185	192	192	192
1982 10 10 10 16 47 58 69 80 103 131 131 1983 18 36 54 73 83 93 96 130 96 130 96 130 96 140 96 140 96 140 96 140 96 140	<u></u>	1981	20	40	20	65	70	80	113	120	204	228	253
1983 18 36 54 73 83 93 96 9	4	1982	0	10	16	47	58	69	80	103	131	131	157
1984 16 27 35 47 61 67 79 83 85 81 1985 15 25 35 71 96 149 149 149 247 1986 31 46 62 72 86 100 105 123 129 130 1987 27 32 37 60 85 86 93 93 96 138 1988 15 26 36 51 71 81 102 102 117 174 1989 16 26 30 44 55 80 100 100 100 1991 10 20 30 40 48 49 70 71 125 132 1992 1993 22 30 40 48 49 70 71 125 132 1994 20 30 36 55 56		1983	8	36	54	73	83	93	93	96	96	96	96
1985 15 25 35 55 71 96 149 149 149 247 1986 31 46 62 72 86 100 105 123 129 130 1987 27 32 37 60 85 86 93 93 96 138 1988 15 26 36 51 71 81 102 102 177 174 1989 16 26 30 44 55 80 100 100 100 1991 10 20 30 40 48 49 70 71 125 132 1992 16 21 30 40 48 49 70 71 125 132 1993 22 30 40 75 84 92 79 86 90 1994 25 30 30 60 67	9	1984	9	27	32	47	61	67	79	83	82	81	91
1986 31 46 62 72 86 100 105 123 129 130 1987 27 32 37 60 85 88 93 93 96 138 1988 15 26 36 51 71 81 102 107 174 174 1989 16 26 30 44 55 80 100 100 103 142 1991 10 20 30 40 48 49 70 71 125 132 1992 16 21 30 40 48 49 70 71 125 132 1993 22 30 40 75 84 92 108 110 110 1994 20 30 36 55 56 68 79 79 86 90 1995 25 37 41 66	17	1985	15	22	35	55	71	96	149	149	149	247	253
1987 27 32 37 60 85 88 93 96 138 1988 15 26 36 51 71 81 102 102 117 174 1989 16 26 30 44 55 80 100 108 142 1990 10 20 30 40 48 49 70 71 125 132 1992 16 21 30 55 75 80 88 94 98 99 1993 22 30 40 75 84 92 108 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 22 37 41 66 85 110 100 100 100 1996 25 37 41 66 85 110	<u>∞</u>	1986	31	46	 62	72	98	100	105	123	129	130	130
1988 15 26 36 51 71 81 102 102 117 174 1989 16 26 30 44 55 80 100 108 142 1990 10 20 30 40 48 49 70 71 125 132 1992 16 21 30 40 48 49 70 71 125 132 1993 22 30 40 75 84 92 108 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117 117	13	1987	27	32	37	09	85	88	93	93	96	138	138
1989 16 26 30 44 55 80 100 100 108 142 1990 10 20 30 50 57 58 66 70 71 125 132 1991 10 20 30 40 48 49 70 71 125 132 1993 22 30 40 75 84 92 108 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117	20	1988	15	56	98	51	71	81	102	102	117	174	174
1990 10 20 30 50 57 58 66 70 82 100 1991 10 20 30 40 48 49 70 71 125 132 1992 16 21 30 55 75 84 92 108 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117	7	1989	16	5 6	၉	44	55	80	100	001	108	142	142
1991 10 20 30 40 48 49 70 71 125 132 1992 16 21 30 55 75 80 88 94 98 99 1993 22 30 40 75 84 92 108 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117	22	1990	10	20	30	50	57	58	99	70	82	100	1,5
1992 16 21 30 55 75 80 88 94 98 99 1993 22 30 40 75 84 92 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117	23	1991	10	50	30	40	48	49	70	71	125	132	132
1993 22 30 40 75 84 92 108 110 130 182 1994 20 30 36 55 56 68 79 79 86 90 1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117	24	1992	16	21.	30	55	75	80	88	94	98	66	66
1994 20 30 36 55 68 79 79 86 90 1995 15 22 35 60 67 79 100 1	25	1993	22	ဓ္တ	4	75	84	95	108	110	130	182	238
1995 15 22 35 60 67 79 100 100 100 1996 25 37 41 66 85 110 114 116 117 117	26	1994	20	30	36	55	56	99	62	79	98	06	90
1996 25 37 41 66 85 110 114 116 117 117	27	1995	15	22	35	09	67	79	100	100	100	100	124
	28	1996	25	37	41	99	85	110	114	116	117	117	117

Table 3.3.3 PROBABLE RAINFALL FOR EACH DURATION AT BMG-SEMARANG STATION

(1) Updated		Data N=28 (1959-	8 (1959–19	1966, 1976–1996)	986)							
Return Period Gumbel	Gumbel	5-min.	10-min.	15-min.	30-min.	45-min.	60-min.	120-min.	3-hours	6-hours	12-hours	1-day
T (year)	Variable Y	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2	0.36651	17.1	25.2	33.7	9.03	60.4	68.2	83.4	89.2	103.9	120.1	130.0
n	0.90273	19.6	28.8	38.9	57.1	0.89	77.8	98.1	103.7	120.2	142.1	154.0
വ	1.49994	22.5	32.8	44.8	64.4	76.4	88.6	114.5	119.9	138.3	166.6	180.7
80	2.01342	25.0	36.2	49.8	70.6	83.7	97.6	128.5	133.8	153.8	187.7	203.7
01	2.25037	26.2	37.8	52.1	73.5	87.0	102.2	135.0	140.2	161.0	197.5	214.3
20	2.97020	29.6	42.6	59.1	82.2	97.2	115.2	154.7	159.7	182.8	227.0	246.5
25	3.19853	30.7	44.1	61.3	85.0	100.4	119.3	160.9	165.8	189.8	236.4	256.7
30	3.38429	31.6	45.3	63.1	87.2	103.1	122.6	166.0	170.9	195.4	244.1	265.0
40	3.67625	33.0	47.3	62.9	8.06	107.2	127.9	174.0	178.8	204.2	256.1	278.1
50	3.90194	34.1	48.8	68.1	93.5	110.4	132.0	180.2	184.9	211.1	265.3	288.2
09	4.08596	35.0	50.0	6.69	95.7	113.0	135.3	185.2	189.9	216.6	272.9	296.4
80	4.37574	36.4	52.0	72.7	99.3	117.1	140.5	193.2	197.7	225.4	284.8	309.4
001	4.60015	37.5	53.4	74.9	102.0	120.3	144.6	199.3	203.8	232.2	294.0	319.4
150	5.00730	39.5	56.2	78.9	106.9	126.0	151.9	210.4	214.8	244.6	310.7	337.6
200	5.29581	40.9	58.1	81.7	110.4	130.1	157.1	218.3	222.6	253.3	322.6	350.5
1000	6.90723	48.6	68.8	97.4	130.0	152.9	186.2	262.4	266.2	302.2	388.8	422.6
	°×	15.28	22.80	30.16	46.16	55.23	61.53	73.42	79.25	92.81	105.01	113.64
	1/a	4.83	99.9	9.73	12.14	14.13	18.05	27.36	27.07	30.31	41.08	44.73
Note: $X = Xo + Y*(1/a)$	- Y*(1/a)											

 (2) by Feasibility Study in 1993	/ Study in 1	993		Data N=22 (1959-1966, 1976-1990)	(1959-19)	66, 1976-1	(066					
 Return Period Gumbel	Gumbel	5-min.	5-min. 10-min.	15-min.	30-min.	45-min.		120-min.	l	6-hours	2-hours	1-day
T (year) Variable	Variable Y	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm) (mm)	(mm)	(mm)
 2	2 0.36651	16.7	24.7	33.3	48.4	54.5	64.7	80.0	87.6	103.8	121.2	132.0
 Q	1.49994	21.6	31.8	43.8	60.5	. 8.99	82.4	109.6	116.7	136.2	164.4	177.6
 100	00 4.60015	34.9	51.3	72.5	93.6	100.5	130.6	190.2	196.2	226.2	280.8	297.6

Table 3.3.4 RAINFALL INTENSITY FORMULA FOR SHORT DURATION

(T<2 hours) Return Period Probable Data by Formula Difference Time Rainfall Intensity Formula T (year) (min.) (mm/hr) (mm/hr) (%) (R=mm/hr, T=min.) 5 204.6 195.0 -4.7 10 151.4 160.9 6.3 15 134.9 138.1 2.4 2 30 101.2 99.4 $R = 1567.1/(T+11.79)^0.739$ -1.8 45 80.5 79.3 -1.560 68.2 66.7 -2.2 120 41.7 42.6 2.2 5 270.2 261.2 -3.3 10 196.7 209.0 6.3 15 179.0 177.2 -1.0 5 30 128.7 127.1 -1.2 $R = 1271.9/(T + 6.95)^0.638$ 45 101.9 102.3 0.4 60 88.6 87.0 -1.8120 57.2 57.8 1.0 5 313.8 305.6 -2.6 10 226.7 240.6 6.1 15 208.2 202.9 -2.510 30 146.9 145.4 -1.0 $R = 1230.2/(T+5.20)^{0.600}$ 45 116.1 117.6 1.3 60 102.2 100.5 -1.7120 67.5 68.0 0.7 5 355.4 348.2 -2.0 10 255,5 270.8 6.0 15 236.2 227.5 -3.720 30 164.4 163.0 -0.9 $R = 1241.4/(T + 4.12)^0.575$ 45 129.6 132.2 2.0 60 115.2 113.4 -1.6 120 77.3 77.6 0.4 5 368.8 361.9 -1.9 10 264.7 280.4 5.9 15 245.2 235.3 -4.0 25 30 170.0 168.7 -0.8 $R = 1245.5/(T + 3.81)^{\circ}0.568$ 45 133.9 136.9 2.2 60 119.3 117.6 -1.4120 80.5 80.7 0.2 5 409.6 403.9 -1.4 10 292.7 309.7 5.8 15 272.5 259.1 -4.9 50 30 187.0 185.8 -0.6 $R = 1273.4/(T+3.06)^0.550$ 45 151.2 147.2 2.7 60 132.0 130.2 -1.4120 90.1 90.2 0.1 5 450.0 445.5 -1.010 320.6 338.8 5.7 15 299.7 282.9 -5.6100 30 204.0 202.9 -0.5 $R = 1318.3/(T + 2.53)^0.537$ 45 160.3 165.5 3.2 60 144.6 142.8 -1.2 120 99.6 99.5 -0.1

Table 3.3.5 RAINFALL INTENSITY FORMULA FOR LONG DURATION
(T>1 hour)

					(T>1 hour)
Return Period	Time	Probable Data	by Formula		Rainfall Intensity Formula
T (year)	(min.)	(mm/hr)	(mm/hr)	(%)	(R=mm/hr, T=min.)
	60	68.2	68.8	0.9	
	120	: 41.7	41.2	-1.2	
2	180	29.7	30.0	1.0	R = 2417.0/(T+10.80)^0.836
	360	17.3	17.2	-0.6	
	720	10.0	9.8	-2.0	
	1440	5.4	5.5	1.9	
	60	88.6	90.0	1.6	
	120	57.2	55.1	-3.7	
5	180	40.0	40.6	1.5	R = 3245.6/(T+14.75)^0.831
. *	360	23.0	23.6	2.6	1(- 0240.0/(1114.70/ 0.801
	720	13.9	13.5	-2.9	
,	1440	7.5	7.6	1.3	-
		102.2	104.2		
	60 120	67.5	64.3	2.0	
10		and the second s	the second second	-4.7	D = 2701 2 //TL15 27\^0 000
10	180	46.7	47.5	1.7	R = 3721.3/(T+15.67)^0.826
	360	26.8	27.7	3.4	
	720	16.5	15.9	-3.6	
	1440	8.9	9.1	2.2	
	60	115.2	117.8	2.3	
	120	77.3	73.1	− 5.4	
20	180	53.2	54.2	1.9	R = 4202.2/(T+16.63)^0.824
	360	30.5	31.7	3.9	
	720	18.9	18.3	−3.2	
	1440	10.3	10.4	1.0	
	60	119.3	122.0	2.3	
	120	80.5	76.0	-5.6	
25	180	55.3	56.3	1.8	R = 4430.3/(T+17.47)^0.826
	360	31.6	33.0	4.4	
	720	19.7	19.0	-3.6	
	1440	10.7	10.8	0.9	
	60	132.0	135.3	2.5	
	. 120	90.1	84.6	-6.1	
50	180	61.6	62.8	1.9	R = 4923.2/(T+18.23)^0.824
	360	35.2	36.9	4.8	
	720	22.1	21.3	-3.6	
	1440	12.0	12,1	0.8	
	60	144.6	148.3	2.6	
	120	99.6	93.1	-6.5	
100	180	67.9	69.3	2.1	R = 5426.1/(T+19.02)^0.824
	360	38.7	40.8	5.4	
	720	24.5	23.5	-4.1	
	1440	13.3	13.4	0.8	
	60	· · · · · · · · · · · · · · · · · · ·	191.6	2.9	
	120	1	121.4	-7.5	
1000	180		90.7	2.3	I
	360		53.6	6.3	•
	720	1	31.0		
	1440	I		0.6	1
L	1440	1 17.0	11.7	1 0.0	<u> </u>

Table 3.3.6 HOURLY RAINFALL DATA IN ANNUAL MAXIMUM DAILY RAINFALL AT BMG-SEMARANG STATION

33	7:00	0	2.1	1.8	2	0.7	Φ	Ö	0	17	Ö
Cort:	-	1								4	
										3.5	
	4:00	0	13.7	28	0.5	5	0	0.5	0	ທ	0
	3:00	0	4	 -	4	16.5	0		0	0.5	0
	2:00	9.0	4.2	4	8.5	27	0	10.5	0	0	.0
	1:00	က	2.3	9.7	8.5	ន	0	9	0	0	0
	24	9.5	4.2	2.5	10.5	35.5		9	0	0.5	0
3	23	4.5	10.4		15.5	0	0.3	34	0	2.5	0
	22	9.5	44.2	4	3.5	3.9	3.2	<u>∞</u>	0	5	
	21	∞	2.6	∞	4	0.5	7.3	16	0	51	114.4
	20	2	0	6.5	11	0	47	22	4.5	12.5	0.1
										2	
						1.1	٠.			0	
										0	
					- 8					: •	
	- 1									0	
	i						*			0	
	13	42 4	0	0.7	0	0	0	5	0	4	0
	12	0	0	0.3	0	0	0	33	0	0	٥
	=	0	0	5.5	: 0	0	0	0.5	0	<u>.5</u>	0
	10	0	0	က	0	0	0	4	0	7.5	0
2 4	00.6	0	0	O	0	0	0	=	0	<u>65</u>	0
	8:00	0	0	6.5	0	0	0	5	0	1.2	0
	Total	138.0	174.6	141.5	115.0	132.0	98.8	237.5	90.0	124.0	116.9
	Date	27	17	9	22	.26	<u> </u>	- - - - - - - - - - - - - - - - - - -	&	12	23
	۵	Jan.27	Dec.1	Feb. 6	Jan.22	Dec.26	Mar.11	Jan.28	Mar. 8	Dec.12	Apr. 23
	Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
•	_			-			-	-		-	

Table 3.3.7 HOURLY RAINFALL RATIO IN ANNUAL MAXIMUM DAILY RAINFALL AND DESIGN STORM

-	Year	Date	Total			-11 -10 -9 -8	180	7-	٩	1	1 1		-5	[-	Peak		2	က	4	5	9	7	8	6	10		-
. /	1987	Dec. 4	0:-	00.0		0.00 0.00 0.00 0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.03	0.33	0.21	0.07	0.05	0.02						0.07	0.02 (0.00
	1988	1988 Jan. 7	1.0	0.00	0.00	0.00	0.00	0.00	0.01	0.25	90'0	0.02	0.01	0.02	0.25	0.08	0.10	0.17	0.01								90.0
	1989	Oct 15	0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.05	90.0	0.29	0.04	0.02	0.07	0.03								0.02
	1990	Jan.25	1.0	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.04	0.08	0.03	0.15	0.12	0.03	0.13	60.0								9
	1991	Feb. 7	1.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.27	0.17	0.20	0.13	0.09	60.0	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	1992	Nov. 22	1.0	0.00	000	0.00	0.00	0.00	0.00		000	0.00	0.00	0.40	0.48	0.07	0.03	00.0	0.01	_				_		-	90.
	1993	Jan.29	1.0	0.14	90.0	000	0.00	0.00	0.00		0.10	0.00	0.07	0.08	0.14	0.04	0.07	0.04	0.00	-				_		_	9.
1.	1994	Mar. 5	0	8	0.00	0.00	0.00	0.00	000	0.00	0.00	0.00	0.07	0.00	0.62	0.08	0.12	0.07	0.05	_		_		. –	-		9.0
•	1995	May.10	1.0	90.0	0.0	0.00		0.03 0.00	0.00		0.00	0.00	0.02	0.10	0.41	0.08	0.05	0.00	0.00	Ξ.				-	-	_	0
	1996	Apr. 2	1.0	0.00	0.00		0.00 00.0	000	8	0.00	0.0	0.00	000	0.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	00.0	0.00	0.00	0.00	0.00.0	00.0
-7761	Average	e(=A)	#Average(=Al)	0.05	00	0.00	00.0	00.0	000	0.03	0.02	0.02		0.03 10.07	¥0:39	×0.00	×0:0%	0.07	0.03	0.02	#0.03#C	#0.02**(0.01 0.02 0.03	0.02%		£0.01⊗0	0.0
'	Return	Return Period	Rd(mm)	•	.							De	Sig	n St	orm	Rs (mm)	m)										
	5-year	ear	180.7	3.6	1.8	0.0	0.0		0.0 0.0	5.4	3.6	3.6	5.4	12.6	70.5	16.3	12.6	12.6	5.4	3.6	5.4	3.6	1.8	3.6	5.4	8.	80
	10-year	ear	214.3	43	4.3 2.1	0.0	0.0	0.0	0.0	6.4	4.3	4.3	6.4	15.0	83.6	19.3	15.0	15.0	6.4	4.3	6.4	4.3	2.1	4.3	6.4	2.1	2
	25-year	ear	256.7	5.1	2.6	0.0	0.0	0.0	0.0	7.7	5.1	5.1	7.7	18.0	100.1	23.1	18.0	18.0	17	5.1	7.7	5.1	2.6	2.1	7.7	2.6	2.6
-	50-year	ear	288.2	5.8	2.9	0.0	0.0		0.0 0.0	8.6	5.8	5.8	8.6	20.2	112.4	25.9	20.2	20.2	8.6	5.8	8.6	5.8	2.9	5.8	8.6	2.9	2.9
(Net)	nelloo-year	/ears	37.97	1970	9	640 3/2 (040) (040) (040) (040)	0.0	00	00	9.6	1979	(0.4)	Š	2274	#124.6%	2857	22.4	224	9.63	.6.4	9.6	6.4	3.2	6.4	9.6	3.2%	32
-	10.00	Mota: (Hourh, Dainfall in Decimo Storm)De = (Augusta Datio)	ninfall in	2001	C+0	~ \C(~	- (A.	0 0000	A(~:+~	(Q) + :	* (dode.0) *	11-7-1-0	7 11 7	-													l

Note: (Hourly Rainfall in Design Storm)Rs = (Average Ratio)Ai * (Probable Rainfall in a day)Rd

Table 3.3.6 HOURLY RAINFALL DATA IN ANNUAL MAXIMUM DAILY RAINFALL AT BMG-SEMARANG STATION

Year Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 1:00 2:00 3:00 4:00 5:00 6:00 1987 Jan.27 138.0 0 <th>mm</th> <th>7.00</th> <th>0</th> <th><u>ر</u></th> <th><u>,</u> ∞</th> <th>7</th> <th>0.7</th> <th>0</th> <th>Ö</th> <th>O</th> <th>7</th> <th>C</th>	mm	7.00	0	<u>ر</u>	<u>,</u> ∞	7	0.7	0	Ö	O	7	C
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 1:00 2:00 3:00 4:00 5:00 3:00 4:00 5:00 3:00 4:00 5:00 3:00 4:00 5:00 4:00 5:00 4:00 5:00 4:00 5:00 </td <td>Chit</td> <td>6.00</td> <td>0</td> <td>29.9</td> <td>3</td> <td>ന</td> <td>5.</td> <td>0</td> <td>ιυ</td> <td>0</td> <td>₹</td> <td>C</td>	Chit	6.00	0	29.9	3	ന	5.	0	ιυ	0	₹	C
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 1:00 2:00 3:00 4:00 Jan.27 138.0 0												
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 1:00 2:00 Jan.27 138.0 0 <td></td> <td></td> <td>I</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			I									
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 1:00 Jan.27 138.0 0 0 0 0 42 45.8 29 9 7.4 2.2 3.3 2 8 45 4.5 9.5 Dec.17 174.6 0 0 0 0 0 0 0 0 0 2.6 44.2 10.4 4.2 2.3 Feb. 6 141.5 6.5 0 3 5.5 0.3 0.7 0 0.9 0		3:00	0	44	,,	4	16.5	0		0	0.5	0
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 Jan.27 138.0 0		2:00	9.0	4.2	4	8.5	27	0	10.5	0	0	0
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 23 Jan.27 138.0 0		1:00	က	2.3	9.7	8.5	23	0	16	0	0	0
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 22 Jan.27 138.0 0		24	9.5	4.2	2.5	10.5	35.5	 -	5	0	0.5	0
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 21 Jan.27 138.0 0 0 0 0 42 45.8 29 9 7.4 2.2 3.3 2 8 Dec.17 174.6 0		23	4.5	10.4	ഗ	15.5	0.1	0.3	34	0	2.5	0
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 20 Jan.27 138.0 0		22	9.5	44.2	4	3.5	3.9	3.2	₩	0	10	Δ
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 19 Jan.27 138.0 0		21	ω	2.6	∞	14	0.5	7.3	16	0	51	114.4
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 18 Jan.27 138.0 <		20	2	0	6.5	17	0	47	22	4.5	12.5	0.1
Date Total 8:00 9:00 10 11 12 13 14 15 16 17 Jan.27 138.0 0 <t< td=""><td></td><td>19</td><td>3.3</td><td>0</td><td>1.6</td><td>4</td><td>0</td><td>40</td><td>24.5</td><td>9</td><td>6</td><td>0</td></t<>		19	3.3	0	1.6	4	0	40	24.5	9	6	0
Date Total 8:00 9:00 10 11 12 13 14 15 16 Jan.27 138.0 0 0 0 0 0 4.2 45.8 29 9 Dec.17 174.6 0 </td <td></td> <td>33</td> <td>2.2</td> <td>0</td> <td>4.9</td> <td>9.6</td> <td>0</td> <td>0</td> <td>0</td> <td>10.5</td> <td>0</td> <td>0</td>		33	2.2	0	4.9	9.6	0	0	0	10.5	0	0
Date Total 8:00 9:00 10 11 12 13 14 15 Jan.27 138.0 0 0 0 0 4.2 45.8 29 Dec.17 174.6 0 0 0 0 0 0 0 Feb. 6 141.5 6.5 0 3 5.5 0.3 0.7 0 0 Dec.26 132.0 <	ŀ	17	7.4	0	0	4.2	0	0	0	7	0	9.0
Date Total 8:00 9:00 10 11 12 13 14 Jan.27 138.0 0 0 0 0 42 45.8 Dec.17 174.6 0 0 0 0 0 0 Jan.22 115.0 0 0 0 0 0 0 Dec.26 132.0 0 0 0 0 0 0 Mar.11 98.8 0 0 0 0 0 0 0 Jan.28 237.5 1.5 11 4 10.5 33 15 0.2 Apr. 23 116.9 0		16	6	0	0.7	0.2	0	0	0.3	26	0	0
Date Total 8:00 9:00 10 11 12 13 Jan.27 138.0 0 0 0 0 4.2 Dec.17 174.6 0 0 0 0 0 Feb. 6 141.5 6.5 0 3 5.5 0.3 0.7 Jan.22 115.0 0 0 0 0 0 0 Dec.26 132.0 0 0 0 0 0 0 Mar. 11 98.8 0 0 0 0 0 0 Mar. 28 90.0 0 0 0 0 0 0 Dec.12 124.0 1.2 1.3 7.5 1.5 0 4 Apr. 23 116.9 0 0 0 0 0 0 0		15	29	0	0.3	0	0	0	0	0	0	0
Date Total 8:00 9:00 10 11 12 13 Jan.27 138.0 0 0 0 0 4.2 Dec.17 174.6 0 0 0 0 0 Feb. 6 141.5 6.5 0 3 5.5 0.3 0.7 Jan.22 115.0 0 0 0 0 0 0 Dec.26 132.0 0 0 0 0 0 0 Mar. 11 98.8 0 0 0 0 0 0 Mar. 28 90.0 0 0 0 0 0 0 Dec.12 124.0 1.2 1.3 7.5 1.5 0 4 Apr. 23 116.9 0 0 0 0 0 0 0		14	45.8	0	0	0	0	0	0.2	9	0	0
Date Total Jan.27 138.0 Dec.17 174.6 Feb. 6 141.5 Jan.22 115.0 Dec.26 132.0 Mar.11 98.8 Jan.28 237.5 Mar. 8 90.0 Dec.12 124.0 Apr. 23 116.9		13	4.2	0	0.7	0	0	0	15	0	4	0
Date Total Jan.27 138.0 Dec.17 174.6 Feb. 6 141.5 Jan.22 115.0 Dec.26 132.0 Mar.11 98.8 Jan.28 237.5 Mar. 8 90.0 Dec.12 124.0 Apr. 23 116.9		12	0	0	0.3	0	0	0	33	0	0	0
Date Total Jan.27 138.0 Dec.17 174.6 Feb. 6 141.5 Jan.22 115.0 Dec.26 132.0 Mar.11 98.8 Jan.28 237.5 Mar. 8 90.0 Dec.12 124.0 Apr. 23 116.9		11	0	0	5.5	0	0	0	10.5	0	7.	0
Date Total Jan.27 138.0 Dec.17 174.6 Feb. 6 141.5 Jan.22 115.0 Dec.26 132.0 Mar.11 98.8 Jan.28 237.5 Mar. 8 90.0 Dec.12 124.0 Apr. 23 116.9		10	0	0	က	0	0	0	₩	0	7.5	0
Date Total Jan.27 138.0 Dec.17 174.6 Feb. 6 141.5 Jan.22 115.0 Dec.26 132.0 Mar.11 98.8 Jan.28 237.5 Mar. 8 90.0 Dec.12 124.0 Apr. 23 116.9		9:00	0	0	0	0	0	0	Ξ	0	د	0
Date Jan.27 Feb. 6 Jan.22 Dec.26 Mar.11 Jan.28 Mar. 8 Dec.12 Apr. 23		8:00	0	0	6.5	0	0	0	1.5	0	1.2	0
·		Total	138.0	174.6	141.5	115.0	132.0	98.8	237.5	90.0	124.0	116.9
Year 1987 1988 1990 1991 1992 1993 1994 1996		Date	Jan.27	Dec.17	Feb. 6	Jan.22	Dec.26	Mar.11	Jan.28	Mar. 8	Dec.12	Apr. 23
		Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996

Table 3.3.7 HOURLY RAINFALL RATIO IN ANNUAL MAXIMUM DAILY RAINFALL AND DESIGN STORM

Date	Total	11	-10	6-	8	۲-	9-	-5	-4	က	-2	1	縣戶部系	-	2	m	4	5	9	7	8	6	9.	=
Dec. 4	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	00.0	0.00	0.03	0.33	0.21	0.07	0.05	0.02	0.02	0.01	90.0	0.07	0.03	0.07	0.02
Jan. 7	1.0	0.00	0.00	0.00	0.00	0.00	0.01	0.25 (0.06	0.02	0.01	0.02	0.25	0.08	0.10	0.17	0.01	0.00	00'0	0.00	0.00	00.0	_	0.00 00.0
Oct.15	1.0	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.03 (201	0.05 (90.0	0.29	0.04	0.02	0.07	0.03	0.01	0.20	90.0	0.01	0.01		0.00
Jan.25	0.	0.00	0.00	0.00	0.00	0.00	0.00	_	0.00	0.04		0.03	0.15	0.12	0.03	0.13	0.09	0.07	0.07	0.03	0.00	60.0		0.02 0.00
Feb. 7	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03 (00.0	0.27	0.17	0.20	0.13	0.03	0.09	0.01	0.01	0.00	00.0	0.00	
Nov.22	0	0.00	0.00	0.00	0.00	0.00	0.00	_	0.00	00.0	_	0.40	0.48	0.07	0.03	0.00	0.01	00'0	0.00	00'0	0.00	0.00		_
Jan.29	0.1	0.14	90.0	0.00	0.00	0.00	0.00	00.0	0.10	0.09	_	0.08	0.14	0.04	0.07	0.04	0.00	0.00	0.03	0.01	0.00	0.01	0.05	0.02 (
Mar. 5	0.1	0.00	0.00	0.00	0.00	0.00	00.0	0.00	0.00	0.00	0.07	0.00	0.62	0.08	0.12	0.07	0.05	0.00	0.00	00.0	0.00	0.00		0.00
May.10	1.0	90.0	0.01	0.00	0.03	0.00	0.00	0.00	0.00	00.0	0.02	0.10	0.41	0.08	0.05	0.00	0.00	0.00	0.00	0.04	0.03	0.03		0.01 0.01
Apr. 2	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	000	00.0
聚(iY=	#Average(=Ai)>> ※※※1103 0.02※0.01※0.00 ※ 0.00※0.00※0.00	0.02	€0.03	 00.00	窓00:0	※00.0	Ń	0.03 😿) 02巻()`02≪().03%(0.07	₹0.39	0.00	₹0.07±	0.07	0.03	\$0.02	10.03 № 0.02	1 13	0.01	1:0	ļ.,	0.01 0.01
Return Period	Rd(mm)									Des	. i 8	St	orm	Rs (mm	()									
5-year	180.7	3.6	8.	0.0	0.0	0.0	0.0	5.4	3.6	3.6	5.4	12.6	70.5	16.3	12.6	12.6	5.4	3.6	5.4	3.6	1.8	3.6	5 4	89
10-year	214.3	4.3	2.1	0.0	0.0	0.0	0.0	6.4	4 .3	4.3	6.4	15.0	83.6	19.3	15.0	15.0	6.4	4.3	6.4	4.3	2.1	4.3	6,4	2.1
25-year	256.7	5.1	5.6	0.0	0.0	0.0	0.0	7.7	5.1	ئ 1.	177	18.0	100.1	23.1	18.0	18.0	7.7	5	7.7	S.	2.6	5	7.7	2.6
50-year	288.2	5.8	2.9	0.0	0.0	0.0	0.0	9.8	53 89	5.8	8.6	20.2	112.4	25.9	20.2	20.2	8.6	5.8	8	5,8	2.9	5	9	9
**100-year	319.4	8.4	3.28	0.0	0.0	0.0	0.0	9.6	, Z 9	6.2	0.00	が対象	A RC	2007	T CC	A.00	8,0	A.A.	20 O W	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	20.0	2	0.00	

Table 3.3.8 ANNUAL MAXIMUM DISCHARGE AT SIMONGAN WEIR

1961	Date	Data max. H (m) 7.9	Head h=H-5.6 (m)	Center Portion Q1 (m3/s)	Side Portion Q2 (m3/s)	Discharge Q=Q1+Q2
1961	Date	(m)		Gr (mo/s)	UZ (MJ/S)	
			1 1 1773 !		· ·	The state of the s
				=1.57*64.6m*h^1.5	=1.8*10.4m*h^1.5	(m3/s)
	1	`	2.3	353.8	65.3	419
1962		7.3	1.7	224.8	41.5	266
1963		9.4	3.8	751.3	138.7	890
1964		6.9	1.3	150.3	27.7	178
1965		7.4	1.8	244.9	45.2	290
1966		×	х	X	X	×
1967		Х	Х	x	X	x
1968		6.6	1.0	101.4	18.7	120
1969		7.1	1.5	186.3	34.4	221
1970		7.0	1.4	168.0	31.0	199
1971		7.0	1.4	168.0	31.0	199
1972		6.9	1.3	150.3	27.7	178
1973		6.9	1.3	150.3	27.7	178
1974		7.8	2.2	331.0	61.1	392
1975		6.9	1.3	150.3	27.7	178
1976		7.9	2.3	353.8	65.3	419
1977	1 1	7.5	1.9	265.6	49.0	315
1978		7.5	1.9	265.6	49.0	315
1979		7.2	1.6	205.3	37.9	243
1980		6.7	1.1	117.0	21.6	139
1981		8.1	2.5	400.9	74.0	475
1982		7.7	2.1	308.6	57.0	366
1983		7.4	1.8	244.9	45.2	290
1984		7.3	1.7	224.8	41.5	266
1985		8.2	2.6	425.2	78.5	504
1986		7.4	1.8	244.9	45.2	290
1987 [Dec.21	7.70	2.1	308.6	57.0	366
1988 N	Mar.25	7.80	2.2	331.0	61.1	392
1989 F	eb.05	7.60	2.0	286.9	52.9	340
1990	Jan.26	9.40	3.8	751.3	138.7	890
1991	Jan.09	8.25	2.7	437.5	80.8	518
1992	Jan.09	8.05	2.5	388.9	71.8	461
1993	Jan.30	9.10	3.5	664.1	122.6	787
1994 N	Mar.11	7.50	1.9	265.6	49.0	315
1995	Nov.29	7.65	2.1	297.7	54.9	353
1996	Dec.02	7.90	2.3	353.8	65.3	419

Note: Max. H means annual maximum water level by watching at site.

Water level data were given by RANTING DINAS (DOLOG PENGGARON)

Gates at side portions are closed even at flood time.

Table 3.3.9 PROBABLE PEAK DISCHARGE AT SIMONGAN

:		Probable Disc	harge (m3/s)
	umbel Variable	N=36 (1961-1996)	N=30 (1961-1990)
T (year)	Y	Up-dated	by Feasibilty Study in 1993
2	0.36651	330	350
3	0.90273	416	
5	1.49994	512	520
8	2.01342	595	020
10	2.25037	633	630
20	2.97020	748	740
ฝล	(1985)	/8ā	
30	3.38429	815	800
40	3.67625	862	840
50	3.90194	898	880
60	4.08596	927	000
80	4.37574	974	940
F0[0]	4 महिल्ल	10(10)	
150	5.00730	1075	1,040
200	5.29581	1122	1,080

Note: $X = X_0 + Y*(1/a)$

 $X_0 = 271.20$ 1/a = 160.60

Table 3.3.9 PROBABLE PEAK DISCHARGE AT SIMONGAN

		Probable Disc	harge (m3/s)
1	umbel Variable	N=36 (1961-1996)	N=30 (1961-1990)
T (year)	Y	Up-dated	by Feasibilty Study in 1993
2	0.36651	330	350
3	0.90273	416	
5	1.49994	512	520
8	2.01342	595	320
10	2.25037	633	630
20	2.97020	748	740
25	319853	785	770
30	3.38429	815	800
40	3.67625	862	840
50	3.90194	898	880
60	4.08596	927	000
80	4.37574	974	940
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	460015	1010	980
150	5.00730	1075	1,040
200	5.29581	1122	1,080

Note: $X = X_0 + Y*(1/a)$

 $X_0 = 271.20$ 1/a = 160.60

Table 3.3.10 DAILY RAINFALL AT FLOOD TIME

Unit: mm

	BMG	Kaligading	Sumurjurang	Mijen	Thiessen
Ci=	0.13	0.12	0.58	0.17	Rt=Sum(Ri*Ci)
1987 Dec. 21	0.0	77.6	142.0	143.0	116,0
1990 Jan. 25	0.7	149.7	185.0	218.0	162.4
1993 Jan, 29	136.0	232.0	172.0	144.0	169.8
1994 Mar. 11	5.5	64.6	81.0	108.0	73.8
1995 Nov. 29	34.9	61.8	49.0	101.0	57.5

Table 3.3.11(1/2) HOURLY DATA OBSERVED AT FLOOD TIME

Unit: mm

		at Simo	ngan Weir	Rainf	all (mm)
Date	Time	Water Level	Discharge	Kaligading	Basin Rainfall
		H(m)	Q(m3/s)	R(mm)	Rt(mm)
1987 Dec. 21	15:00			0.0	0.0
	16:00			0.4	0.6
	17:00			6.8	10.2
	18:00			45.3	67.7
	19:00	6.20	55.8	17.8	26.6
	20:00	7.55	327.1	6.6	9.9
	21:00	7.70	365.6	0.7	1.0
	22:00	7.40	290.1	0.0	0.0
	23.00	: 7.20	243.2	0.0	0.0
Dec. 22	0:00	7.00	199.0	0.0	0.0
	1:00	7.00	199.0	0.0	0.0
	2.00	6.40	86.0	0.0	0.0
	3:00			0.0	0.0
	Total			77.6	116.0
1990 Jan. 25	17:00			0.0	0.0
:	18:00			2.8	3.0
	19:00			8.3	9.0
	20:00			. 11.2	12.2
	21:00	7.50	314.6	21.0	22.8
	22:00	8.54	605.6	57.0	61.8
	23:00	8,83	697.2	15.0	16.3
Jan. 26	0:00	8.87	710.0	26.0	28.2
	1:00	8.95	737.0	7.3	7.9
	2:00	9.40	890.0	0.2	0.2
	3:00	9.05	769.9	0.5	0.5
	4:00	8.55	609.9	0.4	0.4
	5:00	7.77	383.8	0.0	0.0
	6:00	6.98	195.7	0.0	0.0
} '.	7:00	6.20	55.8	0.0	0.0
	8:00			0.0	0.0
<u> </u>	Total			149.7	162.4

Note: $Q = (1.57*64.6m + 1.8*10.4m) * (H-5.6)^1.5$

Table 3.3.11(2/2) HOURLY DATA OBSERVED AT FLOOD TIME

Unit: mm

ī				·	· ·	Unit : mm
j		l		ngan Weir		all (mm)
ĺ	Date	Time	Water Level		Kaligading	Basin Rainfall
ı			- H(m)	Q(m3/s)	R(mm)	Rt(mm)
١	1993 Jan. 29	1		-	0.0	0.0
I		11:00		•	1.4	1.0
ı		12:00			0.4	0.3
1		13:00			0.0	0.0
1		14:00			0.7	0.5
		15:00			1.2	0.9
1		16:00	•		1.2	0.9
١	: :	17:00		a taka wa	15.2	11.1
۱		18:00	6.60	120.1	9.0	6.6
١		19:00	7.50	314.6	20.0	14.6
١		20:00	7.20	243.2	41.0	30.0
١		21:00	7.80	392.0	10.0	7.3
-		22:00	7.70	365.6	20.0	14.6
1		23:00	8.50	593.3	40.5	29.6
1	Jan. 26		8.50	593.3	15.5	11.3
j		1:00	9.00	753.2	30.5	22.3
ı		2:00	9.10	786.7	4.7	3.4
١		3:00	8.70	655.7	4.8	3.5
ı		4:00	8.20	503.7	7.5	5.5
ł		5:00	7.60	339.8	7.2	5.3
1		6:00	6.80	157.9	1.2	0.9
1		7:00			0.0	0.0
ı		Total			232.0	169.8
ſ	1994 Mar. 11	11:00			0.0	0.0
ı		12:00			29.8	34.0
I		13:00			6.2	7.1
1	Tarak a	14:00	6.70	138.6	23.5	26.8
1		15:00	7.45	302.3	3.3	3.8
1		16:00	7.50	314.6	0.0	0.0
ı		17:00	7.20	243.2	0.4	0.5
l		18:00	6.90	178.1	1.4	1.6
I		19:00	1. 25		0.0	0.0
L		Total			64.6	73.8
	1995 Nov. 29	11:00			0.0	0.0
J	e e e	12:00			0.8	0.7
I		13:00	6.20	55.8	30.0	27.9
1		14:00	6.60	120.1	31.0	28.8
ĺ		15:00	7.65	352.6	0.0	0.0
		16:00	7.40	290.1	0.0	0.0
		17:00	7.10	220.7	0.0	0.0
		18:00	6.70	138.6	0.0	0.0
		19:00	6.60	120.1	0.0	0.0
I		20:00	6.40	86.0	0.0	0.0
		21:00	6.40	86.0	0.0	0.0
		22:00	6.30	70.4	0.0	0.0
1		23:00	6.30	70.4	0.0	0.0
1	Nov. 30	0.00	6.20	55.8	0.0	0.0
ļ		1:00		<u> </u>	0.0	0.0
L		Total			61.8	57.5

Note: $Q = (1.57*64.6m + 1.8*10.4m) * (H-5.6)^1.5$

Table 3.3.12 PARAMETERS ESTIMATED BY FLOOD ANALYSIS

Flood	by S	torage Function	Method	14
	K	Р	TL(hr)	F
1987 Dec. 21	2.33	1.0	2	0.241
1990 Jan. 25	1.78	1.0	2	0.630
1993 Jan. 29	1.03	1.0	2	0.583
1994 Mar. 11	1.52	1.0	2	0.283
1995 Nov. 29	2.64	1.0	1	0.408
7/19/196		(i)		6.36

Note: Constant P should be equal or less than 1.0

Table 3.3.13 PARAMETERS IN STORAGE FUNCTION METHOD

(for Basin Unit)

(101 - 00-11 - 1110)						
Sub Basin	A (km2)	K P	TL (hr)		Qb n3/s)	Rsa (mm)
B – 1	73.5	1.9 1.0	2.0	0.43	3.7	300
B - 2	15.1	1.9 1.0	2.0	0.43	8.0	300
B - 3	36.6	1.9 1.0	2.0	0.43	1.8	300
B - 4	45.7	1.9 1.0	2.0	0.43	2.3	300
B ~ 5	7.3	1.9 1.0	2.0	0.43	0.4	300
B - 6	14.4	1.9 1.0	2.0	0.43	0.7	300
B - 7	11.4	1.9 1.0	2.0	0.43	0.6	300
Total	204.0	* * * * * * * * * * * * * * * * * * *	April 1			11

Note: Qb = 0.05m3/s/km2

(for Channel Unit)

River Channe	K P	TL (hr)	Length L(km)	Bed Slope I
C - 1	-	0.055	9.0	0.01429
C - 2		0.019	4.0	0.02500
C - 3		0.036	5.5	0.01250
C – 4	_	0.078	4.0	0.00143

Note: $TL = 0.000736*L*I^-0.5$

Table 3.3.12 PARAMETERS ESTIMATED BY FLOOD ANALYSIS

Flood		torage Function I	Method	10.500
	K	Р	TL(hr)	F
1987 Dec. 21	2.33	1.0	2	0.241
1990 Jan. 25	1.78	1.0	2	0.630
1993 Jan. 29	1.03	1.0	2	0.583
1994 Mar. 11	1.52	1.0	2	0.283
1995 Nov. 29	2.64	1.0	1	0.408
ic /Average / La	1976	110	2 +1000	0143

Note: Constant P should be equal or less than 1.0

Table 3.3.13 PARAMETERS IN STORAGE FUNCTION METHOD

(for Basin Unit)

A CONTRACTOR OF THE PROPERTY O	Ā	K	Р	TL	F1	Qb	Rsa
Sub Basin	(km2)			(hr)		(m3/s)	(mm)
B - 1	73.5	1.9	1.0	2.0	0.43	3.7	300
B - 2	15.1	1.9	1.0	2.0	0.43	8.0	300
ម – 3	36.6	1.9	1.0	2.0	0.43	1.8	300
B 4	45.7	1.9	1.0	2.0	0.43	2.3	300
B ~ 5	7.3	1.9	1.0	2.0	0.43	0.4	300
B - 6	14.4	1.9	1.0	2.0	0.43	0.7	300
B - 7	11.4	1.9	1.0	2.0	0.43	0.6	300
Total	204.0						

Note: $Qb = 0.05 \text{m} \frac{3}{\text{s}} \text{km}^2$

(for Channel Unit)

THE PERSON NAMED AND PARTY OF THE PARTY OF T	PATENDER PROPERTY OF	THE RESIDENCE OF THE PARTY OF T	******		
	K	Р	TL	Length	Bed Slope
River Channe	el		(hr)	L(km)	!
C ~ 1		_	0.055	9.0	0.01429
C - 2		P. 1	0.019	4.0	0.02500
C - 3		_	0.036	5.5	0.01250
С - 4	-	THE CONTRACT OF STREET	0.078	4.0	0.00143

Note: $TL = 0.000736*L*l^-0.5$

Table 3.3.14 100-YEAR PROBABLE FLOOD AND FLOOD CONTROL BY JATIBARANG DAM

Time	Design Storm	Dam Sit	e	Simongan	Weir
	100-year	Inflow	Outflow	Probable Flood	Design Flood
(hour)	(mm)	(m3/s)	(m3/s)	(m3/s)	(m3/s)
1	6.4	3	0	10	8
2	3,2	3	0	10	8
3	0.0	15	1	54	41
4	0.0	16	2	62	48
. 5	0.0	11	3	44	35
6	0.0	7	: 3	30	25
7	9.6	5	3	22	19
. 8	6.4	4	4	17	16
9	6.4	22	4	79	63
10	9.6	27	6	102	81
11	22.4	29	. 7	112	90
12	124.6	37	11	140	114
13	28.7	67	17	246	198
14	22.4	- 283	40	1,010	788
15	22.4	226	76	890	730
16	9.6	178	99	702	615
17	6.4	149	110	. 585	541
18	9.6	108	114	429	430
19	6.4	77	110	306	336
20	3.2	65	103	254	291
21	6.4	52	95	204	246
22	9.6	38	86	150	198
23	3.2	36	77	138	180
24	2.9	41	70	155	186
1	0.0	32	64	124	157
2	0.0	25	57	99	132
Total	319.4				
Peak	124.6	283	114	1,010	788
Flood Control Vol				m3	
Flood Control Cap	acity (V = Vnet *	1.2) 沙蒙拉斯	3,006,000	m3 (Jatibarang Dan	i)

Note: Area Reduction Factor(0.75) is multiplied by Design Storm Storage Function Method was used for Flood Run-off Calculation

Table 3.3.15 OUTLET CONDITION OF DAM FOR FLOOD CONTROL

ſ	Water Level	Water Depth h=H-148.6	Outflow	Storage Volume	Volume > NWL	
	л,	11=17-140.0	Q=C*B*h^1.5	V	dV=V-1730000	Remarks
L	(EL.m)	(m)	(m3/s)	(m3)	(m3)	
ł	148.6	0.0	0.0	17,300,000	0	Normal W.L.
1	149.0	0.4	7.6			
ı	150.0	1.4	49.7	18,641,000	1,341,000	
ł	151.0	2.4	111.5			
ı	152.0	3.4	188.1			
ı	153.0	4.4	276.9			
ſ	154.0	5.4	376.5			
L	155.0	6.4	485.7	24,270,000	6,970,000	

Note: Overflow Width B=15m, Discharge Coefficient C=2.0

Table 3.3.16 PROBABLE PEAK DISCHARGE AND DESIGN DISCHARGE

(by Storage Function Method)

Return Period	Design St	orm	Arca	Peak Discharge at S	Simongan
	Peak	Total	Reduction	Probable Discharge	After Dam Control
year	mm/hr	mm/day	Factor	m3/s	m3/s
5	70.5	180.7	0.667	512	399
10	83.6	214.3	0.697	633	493
25	100.1	256.7	0.723	785	612
50	112.4	288.2	0.738	898	700
100	124.6	319.4	0.750	1,010	788

Table 3.3.17 MONTHLY RAINFALL FOR 30 YEARS AT SUMURJURANG STATION (No.65c)

Year Jan Feb 1967 394.0 566.4 1968 664.0 369.7 1969 456.0 719.0 1970 454.0 308.0 1971 786.0 518.0 1972 668.0 336.0 1973 524.0 222.0 1974 549.0 259.0 1975 373.0 259.0 1976 952.0 442.0	Mar 383.0 369.0 754.0 444.0 444.0 545.0 545.0 571.0 569.0 668.0 633.0	Apr 487.0 404.0 766.0 367.0 439.0 74.0 226.0 318.0 362.0 67.0	May 91.0 262.0 28.0	Jun 0.0	Jul 9.0	Aug 0.0	Sep 0.0	Oct 17.0	Nov 116.0	Dec	Total 2504.4
394.0 664.0 456.0 454.0 786.0 668.0 524.0 549.0 373.0 952.0	383.0 369.0 754.0 444.0 462.0 545.0 326.5 671.0 668.0 633.0	487.0 404.0 766.0 367.0 439.0 74.0 226.0 362.0 67.0	91.0 262.0 28.0	0.0	0.0	0.0	0.0	17.0	116.0	7500	2504.4
664.0 456.0 454.0 786.0 668.0 524.0 549.0 373.0 952.0	369.0 754.0 444.0 462.0 545.0 326.5 671.0 569.0 668.0 633.0	404.0 766.0 367.0 439.0 74.0 226.0 318.0 67.0	262.0							ر 5.5	
456.0 454.0 786.0 668.0 524.0 549.0 373.0 952.0	754.0 444.0 462.0 545.0 326.5 671.0 569.0 668.0 643.0	766.0 367.0 439.0 74.0 226.0 318.0 362.0 67.0	28.0	297.0	211.0	144.0	0.66	52.0	259.0	361.4	3492.1
454.0 786.0 668.0 524.0 549.0 373.0 952.0	444.0 462.0 545.0 326.5 671.0 569.0 668.0 633.0	367.0 439.0 74.0 226.0 318.0 67.0	4	90.0	57.0	0.0	16.0	172.0	224.0	443.0	3725.0
786.0 668.0 524.0 549.0 373.0 952.0	462.0 545.0 326.5 671.0 569.0 668.0 633.0	439.0 74.0 226.0 318.0 362.0 67.0	248.0	186.0	160.0	0.0	124.0	119.0	379.0	778.0	3567.0
668.0 524.0 549.0 373.0 952.0	545.0 326.5 671.0 569.0 668.0 633.0	74.0 226.0 318.0 362.0 67.0	226.0	309.0	28.0	0.0	56.0	272.0	326.0	300.3	3722.3
524.0 549.0 373.0 952.0	326.5 671.0 569.0 668.0 633.0	226.0 318.0 362.0 67.0	154.0	18.0	0.0	0.0	0.0	0.0	180.0	242.0	2217.0
549.0 373.0 952.0	671.0 569.0 668.0 633.0	318.0 362.0 67.0	204.0	108.7	144.0	22.0	144.0	319.8	387.2	323.0	2951.2
373.0 952.0	569.0 668.0 633.0 443.0	362.0	154.0	16.0	44.0	72.0	0.96	373.0	214.0	439.0	3205.0
952.0	668.0 633.0 443.0	67.0	223.0	51.3	0.0	25.0	270.0	255.0	439.0	278.7	3105.0
	633.0		18.0	33.0	3.0	16.0	0.0	57.0	269.0	228.0	2753.0
433.0	4430	210.0	161.0	117.0	0.0	0.0	0.0	0.0	150.0	470.0	2497.0
764.0		88.0	102.0	129.0	83.0	37.0	212.0	139.0	143.0	254.0	2856.0
0.809	440.0	477.0	266.0	131.0	41.0	20.0	105.0	110.0	216.0	159.0	3206.0
734.0	331.0	399.0	254.0	0.0	71.0	126.0	36.0	176.0	379.0	566.0	3387.0
402.0	0.86	0.0	201.5	112.4	203.4	0.0	0.0	0.0	64.0	412.0	1871.3
364.0	626.0	525.0	0.0	0.0	0.0	0.0	0.0	0.0	124.0	250.0	2152.0
436.0	191.0	301.0	355.0	19.0	0.0	0.0	0.0	363.0	296.0	87.0	2265.0
228.0	243.0	111.0	26.0	70.0	87.0	51.0	426.0	84.0	232.0	391.0	2495.0
63.0	152.0	218.0	35.0	0.0	94.8	79.0	114.6	215.2	260.8	306.4	1783.8
592.6	568.0	209.0	72.0	223.0	44.0	101.0	119.0	94.0	147.0	199.0	2613.6
765.0	291.0	55.0	116.0	45.0	73.0	0.0	0.0	0.9	301.0	745.0	3057.0
566.0	442.0	345.0	190.0	31.0	33.0	20.0	26.0	220.0	192.0	884.0	3538.0
374.0	513.0	347.0	244.0	218.0	118.0	12.0	48.0	150.0	329.0	358.0	3441.0
760.0	287.0	157.0	93.0	168.0	56.0	74.0	46.0	49.0	182.0	604.0	2713.0
840.0	176.0	353.0	150.3	5.0	13.1	0.0	0.0	12.1	273.9	335.9	2574.3
382.0	405.0	367.0	250.0	141.0	7.0	253.0	180.0	254.0	120.0	410.0	3050.0
755.0	252.0	307.0	61.0	165.0	52.0	32.0	64.0	23.0	145.0	228.0	2468.0
640.0	575.0	211.0	53.0	3.0	2.0	14.0	0.0	103.0	306.0	435.0	2642.0
397.0	457.0	75.0	171.0	215.0	0.0	0.0	65.4	76.0	380.0	531.0	2723.4
319.0	350.0	72.0	95.0	28.0	30.0	87.0	83.0	213.0	259.0	527.0	2789.0
Average 541.4 409.1	422.2	277.9	151.1	97.6	55.2	39.5	7.77	130.8	243.1	399.9	2845.5

Note: After supplementation of missing data

Table 3.3.18 MONTHLY DISCHARGE OBSERVED IN GARANG RIVER SYSTEM

Panjangan	Panjangan Station in Garang Kiver (A=192.0km2)	parang Kive	er (A=192.)	okmz)									Jul. 1117/3
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
1987	23.11	29.72	24.66	12.05	6.38	5.05	3.49	2.46	1.88	2.08	3.82	8.91	10.19
1988	: 1	20.73	22.69	10.68	99.9	2.95	2.53	1.70	1.75	3.51	4.17	11.42	8.73
1989	98.6	49.14	16.50	10.65	9.44	10.19	3.92	3.03	1.88	4.06	7.39	15.20	11.51
1990	40.18	14.76	12.71	7.77	7.07	5.22	3.55	3.05	2.15	1.67	2.63	13.52	9.54
1991	18.50	22.22	17.18	18.73	6.32	3.30	2.73	1.44	1.36	1.29	5.75	9.57	8.94
1992	9.97	11.79	12.07	14.13	9.62	7.18	5.34	6.27	6.50	6.65	5.11	14.77	9.11
1993	27.47	38.99	22.74	21.12	5.26	6.07	2.76	3.29	3.07	2.71	2.27	4.17	11.47
1994	15.14	12.38	27.17	16.31	7.23	3.88	2.98	2.26	1.64	3.03	3.51	4.49	8.32
1995	13.68	13.69	15.68	8.30	8.04	6.92	2.91	2.89	1.33	1.66	12.62	15.11	8.54
1996	14.95	28.09	21.55	10.93	7.18	5.22	2.79	3.07	3.01	5.58	10.67	16.37	10.73
Average	18.91	24.15	19.30	13.07	7.32	5.60	3.30	2.95	2.46	3.22	5.79	11.35	9.71
										· .			
Datamon C	On Chatian in County Diviser Hackream (A-	Distory	Inctresm!	(つかん) シャラン	· ·								101 - m 3/5

The second of th													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		Average
1992	X	×	2.60	4.13	2.83	1.87	1.11	1.87	1.70	1.64	2.18	3.19	2.30
1993	11.00	8.28	5.70	5.18	2.04	2.53	1.18	0.94	0.91	0.88	1.31	2.11	3.48
1994	9.51	4.54	10.10	7.03	2.05	1.04	0.81	09.0	0.34	0.25	0.39	1.62	3.19
1995	4.40	7.19	8.28	8.97	6.03	8.39	3.43	0.82	0.79	1.09	3.92	4.79	4.81
1996	4.09	8.06	12.30	6.20	3.53	2.24	1.59	1.64	1.28	1.66	3.36	8.74	4.55
Average	7.25	7.02	7.80	6.30	3.30	3.21	1.62	1.17	1.00	1.10	2.23	4.09	3.67

Kalipancur	Calipancur Station in Kreo River (A=66.1km2)	Kreo River	(A=66.1km	(2)			:					,	Unit: m3/s
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
1992	×	×	6.74	6.79	4.40	2.71	1.14	2.13	1.91	1.88	2.09	7.65	3.66
1993	ų i	13.74	9.19	10.54	5.38	8.26	7.17	7.59	6.79	5.97	4.91	4.50	8.36
1994		8.39	15.50	9.63	3.03	0.81	0.74	0.56	0.55	. 0.60	0.98	2.20	4.76
1995	2.75	2.94	4.92	3.38	2.88	4.27	2.60	2.04	0.97	0.92	2.92	9.41	3.34
1996			10.52	6.37	4.83	3.16	0.71	0.92	0.79	1.33	2.25	3.22	4.24
Average	10.08	8.90	9.37	7.34	4.10	3.84	2.47	2.65	2.20	2.14	2.63	5.40	4.87

Table 3.3.19 FLOW REGIME AND BALANCE IN OBSERVED DAILY DISCHARGE RECORDS Panjangan Station in Garang River (A=192.6km2)

					,									
; >	Ç	;	300		Flow Regime					Annual	No.65c	Annual	Annual	Run-off
ıcar	Days	Max	25%	20%	75%	95%	%66	Min	Mean	Run-off	Rainfall	Rainfall(mm)	Loss	Ratio
		(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(1) mm	(2) mm	(2)*0.99	(3)-(1)	(0%)
1987	365	99.20	11.10	5:35	2.62	1.77	1.64	1.50	10.19	1.668	L	3.00 \$		(2)
1988	366	123.00	11.00	4.80	2.11	1.48	1.36	0.64	8.73	1433	2,53	2,020	1,000	000
1989	365	187.00	12.50	8.31	3.41	1.82	1.57	1.28	11.51	1,885	3.441	2,713	1,000	70
1990	365	201.00	9.72	6.02	2.50	1.40	1.30	130	0.54	1,562	2713	/01/C	220,1	00
1991	365	63.60	14.00	4.62	1.80	1.14	1.02	102	8 04	1,002	0.7.7	2,000	1,124	χ, i
1992	366	32.50	11.20	7.40	5.30	4.00	3.50	3.50	0 17	1 406	2.050	2,348	1,084	\\ \(\)
1993	365	309.00	12.30	3.72	2.77	2.13	1.45	1.45	11.47	1,470	00000	5,020	475,1	2
1994	365	115.00	10.80	4.25	2.75	1.62	1.40	12	8 33	1,0/0	2,400	7,440	202	11
1995	365	45.40	10.80	08'9	2.75	32.	55.0	0.50	20.0	202,1	2,042	2,616	1,254	52
1996	366	53.80	15.00	7.40	3.25	2.50	2.28	20.0	10.7	000.1 000.1	2,725	2,696	1,298	52
Average		122.95	11.84	5.87	2.93	1.90	1 60	1.45	0 71	1.702	7 900	2,701	999	64
Q/100km2		63.84	6.15	3.05	1.52	000	0.03	0.75		1,7,7,1	2,000	7/1/7	1,181	58
			200	2	1:04	0.23	0.02	0.7	V,04					-
Doto		ŝ								(1)=Mean*Days*86.4/A	1ys*86.4/A			
ratemon Sta	D III III	1 Action of the Carang Kiver Upstream (A=75.0km2)	Upstream (A=/5.0km2								(2)*1.03		
1992	0000	05.27	2.37	1.50	1.22	1.10	0.95	0.74	2.30	026	3,050	3,142	2.172	31
1995	200	106.00	4.27	1.44	0.98	0.75	0.71	0.63	3.48	1,463	2,468	2,542	1.079	× × ×
1994	365	50.50	4.40	1.01	0.53	0.23	0.21	0.21	3.19	1,341	2.642	2,721	1380	0.7
1995	365	21.50	7.12	4.62	1.07	0.74	0.71	0.65	4.81	2,023	2,723	2,805	782	3 9
1996	366	28.80	6.30	3.10	1.46	1.22	1.14	1.10	4.55	1,918	2,789	2,873	\$ 00 C	1 7
Average		45.86	4.89	2.33	1.05	0.81	0.74	0.67	3.67	1.543	2.734	2.816	1 273	à 1,
Q/100km2		61.15	6.52	3.11	1.40	1.08	0.99	0.89	4.89				212,1	3
:											7			
Nalipancur Station in Kreo River (A=66.1km2)	station in	Kreo River (A=66.1km.	2)								(2)*1 00	-	
1992	366	16.70	5.00	2.82	1.17	0.95	0.95	0.87	3.66	1,751	3.050	3.050	1 200	2.2
1993	365	134.00	8.40	6.80	5.00	3.82	3.40	3.00	8.36	3.989	2,468	2,020	1,53	(7)
1994	365	40.00	8.00	1.25	0.65	0.50	0.42	0.30	4 76	1766	2,642	0,740	130,1	201
1995	365	21.90	4.20	2.30	1.17	0.87	0.72	0.40	3.34	1 503	2,72,4	2,042	371	000
1996	366	17.30	6.50	3.20	0.95	0.65	0.50	0.47	404	2,0,7	780	2,723	1,150	£ 6
Average		45.98	6.42	3.27	1.79	1.36	1.20	1.01	4 87	2,226	2727	2,107	10/	2 5
Q/100km2		69.56	9.71	4.95	2.70	2.05	181	1 52	727	2,72	£, (.24	4,734	4(78	8/
							7:07	7.7	· ·					€,

Table 3.3.20 THIESSEN COEFFICIENT AND BASIN RAINFALL

	Average Rainfall	Thiesse	en Coefficient	:
Station	in 1971 - 1990	Catc	hment Area	
	(mm/year)	Panjangan	Patemon	Kalipancur
No.59	2,365	0.16	0.12	0.00
No.44	2,563	0.16	0.45	0.00
No.39	3,380	0.14	0.26	0.12
No.65c	2,791	0.54	0.17	0.88
Total		1.00	1.00	1.00
Basin Rainfall		2,769	2,790	2,862
Basin Rainfall,	/No.65c	0.99	1.00	1.03

Table 3.3.21 MONTHLY EVAPORATION IN TANK MODEL

Month	Pan Evaporation (1) mm/day	Annual Loss mm/year	Evaporation in Tank Model (1)*0.734 mm/day
Jan.	3.3		2.42
Feb.	3.7		2.72
Mar.	3.8		2.79
Арг.	4.0		2.94
May	4.3		3.16
Jun.	4.5		3.30
Jul.	4.8		3.52
Aug.	5.1		3.74
Sep.	5.7		4.18
Oct.	5.5		4.04
Nov.	4.4		3.23
Dec.	3.8		2.79
Total(mm/yr)	1,610	1,181	1,181

Note: (Annual Loss) / (Annual Pan Evaporation) = 0.734

Table 3.3.22 COMPARISON OF FLOW REGIME BETWEEN TANK-MODEL AND OBSERVATION

							ਪੁ	Panjangan Station (A=192.6km2	ation (A=	192.6km2)
				Ĭ.	Flow Regime	6)				Annuai
Kind of Data	Year	Max	25%	20%	75%	%56	%66	Min	Mean	Loss
		(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(mm)
	1987	115.41	11.68	4.41	2.02	0.61	0.56	0.54	10.82	1,254
	1988	100.65	14.64	69.9	3.44	1.81	1.51	1.39	12.54	1,444
	1989	86.57	15.10	9.11	5.11	3.19	3.00	2.83	12.56	1,350
	1990	126.40	10.58	5.97	3.43	1.73	1.42	1.33	9.62	1,111
by Tank Model	1991	81.09	11.61	5.37	2.98	1.02	0.95	0.93	9.54	986
	1992	72.02	10.93	6.33	4.19	2.97	2.80	2.68	9.75	1,419
3.	1993	178.31	8.85	5.15	3.05	1.63	1.42	1.35	8.98	973
	1994		11.07	4.72	2.38	0.96	0.89	0.88	8.85	1,167
	1995		10.99	5.47	2.99	1.34	1.10	1.03	8.53	1,299
	1996		10.93	5.23	3.30	1.95	1.68	1.64	9.05	1,275
	Average		11.64	5.85	3.29	1.72	1.53	1.46	10.02	1,228
	1987		11.10	5.35	2.62	1.77	1.64	1.50	10.19	1,358
	1988	123.00	11.00	4.80	2.11	1.48	1.36	0.64	8.73	1,080
	1989	187.00	12.50	8.31	3.41	1.82	1.57	1.28	11.51	1,522
	1990	201.00	9.72	6.02	2.50	1.40	1.30	1.30	9.54	1,124
by Observation	1991	63.60	14.00	4.62	1.80	1.14	1.02	1.02	8.94	1,084
	1992	32.50	11.20	7.40	5.30	4.00	3.50	3.50	9.11	1,524
	1993	309.00	12.30	3.72	2.77	2.13	1.45	1.45	11.47	565
	1994	115.00	10.80	4.25	2.75	1.62	1.40	1.18	8.32	1,254
	1995	45.40	10.80	6.80	2.75	1.18	0.52	0.52	8.54	1,298
	1996	53.80	15.00	7.40	3.25	2.50	2.28	2.06	10.73	666
	Average	122.95	11.84	5.87	2.93	1.90	1.60	1.45	9.71	1,181

Table 3.3.23 FLOW REGIME FOR 30 YEARS AT SIMONGAN WEIR
(Catchment Area at Simongan Weir A=204.0km2)

				E	Flow Regim					Annual	No 65c	Appugat	Annual
γ.	Dave	Max	25%	50%	75%	95%	%66	M	Mean	Run-off	Rainfall	Rainfall(mm)	SSO
	7	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(m3/s)	(1) mm	(2) mm	(2)*0.99	(3)-(1) mm
by Tank Model	∥~	= Discharge at Panja	∥≅	1.0km2/192	6km2)					(1)=Mean*Da	ays*86.4/A		
1967	•	198.71	11.81	5.87	2.60	1.03	96.0	0.95	10.04	1,552	2,504	2,479	927
1968	366	115.98	12.94	7.82	5.38	3.89	3.37	3.21	12.43	1,928	3,492	3,457	1,529
1969	365	131.38	17.43	8.06	5.02	3.20	2.88	2.78	15.58	2,409	3,725	3,688	1,279
1970	365	128.67	15.20	9.76	5.75	3.59	3.08	3.00	13.18	2,037	3,567	3,531	1,494
1971	365	83.45	18.58	11.10	6.97	4.80	4.24	4.11	15.98	2,471	3,722	3,685	1,214
1972	366	144.85	10.21	5.75	3.07	1.44	1.37	1.35	9.95	1,542	2,217	2,195	653
1973	365	110.44	10.97	6.41	4.16	2.71	2.43	2.37	9.63	1,488	2,951	2,921	1,433
1974	365	89.68	14.35	7.49	4.89	3.33	2.90	2.80	12.33	1,906	3,205	3,173	1,267
1975	365	82.36	14.45	8.24	5.72	3.80	3.51	3.37	11.49	1,777	3,105	3,074	1,297
1976	366	148.87	12.78	6.21	3.36	1.65	1.45	1.44	12.21	1,893	2,753	2,725	832
1977	365	83.46	10.23	5.07	2.75	1.31	1.23	1.21	9.11	1,408	2,497	2,472	1,064
1978	365	81.98	10.81	5.57	4.12	2.96	2.65	2.60	10.33	1,596	2,856	2,827	1,231
1979	365	99.12	14.98	8.26	4.59	3.06	2.85	2.78	12.48	1,929	3,206	3,174	1,245
1980	366	262.16	14.14	8.04	4.62	2.46	2.01	1.92	12.70	1,969	3,387	3,353	1,384
1981	365	55.94	9.35	4.79	2.76	1.15	1.10	1.08	7.30	1,128	1,871	1,852	724
1982	365	112.35	8.81	3.97	1.60	0.89	0.83	0.80	8.13	1,258	2,152	2,130	872
1983	365	72.34	9.14	4.14	2.11	0.78	0.72	0.70	7.27	1,123	2,265	2,242	1,119
1984	366	53.07	8.57	3.58	2.29	1.45	1.09	0.97	7.03	1,090	2,495	2,470	1,380
1985	365	72.24	5.17	2.86	1.73	0.70	0.61	0.59	4.83	747	1,784	1,766	1,019
1986	365	107.93	10.15	4.83	3.18	1.94	1.72	1.61	8.75	1,352	2,614	2,588	1,236
by Observation	\sim	= Discharge at Panjar	angan * 204	.0km2/192.	6km2)								
1987	365	105.07	11.76	2.67	2.78	1.87	1.74	1.59	10.79	1,668	3,057	3,026	1,358
1988	366	130.28	11.65	5.08	2.23	1.57	1.44	0.68	9.25	1,433	3,538	3,503	2,070
1989	365	198.07	13.24	8.80	3.61	1.93	1.66	1.36	12.19	1,885	3,441	3,407	1,522
1990	365	212.90	10.30	6.38	2.65	1.48	1.38	1.38	10.10	1,562	2,713	2,686	1,124
1991	365	67.36	14.83	4.89	1.91	1.21	1.08	1.08	9.47	1,464	2,574	2,548	1,084
1992	366	34.42	11.86	7.84	5.61	4.24	3.71	3.71	9.65	1,496	3,050	3,020	1,524
1993	365	327.29	13.03	3.94	2.93	2.26	1.54	1.54	12.15	1,878	2,468	2,443	565
1994	365	121.81	11.44	4.50	2.91	1.72	1.48	1.25	8.81	1,362	2,642	2,616	1,254
1995	365	48.09	11.44	7.20	2.91	1.25	0.55	0.55	9.05	1,398	2,723	2,696	1,298
1996	366	56.98	15.89	7.84	3.44	2.65	2.41	2.18	11.37	1,762	2,789	2,761	666
Average (30 years	ears)	117.91	12.18	6.33	3.59	2.21	1.93	1.83	10.45	1,617	2,845	2,817	1,200

Table 3.3.24(1/3) 5-DAY DISCHARGE AT PANJANGAN IN GARANG RIVER

Year	1-5	=192.6 k		15.00	20.25	20.5	77.		~~~~					Init : m3
1 car 1967	1-3	5 5-10	0 10-15	15-20	20-25	25-31	Year		1-5	5-10	10-15	15-20	20-25	25-3
Jan	30.217	20.746	8,392	12.758	9,472	9.883	1972							
Feb	ſ	84.102		9.312	6.770	9,807		Jan		23.726	65.685	46.327	13.007	10.310
Mai		14.682	17.950	11.106	14.289	18.566	1	Feb	7.569	6.013	7.138	8.358	26.087	32,360
Apr	1	14.250	16,112	12.420	15.906	26.187		Mar	19.012 12.136	29.806	17.643	23.143	27.982	28.25
May		7.144	15.138	6.989	6.313	5,682		Apr May	6.516	8.570 15.654	7.576	6.981	7.045	6.857
Jun	1 .	5.248	5.047	4.850	4.658	4.469		Jun	5.667	5.465	11.131 5.268	7.753	6,618	6.014
Jul	1	4.093	3.909	3.729	3,553	3,364		Jul	4.742	3.403 4.442	4.259	5.075	4.886	4.946
Aug	3.174	3.003	2.835	2.670	2.509			Aug	3.527	3.356	3.189	4.080	3.904	3.716
Sep	,	1.993	1.832	1.673	1,519	1.367		Sep	2.514	2.350	2.189	3.025 2.031	2.864	2.692
Oct	1.222	1.081	1.005	1.241	0.973	0.946	1	Oct	1.580	1.453	1.414	1.388	1.877	1.725
Nov	0.940	0.933	5,733	1.720	0.988	4.192		Nov	1.308	1.287	4.988	11.525	1.362 5.059	1.334 3.613
Dec	4.033	9.637	25.054	11.790	7.462	17,417	٠.	Dec	6.942	2.945	4.826	3.481	11.871	10.380
1968							1973					5.461	11.071	10.500
Jan	13.014	28.203	27.247	21.047	43,111	16.958		Jan	6.710	49.657	35.171	29.428	8.645	4.998
Feb		12.068	6.758	18.061	26.394	14.315		Feb	9.962	15.916	10.591	5.761	4.467	3.973
Mar	1	5,406	5.587	8.289	17.273	40.455	ļ ·	Mar	6.379	10.960	9.805	8.981	11.778	9.618
Apr	1 .	50.193	12.233	7.807		5.181		Apr	6.731	6.205	4.979	15.312	6.332	12.222
May	ı	5.359	16.473	10.146	6.918	9.626		May	5.683	4.579	5.882	10.438	9.520	7.519
Jun	1	6.173	13.542	9.860	16.667	12,693		Jun	5.837	6.114	7.123	4.645	4.651	4.063
Jul	1	5.912	11.040	8.724	9.399	8.932	1	Jul	3.721	3,549	24.349	7.157	4.274	3.431
Aug	1	7.638	5.311	7.881	6.866	6.529		Aug	3.244	3.075	2.909	2.746	2.587	2.826
Sep Oct	1	4.293	4.414	5.802	6.159	4.275		Sep	3,736	2.868	2.820	2.581	5.453	3.756
Nov	1	3.779	3.642	3.439	3.251	3.627		Oct	2.427	16.235	4.370	3,347	3.047	13.512
Dec	8.735	13,037	6.813	4.446	7.127	7.503		Nov	17.673	16.731	27.189	10.407	5,602	8.826
1969	0.733	5.148	6.174	9.226	38.200	12.466		Dec	9.285	15.931	10.964	16.231	7.164	10.125
Jan	6.445	11.996	10.636	25 470	22 207	10.010	1974							
Feb	27.542	15.574	13.276	25.478 54.026	32.387 51.037	17.748		Jan	9.631	6.288	42.923	42.462	15.573	11.128
Mar	33.866	15.374	13.134	33.854	37.036	24.727		Feb	15.871	9.654	8.633	11.706	18.262	10.824
Apr	F	21.614	42.584	20.174	53.628	50.550		Mar	15.458	26.761	21.155	40.081	43.457	16.588
May	11.654	9.056	9.483	7.847	7.534	20.367 7.267		Apr	13:483	31.876	20.748	9.421	7.224	10.493
Jun	7.003	18.622	7.956	6.734	6.470	6.245		May Jun	10.774	24.309	10.370	7.659	6.332	6.054
Jul	6.020	6.722	5.955	6.321	6.111	5.257		Jul	5.822 4.733	5.613 4:541	5.410	5.239	5.074	4.903
Aug	5.026	4.817	4.613	4.413	4.217	4.007		Aug	3,858	3.677	5.411 4.588	4.364	4.138	4.037
Sep	3,793	3.596	3,403	3.214	3.243	2.950		Sep	4.430	7.949	5.113	3.479 3.263	3,437	4.231
Oct	5.196	7.143	3.291	2,722	6,772	5.291		Oct	4.191	11.946	23.456	9.644	2.991 17.621	2.813
Nov	8.009	12.246	10.825	5.086	4.025	3.628		Nov	5.820	4.149	3.860	3.108	14.790	6.028
Dec	2.971	15.984	6.072	24.911	21.053	14.484		Dec	4.941	9.223	12.710	28.855	20.569	10.845 15.039
970							1975				12.710	20.055	20.503	13.039
Jan	7.722	8.775	21.757	15.698	37.799	14.152		Jan	13.338	7.380	5.741	11.922	31.755	15.800
Feb	16.910	11.902	10.937	22.832	9.903	9.413		Feb	11.632	15.074	11.635	14.843	10.901	7.867
Mar	1		21.480	20.802	24,527	14.985		Mar	9.610	32.423	15.858	17.491	16.086	34.963
Apr	19.788	15.642	11.334	9.421	23.614	11.621		Apr	17.954	12.525	8.287	18.173	16.469	22.374
May	7.868	13.365	8.143	12.252	13.907	9.230		May	10.423	18.647	9.008	8.589	8.512	12.048
Jun	17.735	7.876	6.240	9.712	8.662	6.853		Jun	7.102	6.171	5.865	5.682	5.447	5.764
Jul	5.648	5.393	5.185	10.907	12.567	10.077		Jul	5.495	5.016	4.818	4.624	4.435	4.231
Aug	5.945	4.879	4.675	4.475	4.280	4.070		Aug	4.028	3.844	3.663	3.508	3.347	3,549
Sep	3.855	6.771	9.300	5,432	4.200	3.537	1.	Sep	5.345	5.647	16.171	5.818	4.961	5.645
Oct	3.701	3,428	3.118	2.941	14.139	4.032		Oct	5.338	8.164	9.652	4.601	4.548	10.506
Nov	9.003	10.039	7.285		16,707	14.332		Nov	11.075		10,943	20.063	16.700	22.252
Dec 971	19.982	65.348	17.448	10.345	18.770	41.304	:	Dec	21.029	8.797	6.373	7.426	14.468	9.770
_	19.791	20.875	26 202	40 730	21.626		1976	.			`			
Jan Feb	18.267	20.875 26.393				62.317		Jan	40.029		23.932		96.741	33.956
Mar	22.004	25.461	37.730			32,505	1	Feb	15.048		13.591		38.903	27.148
Apr	24.181	21.450				18.543		Mar	38.088					11.777
May	10.913		16.234	9,914		10.711		Apr	9.690	8.433	7.620	7.892	7.711	7.918
Jun	10.809	28.052	13.164	:	8.122	7.857		May	7.021	6.860	6.687	6.450	6.236	6.005
Jui	8.324	7.430	7.197	6.817	15.680 6.583	12.464		Jun	5,777	5.817	6.735	5.391	5,171	4,979
Aug	6,079	5.853	5.632	5.415		6.330		Jul	4.787	4.596	4.409	4.226	4.047	3.861
Sep	4.744	4.643	4,439	6.491	5.203 4.557	4.976		Aug	3.680	3.505	3.334	3.166	3.002	2.901
- V-P]						4.041		Sep	2.747	2.577	2.410	2.247	2.087	1.931
- 1	8.146	3.20	A SKIL	X 44.7										
Oct	8.146 4.591	5.203 6.926	8.580 10.858		10.237 19.294	8.387		Oct	1.780	1.733	1:594	2.175	1.627	1.406
- 1	8.146 4.591 15.054	6.926 11.578				8.387 8.602 7.364	1	Nov Dec	1.780 1.566 3.966	1.526	1.594 1.846 13.560		1.627 11.475 4.870	1.406 8.986 4.173

Table 3.3.24(2/3) 5-DAY DISCHARGE AT PANJANGAN IN GARANG RIVER

by Tank Model (A=192.6 km2) Unit: m3/s Year 1-5 5-10 10-15 15-20 25-31 Year 20-25 20-25 5-10 10-15 15-20 1-5 25-31 1977 1982 9 586 7 942 Jan 7.306 29.846 15.707 19 312 4.068 8.194 6.012 27,796 8.646 13,677 Jan Feb 12,146 13.239 6.414 5,496 6.565 40.436 9.736 14.563 10.275 9,144 5 535 Feb 14.241 Mar 29.005 47.121 15.455 26.245 23.196 16.121 Mar 22,604 37.975 26.588 24.961 15.142 20.317 7.829 6.670 Apr 10.454 8.086 17 461 8 323 21.869 8 638 Apr 44.064 29,939 8.363 18.988 5,810 4.884 4.701 May 4.522 8.834 15.372 8.888 6.040 5.023 4.830 4.643 May 4 441 13 023 fun 12 316 8.561 5,520 4 490 4.311 Jun 4.242 4.062 3.886 3.714 3.546 3.381 Jul 4.131 3.952 3,777 3.605 3,437 3.257 3.050 2.889 ful 3 2 1 5 2.730 2.575 2.409 Aug 3.076 2.912 2.751 2,594 2.440 2.274 2.090 1.941 Aug 2.241 1.795 1.652 1.499 2.103 1.945 1.789 Sen 1.638 1.489 1 346 Sep 1.340 1.192 1.053 1.001 0.975 0.949 Oct 1.286 1.260 1.235 1.209 1.183 1.156 0.924 0.899 0.875 0.850 Oct 0.825 0.799 Νον 5.645 5 451 1,609 1.328 2 219 3.156 Nov 10.506 2,354 1.174 1.239 0.869 0.823 13.924 Dec 8.459 4.243 4.606 8.579 29.116 Dec 1.075 5.598 7.451 4.805 1.930 7.285 1978 1983 Jan 47.722 14,487 19.136 25,221 35,694 33.829 20.303 17.622 20.027 22.114 Jan 8 553 5.334 Feb 22,264 30,208 33,380 13.618 19.541 11.589 Feb 9,514 7.317 4.669 9.216 4.035 8.279 Mar 10.075 7.130 11.837 18.959 38.403 23,474 8.812 Mar 6.458 18.834 5.546 3.888 3.132 Apr 8.767 7.076 8.880 6.412 5.725 5.204 Apr 5,459 5.582 14.018 16.583 12.491 5.318 5.084 May 4.880 6.372 7.308 7.091 4.969 May 12.331 14.735 18.662 9.943 7.198 7.017 4.569 5.180 Jud 4.464 6.134 4.564 4.948 4.792 3.742 3.539 Jun 3.353 3.187 3.024 Jul 4.778 4.461 7.637 4.530 3.688 3.867 Jul 2.861 2,699 2,540 2.383 2.231 2.067 Aug 4.078 3.646 3.334 3.203 3.030 2.848 1.902 1.752 Aug 1.606 1.462 1.322 1.171 Sep 9.279 7.370 6.574 4.658 4,469 2.996 1.014 0.868 0.759 0.731 Sep 0.706 0.681 Oct 5.219 6.698 3.470 3.761 3.587 2.616 2.890 Oct 7.310 0.896 7.252 15.301 14.880 Nov 3 922 3.736 2.921 4.800 3.944 3.165 Nov 4.484 2.092 1.298 1.104 5.727 36.950 Dec 3.873 11.862 9.222 5.768 7.692 16.337 6.249 Dec 4.698 4.795 2.409 1.602 3,480 1979 1984 23.404 47.044 33.077 Jan 18.147 9 394 13 393 Jan 5.887 8.378 3.630 2.831 8.845 5.662 Feb 31.522 43.138 17.150 21.880 32,775 14.208 Feb 22.870 20.025 28.346 24.439 11.082 6.397 9.501 17.370 Маг 23.338 33,669 15 225 11,723 Mar 18.045 24.483 7,305 5.647 4.399 3,474 10.589 27.756 Αρι 44.436 18.063 18.855 11.263 3,238 3.438 5.905 4.490 Apr 3.683 3.404 9.243 15.693 12.163 May 9 530 14 462 8.750 May 3.045 2.874 2.760 2.647 3.372 2.635 12.924 Jun 15.676 8.750 6.770 6.184 5.967 2.380 2.853 7.442 3.007 Jun 2.020 2.1625.750 6.276 Jul 5 535 5.391 5.068 4 969 Jui 3.618 1.960 1.804 3.028 1.928 1.685 Aug 4.757 5.072 4.449 4.254 4.063 3.859 1.502 Aug 1.514 1.402 1 192 1.056 1.568 3.649 Sep 3.457 4.355 3 474 3.098 6.899 Sep 5,640 20.467 11.767 21.448 12.871 4.219 10.009 Oct 5.410 3.392 2,950 2.853 3.141 2.336 1 770 1.909 Oct 2.858 1.616 1.686 Nov 5.566 6.144 5.302 3.018 3.008 15,938 1.911 4,747 Nov 2.101 3.638 4.191 10.383 Dec 6,530 7.210 4.007 3,480 6.803 3,168 10.438 11.748 Dec 17.618 8.118 8.595 13.752 1980 1985 Jan 8.791 7.234 19.980 105.25 14.141 23.267 6.500 4.693 3.737 Jan 2.899 2.800 2.516 Feb 9,430 17.905 15.130 14.249 13.978 9.079 Feb 2.356 2.244 6.594 5.115 25.695 9,594 Mar 6.732 8.800 7.773 24,110 15.723 15.202 Mar 7.991 8.062 4.518 4.301 4.998 3.706 9.479 10.304 10.217 29.126 18.018 Apr 16.135 Apr 3.230 3.087 3.558 9.831 14,482 6.712 18.699 10.897 May 7,120 5.653 5.363 22,773 May 3.684 2,885 2.698 2.828 2.446 2.288 Jun 9.046 6.147 5.201 5.005 4.814 4.626 Jun 1.989 1.850 2,131 1.714 1.581 1.451 4.438 Jul 4.251 4.068 3.890 3.714 6.518 Jul 1.608 1,365 1.567 1.149 5.027 1.683 6.803 7,567 14.109 5.237 Aug 3.699 3,390 2,207 1.379 0.998 Aug 0.865 0.784 1.972 3,009 Sep 3.192 4.718 2.974 2.686 2,514 Sep 6.607 5.338 1.661 0.829 0.686 0.640 Oct 2,349 2.188 2,053 1.904 3.290 16.340 Oct 0.589 0.613 1.013 0.822 9.693 9.260 Nov 17,408 6.234 8,208 14.110 5.288 22.050 Nov 8.246 3.954 4.292 4.424 2.359 9.971 Dec 22,048 23.960 11.479 7.462 52,725 17.407 Dec 28.093 8.130 3.786 4.805 14.546 2.131 1981 1986 Jan 9.558 13.085 23,766 12.916 10.973 16.597 38.780 8.083 10.428 20.007 25,456 Jan 19.642 Feb 27.463 8 907 15 392 15.071 13.861 22,614 Feb 15.278 6.604 4.929 14.522 12.160 9,508 Mai 9,426 8.350 11.222 6,954 5.470 5.021 12 373 14 620 70 306 13 999 13.280 Mar 19.466 Apr 4.825 4.649 4.477 4.308 4.143 3.982 Apr 14.144 11.831 11.961 9.924 6.137 4.805 May 6,859 13.889 6.700 8,002 5.954 4,076 4 171 May 4 533 4:345 7.107 4.816 4.198 3.792 firm 3.625 3.642 3.391 6.121 9.434 Jun 4.548 3.991 6.735 11.691 10.924 6.245 Jul 4.723 7.059 4.382 19.889 5.046 3.998 Jul 4.778 3,708 3.530 3.422 3.233 3,721 Aug 3,427 3.197 3.029 2.864 2.703 2.530 3:150 5.362 3.104 2.796 4.856 Aug 4.645 Sep 2.351 2.186 2.024 1.866 1.711 1.559 Sep 2:583 2.618 3.846 2.979 3,907 2.580 Oct 1.413 1,273 1,206 1.181 1.155 1,128 Oct 2.201 2.038 3.611 1.958 1.761 4.888 1.102 1.081 Nov 1.061 1.040 1.059 4.039 Nov 5.060 7.249 3.787 2,783 2.977 1.839 Dec 9.031 11.583 8,071 19.455 11.823 13.038 Dec 1.846 1.615 5.770 3.505 10.964 3,719

Table 3.3.24(3/3) 5-DAY DISCHARGE AT PANJANGAN IN GARANG RIVER

hu i	Ohvar	amaioa (N		.3.24(3/: 2)	3) 5-D	AY DIS	CHARO	E AT	PAN	UANGA	N IN G	ARANG	RIVER		
Yea		vation (A			5 15-2	0 20 76	7.7.2	7137					·		Jnit : m3/s
198		 	J J*[1	10-1	3 (3-2)	0 20-25	25-3	I Yea		l- :	5 5-16) 10-1	5 15-20	20-25	25-31
	Jan	7.528	7.856	23.920	45,620	24,620	28.133	199		(110	12.000	13 730			
	Гeb	1	29.680	40.820	31,640		25.867	•	Jan Feb		12.980 10.820			10.380	9.967
	Mar	1	21.680	11.480	16.340		33.533	7	Mar		13.580	9.400 14.560		12,420	9.250
1	Apr	1	17,996	19.200	8.650		6.992		Арг	i	12.800	21.240		9,440	8.367
	May	7.300	7.842	6,436	6.458		5,665		May		8.440	10,960		12.400	11.440
	Jun	6.578	6.854	4.430	4.020		4.596		Jun	11.220	10.480	6.500		7.380 5.060	15.000
1	Jul	4.206	3.356	3.150	3.672		3.342		Jul		5,480	6.440		4.750	4.620 4.750
	Aug		2,700	2.490	2.310	2.284	2.245		Aug	1	4.450	5.300	3.700	9.680	8.750
	Sep		1.962	1.988	1.798	1.718	2.018		Sep		9.100	8.240	5.600	4.420	4.400
	Oct	1	1.910	1.826	2.898	1.962	1.728		Oct	4	10.160	5.080	5.910	5.840	5.300
	Nov		3,078	2.230	3.276		7.436		Nov	4.990	6.620	3.550	3.900	5.910	5.690
100	Dec	6.550	7.198	7.714	10.756	14.828	6.822		Dec	21.680	17.500	24,820	12.800	8.000	5.658
198		0.100		1.4				1993	3						
	Jan	,	11.512	11.380	16.000	34.304	15.135		Jan	4.326	5.758	5.366	4.800	25.700	103.64
	Feb	1	30,200	22.580	20.880	17.616	9.030		Feb	49.780		39.600	32.580	35.820	26.300
1	Mar		13.668	11.702	18.408	25.300	49.833	1	Mar	24.100	29.260	19.980	17.320	19.220	25,933
1	Apr May	1	16.718 10.902	12.468	8.858	6.862	6.122		Apr	16.164	32.700	35.060	17.720	17.522	7.556
1	Jun	[2.378	5.518 3.502	5.866 4.362	5.480	4.643	1 .	May	9.184	6.068	5.852	3.812	3.434	3.548
	Jul	1	3.142	2.304	4.302 2.460	2.484 2.066	2.606	1 .	Jun Tut	3.436	9.538	8.486	7.864	3.858	3.250
	Aug	1	1.984	1.872	1.496	1.526	1.917 1.530	:	Jul	3.672	2.834	2.834	2.418	2.496	2.370
1	Sep		1.994	2.294	1.880	1,490	1.452		Aug	3.500 2.750	3.350	3.300	3.500	3.400	2.792
	Oct		1.564	4.340	3.328	2.184	7.198		Sep Oct	3.250	3.940 2.900	2.600 3.050	2.750 2.368	3.350	3.050
1	Nov	3.256	2.380	4.316	4.286	3.920	6.856		Nov	1.602	1.450	1.730	3.688	2.456	2.317
L	Dec	8,876	15.086	16.840	11,482	12.968	4.605		Dec	4.566	4.378	2.802	3.982	2.880 5.238	2.258
198	9							1994	~	1.500	4.576	2.002	3.704	3.236	4.057
	Jan	10.336	12.436	7.122	8.154	10.516	10.460		Jan	7.680	12.800	21.680	22.020	13.120	13.800
1	Feb	52.940	54.660	25.900	38.480	86.740	27.400		Feb	12.000	14.160	14.480	9.320	12.800	10.933
	Mar	1	17.060	11.084	9.994	17.280	14.183	1	Маг	11.120	27.560	24.840	11.160	55.840	31.617
	Apr	9.076	11.500	6.380	9,904	13.588	13.480		Apr	16.240	14.280	20.500	18.800	17.300	10.720
1	May	8.822	9.504	8.816	16.320	4.412	8.903	ļ	May	10.400	8.800	8.580	5.900	5.600	4.600
	Jun Jul	13.420	8.782	9.518	12.160	10.902	6.354		Jun	4.450	4.350	3.650	3.650	3.700	3.500
	Aug	3.852 4.242	7.534 3.894	4.792	2.334	2.744	2.552		Jul	3.450	3.250	3.050	2.900	2.750	2.583
1 .	Sep	2.134	1.834	2.976 1.706	2.726	2.290	2.195	1.	Aug	2.600	2.650	2.456	2.236	1.972	1.730
	Oct	4.192	2.816	2.080	1.484 4.760	1.864 4.098	2.232		Sep	1.664	1.796	1.620	1.620	1.620	1.512
1	Nov	3.014	2.898	8.076	11.480	6.984	6.032 11.906	1	Oct	1.356	2.192	2.500	3.650	4.150	4.133
1	Dec	17.420	11.648	13.060	22.718	8.316	17.555	i	Nov Dec	5.050	3.350	3.050	2.550	2.750	4.340
1990					22.710	0.510	17.555	1995		3.072	8.290	4.452	2.706	5.560	3.150
İ	Jan	12.966	22.360	13.520	41.320	53.160	88.150	1	Jan	4.900	8.080	15,440	7.400	17.440	26 217
	Feb	34.980	14.080			6.816	11.103		Feb	12.820		21.480	12,600		26.317 9.867
1	Mar	13.870	11.290	9.344	24.228	8.560	9.613		Mar	13.520		10.800	20.880	19.040	13.533
	Apr	7.056	8.520	7.522	6.734	8.000	8.792		Арг	10.160	9.600	8.960	7.980	6.800	6.320
	May	7.426	5.394	6.112	8.486	7.148	7.705		May	6.140	6.920	15.840	7,440	6.040	6.225
1	Jun	6.340	4.044	3.846	4.648	6.754	5.692		Jun	5.530	6.140	9.900	7.800	6.700	5.420
1	Jul	5.774	3.998	3.220	2.780	3.214	2,500		Jul	4.700	4.250	3.300	2.154	1.136	2.105
	Aug	3.224	2.668	4.956	2.584	2.474	2.500		Aug	3.250	3.500	3.150	2.850	2.550	2.170
	Sep	1.836	2.446	2.136	1.720	2.500	2.276		Sep	1.796	1.620	0.916	0.520	0.872	2.280
	Oct Nov	1.804 2.566	1.560	1.460	1.508	1.320	2.250	1	Oct	2.456	1.928	1.400	1.356	1.400	1.473
	Dec	14.268	1.300 10.530	1.708	2.538	3.264	4.404		Nov	1.846	7.080	10.290		18.240	27.240
1991		1,.200	10.000	13,440	10.712	19.020	13.197	1004	Dec	11.180	10.400	18,140	15.200	21.120	14.700
1	Jan	22.860	27.820	8.092	13.590	15.700	22.183	1996	T	12 600	16 000	10.000	14.000		
1.	Feb	18.600	18,740	28.760	21.800	27.920	14.367		Jan Geb	13.680	16.800	10.080		17,640	16.817
	Mar	15.600	19.140	20.500	19.720		15,000	-	Feb Mar	20.800 29.980	27.260 32.700	32.820		20.720	37.850
2	Apr	26.260	14.910	14.320	14.440		15.040		Apr	8,980	9.260	27,160 10,800		16.720	10.467
	Мау	12.350	6.964	6,442	5.530	3.712	3,483		May	8.360	7,220	6.740	7.360	11.920 6.710	7.680
	Jun	3.128	3.098	3.386	3,648	3.516	3.034	•	Jun	5.250	6.090	5.400	4.870	4.754	6.750 4.970
	Jul	3.192	3.004	2.990	2.790	2.370	2,175	٠.	Jul	3.100	3.100	2,706	2.476	2.650	2.708
	Aug	1.800	1.542	1.356	1.380	1.308	1.260		Aug	2.750	3,562	2.956	3.000	3.056	3.083
· ·	Sep	1.806	1.332	1.500	1.212	1.236	1.092		Sep	2.650	3.860	3.050	2.950	3.000	2,568
	Oct	1.068	1.236	1.236	1.380	1.434	1.345		Oct	2.236	4.238	3.450	3.750	3.350	14.667
	Nov	2.226	3.084	7.598	5.538	8.818	7.244		Nov	9.170	13,480	7.280		20.800	6.130
L	Dec	12,144	9.184	9.622	5.534	7.518	12.760		Dec	16.480	21.460	22.660		11.200	14.833

MAXIMUM AND MINIMUM VALUE OF TIDAL LEVEL IN THE PERIOD FROM APRIL TO AUGUST 1997 Table 3.3.25

162 114 174 162 106 178 164 112 182 156 105 180			189		Min. Max.	Max. Min.
106 112 105	106		184			100
112	109				94	182 94
105	112	٤I	174	96 174		188 96
	110	۱ ۱	168		100	100
110	116		172		107	166 107
117	126		177		110	160 110
116	129		180		121	162 121
124	121	l	180		117	152 117
113	120		181		123	160 123
	116		184			166 128
108	118	- 1	183		120	171 120
176 123 174	112	- 1	177		116	168 116
108	111	- 1	184		103	103
122	113	1	182		100	179 100
118	112	1	182		100	180 100
115	124		1771		100	175 100
112	120		174		100	169 100
108	120	•	178		96	165 96
108	119	ŀ	173		105	164 105
109	117	- 1	172		104	153 104
102	116	. [174	110 174	110	157 110
111	118		175		111	153 111
169 112 159	117		188		115	115
112	124		187		110	167 110
115	120		190		120	173 120
112	119		188		116	174 116
120	113		192	122 192	122	178 122
185 116 1	112	- 1	179			182 108
1	119		176		108	187 108
	•		1	104	-	186
	•	İ	•		104	194 104
168 113 1	117	1	180	109 180	109	109
	•	l	192		-	194
102	106		•	- 94		
4700	****	•	۱ -	۱ -	0000	
+0.24	1 40		- 001 /	- 001 / 02.881		N8:20
10/0- =	1.641		~	~	~	7 00.76
1 -0.201	1.641		~	~	~	/ 00 44 00 /

- 3 - 44

Note: The Datum difference between TTG and BPP is 1.641 m.