

BAB VI

KESIMPULAN DAN SARAN

1 KESIMPULAN

Penyelesaian suatu proyek selalu dapat dibagi menjadi jumlah kegiatan, yang saling berkaitan erat satu sama lainnya. Oleh karena itu, salah satu langkah pertama dalam perencanaan proyek adalah menganalisis kegiatan-kegiatan apa yang harus dikerjakan dan bagaimana urutan-urutan atau kaitannya satu sama lainnya, untuk mencapai tujuan akhir yaitu penyelesaian proyek dan biaya-biaya yang dibutuhkan.

Berdasarkan *network planning diagram* yang telah disusun, proyek pembangunan *graving dock* fasilitas laut PT. RUKINDO di lokasi Ancol Timur - Tanjung Priok dapat diselesaikan dalam jangka waktu 528 hari kerja, dengan biaya-biaya sebagai berikut:

Biaya langsung	= Rp. 7.679.407.340,-
Biaya tak langsung	= Rp. 3.077.358.768,-
Total ongkos proyek	= Rp. 10.756.766.108,-

Setelah dilakukan *crashing* sepanjang lintasan kritis yang didapat dari analisa perhitungan CPM, maka diperoleh waktu penyelesaian proyek yang optimal 484 hari kerja dengan biaya sebagai berikut:

Biaya langsung	= Rp. 7.707.433.151,-
Biaya tak langsung	= Rp. 2.820.912.204,-
Total ongkos proyek	= Rp. 10.528.345.355,-

penghematan pemendekan waktu selama = 528 hari - 484 hari
= 44 hari

Apabila proyek diselesaikan dalam waktu 474 hari kerja, biaya yang diperoleh adalah sebagai berikut:

ongkos langsung = Rp. 7.785.081.601,-
ongkos tak langsung = Rp. 2.762.628.894,-
total ongkos proyek = Rp. 10.547.710.495,-

Karena total ongkos proyek meningkat dan apabila *crashing* diteruskan total ongkos proyek cenderung meningkat dan ini mengakibatkan ketidak seimbangannya lintasan kritis. Maka dengan demikian waktu penyelesaian proyek yang optimal adalah selama 484 hari kerja.

Dari *crashing time* penyelesaian proyek selama 44 hari, maka diperoleh penghematan akibat *crashing time* proyek sebesar Rp. 10.756.766.108,- - Rp. 10.528.345.355,- = Rp. 228.420.753,-.

SARAN-SARAN

Dalam merencanakan proyek pihak kontraktor utama harus memperkirakan hambatan-hambatan yang mungkin terjadi dalam pelaksanaan proyek, untuk kemudian dapat dijadikan sebagai dasar pemberian kelonggaran dalam pembiayaan maupun dalam pelaksanaan penyelesaian proyek.

Untuk memperoleh suatu teknik perencanaan proyek yang tepat, harus mempertimbangkan kriteria-kriteria atau pembatas-pembatas penggunaan suatu teknik perencanaan.

Dalam penggunaan suatu teknik perencanaan proyek, sebaiknya didukung oleh para pelaksana dilapangan dan manajemen yang baik, untuk mempermudah evaluasi dan pengawasannya.

Pihak kontraktor sebaiknya meningkatkan kemampuan manajemennya dalam mengelola proyek-proyek yang sedang dilaksanakan dan membuat acuan manajemen yang baku terhadap proyek yang spesifik dan sering dilaksanakan sehingga memudahkan dalam pelaksanaan dan pengelolaan proyek-proyek selanjutnya.



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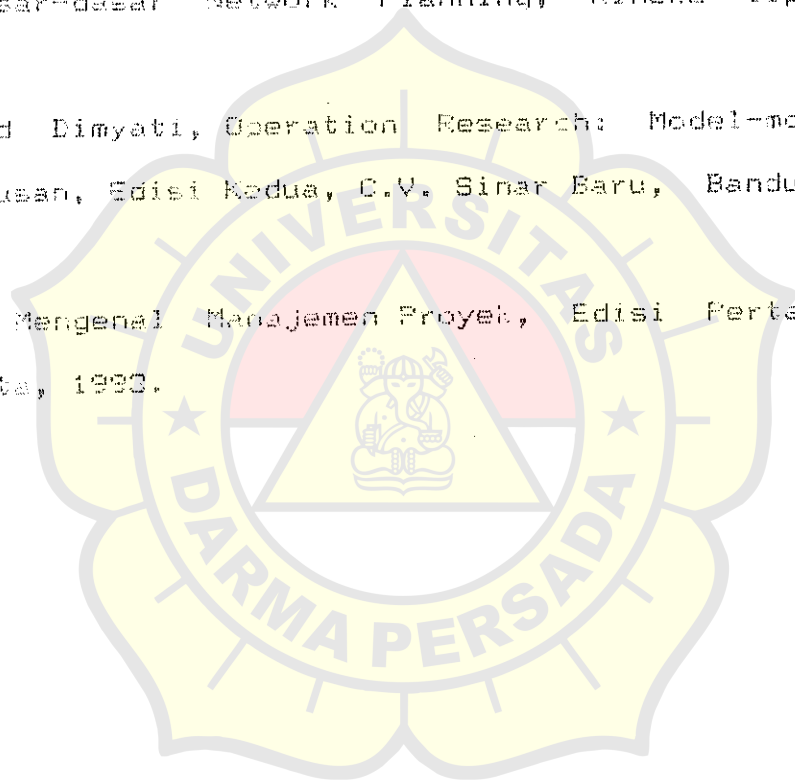
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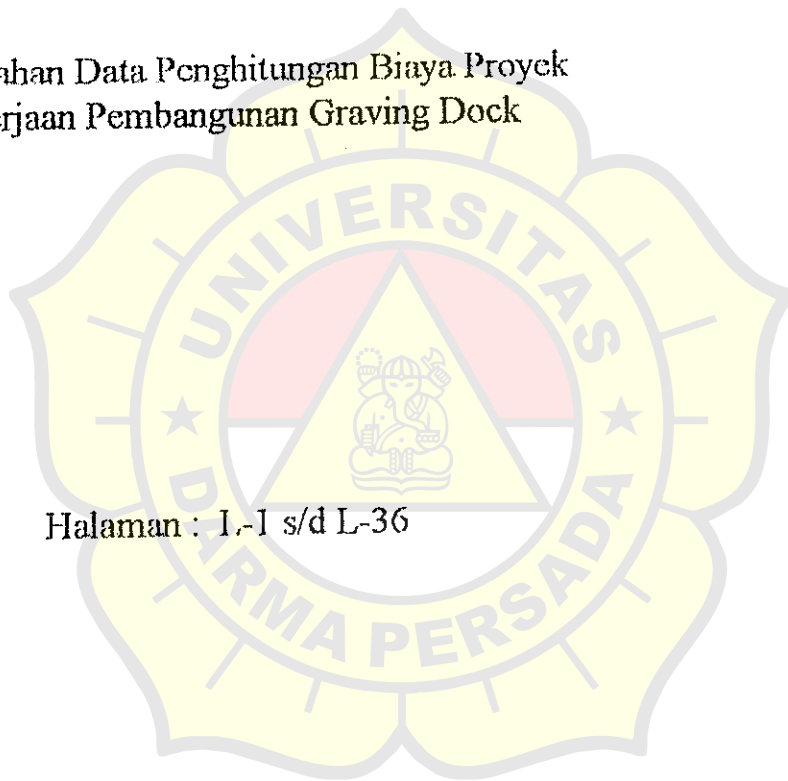
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LAMPIRAN I

Pengolahan Data Penghitungan Biaya Proyek
Pekerjaan Pembangunan Graving Dock

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No.	Pekerjaan	Sumber Daya	Kode	Satuan	Harga Satuan	Kuantitas	Jumlah	Sub. Total	Ongkos Langsung	Ongkos Tak Langsung
(-1-)	(-2-)	(-3-)	(-4-)	(-5-)	(-6-)	(-7-)	(-8-)	(-9-)	(-10-)	(-11-)
I	Persiapan									
1.1	Pembersihan lapangan		PP1001	LS				20,070,000		
1.1.1		Biaya penyusutan alat lighttruck	AL2011	Hari	70,000	143	10,010,000			10,010,000
1.1.2		Biaya sewa alat truck cargo	SA1011	Hari	105,000	32	3,360,000			3,360,000
1.1.3		Upah pembersihan lapangan	UB1127	M2	400	10,000	4,000,000		4,000,000	
1.1.4		Upah tenaga kerja	UH1009	Hari	6,000	450	2,700,000		2,700,000	
1.2	Direksi keet dan gudang		PP1003	LS				34,600,000		
1.2.1		Direksi keet	LPU100	M2	120,000	60	7,200,000			7,200,000
1.2.2		Kantor pemborong	LPU101	M2	120,000	75	9,000,000			9,000,000
1.2.3		Gudang proyek	LPU102	M2	120,000	75	9,000,000			9,000,000
1.2.4		Gudang terbuka	LPU103	M2	80,000	80	6,400,000			6,400,000
1.2.5		Perfengkapan kantor direksi	LPU104	LS	3,000,000	1	3,000,000			3,000,000
1.3	Dokumen pelaporan		PP1004	LS						
1.3.1		Dokumen	LPU105	Hari	6,576	730	4,800,480		4,800,480	
1.4	Air bersih		PP1013	LS	187,719	24	4,505,256			4,505,256
1.5	Pengukuran		PP1015	LS	7,530,000	1	7,530,000			7,530,000
1.6	Mob/Demob		PP1038	LS	35,000,000	1	35,000,000			35,000,000
1.7	Biaya umum lapangan									
1.7.1		Biaya umum lap.	PP1035	LS	937152000	1	937,152,000			937,152,000
II	Pekerjaan tanah									
2.1	Galian tanah		KJ1001	M3	4,000	36,727	146,908,000		146,908,000	
2.2	Buang tanah sekitar site		KJ1002	M3	3,500	36,727	128,544,500		128,544,500	
2.3	Urug pasir laut		KJ1003	M3	15,000	22,804	342,060,000		342,060,000	

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3.2.2	Pancang TP miring				M'	17,300	189	3,269,700			3,269,700
3.2.3	Tiang pancang				M'						
3.2.3.1	PCP 40/40	Tiang pancang 40 /40			M'	53,000	189	10,017,000			10,017,000
3.2.4	Kupas tiang pancang				BH						
3.2.4.1	Upah	Kupas tiang pancang			BH	15,000	9	135,000		85,639,200	135,000
3.3	Pondasi crane										
3.3.1	Angkat&stel tiang pancang				M'	6,000	984	5,904,000			5,904,000
3.3.2	Pancang TP tidak lunak				M'	17,300	984	17,023,200			17,023,200
3.3.3		Tiang pancang			M'	63,000	984	61,992,000			61,992,000
3.3.4	Kupas tiang pancang				BH						
3.3.4.1	Upah	Kupas tiang pancang			BH	15,000	48	720,000			720,000
IV	Beton										
4.1	Plat lantai				M3				1,503,341,676		
4.1.1	Biaya penyusutan alat	Naldvibrator D.2"		Hari		7,700	5,900	45,430,000			45,430,000
4.1.1.2		Bar bender 3/4"									
4.1.1.3		1. 1/2		Hari		6,300	3,446	21,709,800			21,709,800
4.1.1.4		Barcutter 7 1/2 HP		Hari		4,550	3,446	15,678,300			15,678,300
4.1.1.5		Genset 40 KVA		Hari		10,500	3,446	36,183,000			36,183,000
4.1.1.6		Air compresor		Hari		13,300	442	5,878,600			5,878,600
4.1.2	Biaya repair dan overhaul	Sevice crane		Hari		115,500	590	68,145,000			68,145,000
4.1.2.1		Naldvibrator D.2"		Hari		3,500	5,900	20,650,000			20,650,000
4.1.2.2		Barbender 3/4		LTR		2,800	3,446	9,648,800			9,648,800
4.1.2.3		Barcutter 7.5 HP		Hari		2,100	3,446	7,236,600			7,236,600
4.1.2.4		Genset 40 KVA		Hari		4,200	3,446	14,473,200			14,473,200

4.3.1.4	Genset 40 KVA	AL1007	Hari	10,500	11,858	124,508,000	124,509,000
4.3.1.5	Air compresor						
	175 CFM	AL1010	Hari	13,300	1,617	21,506,100	21,506,100
4.3.1.6	Service crane	AL2010	Hari	115,500	2,156	249,018,000	249,018,000
4.3.2	Bahan						
4.3.2.1	Beton R.Mix						
	K300-12	BF2007	M3	125,000	1,540	192,500,000	192,500,000
4.3.2.2	Besi beton	BH2010	Kg	875	331,056	289,674,000	289,674,000
4.3.2.3	Besi profil perancah, kist	BH2035	Kg	2,300	23,100	53,130,000	53,130,000
4.3.2.4	Paku campur	BH3055	Kg	1,600	1,078	1,724,800	1,724,800
4.3.2.5	Kawat beton	BH3060	Kg	1,900	3,388	6,437,200	6,437,200
4.3.2.6	Kayu borneo, balok	BK2015	M3	300,000	169	50,700,000	50,700,000
4.3.2.7	Multiplex 12 mm	BK4011	LBR	29,000	616	17,864,000	17,864,000
4.3.2.8	Oil bekisting	BK4035	M2	100	3,080	308,000	308,000
4.3.3	Biaya operasi alat						
4.3.3.1	M.premium	MO1005	LTR	700	4,620	3,234,000	3,234,000
4.3.3.2	M.solar	MO1007	LTR	400	10,164	4,065,600	4,065,600
4.3.3.3	M.oilie mesin	MO1013	LTR	4,000	92	368,000	368,000
4.3.4	Upah						
4.3.4.1	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	3,080	12,320,000	12,320,000
4.3.4.2	Besi beton terpasang	UB1012	Kg	70	338,800	23,716,000	23,716,000
4.3.4.3	Cor beton dng Conc. pump	UB1064	M3	4,000	1,540	6,160,000	6,160,000
4.3.4.4	Las titik besi beton	UB1186	TTK	1,000	56,980	56,980,000	56,980,000
4.3.5	Repair&overhaul						
4.3.5.1	Nald vibrator D2"	RO1003	Hari	3,500	21,560	75,460,000	75,460,000
4.3.5.2	Bar bander 3/4"-1.5"	RO1004	LTR	400	1,694	677,600	677,600
4.3.5.3	Bar cutter 7.5 HP	RO1005	Hari	2,100	1,694	3,557,400	3,557,400

4.4.1.1	an alat	Nald vibrator D2*	AL1003	Hari	7,700	434	3,341,800		3,341,800
4.4.1.2		Bar bander							
		3/4"-1,5"	AL1004	Hari	6,300	477	3,005,100		3,005,100
4.4.1.3		Bar cutter 7,5 HP	AL1005	Hari	4,550	477	2,170,350		2,170,350
4.4.1.4		Genset 40 KVA	AL1007	Hari	10,500	477	5,008,500		5,008,500
4.4.1.5		Air compresor							
		175 CFM	AL1010	Hari	13,300	86	1,143,800		1,143,800
4.4.1.6		Service crane	AL2010	Hari	115,500	86	9,933,000		9,933,000
4.4.2	Repair&overhaul	Nald vibrator D2*	RO1003	Hari	3,500	434	1,519,000		1,519,000
4.4.2.1		Bar bander							
		3/4"-1,5"	RO1004	LTR	400	477	190,800		190,800
4.4.2.3		Bar cutter 7,5 HP	RO1005	Hari	2,100	477	1,001,700		1,001,700
4.4.2.4		Genset 40 KVA	RO1007	Hari	4,200	477	2,003,400		2,003,400
4.4.2.5		Air compresor							
		175 CFM	RO1010	Hari	5,600	86	481,600		481,600
4.4.3	Biaya sewa alat	Concrete pump							
4.4.3.1		15 M3/Jam	SA1004	Hari	115,000	21	2,415,000		2,415,000
4.4.4	Bahan	Beton R.Mix							
4.4.4.1		K300-12	BF2007	M3	125,000	31	3,875,000	3,875,000	
4.4.4.2		Besi beton	BH2010	Kg	875	11,889	10,385,375	10,385,375	
4.4.4.3		Paku campur	BH3055	Kg	1,600	62	99,200	99,200	
4.4.4.4		Kawat beton	BH3060	Kg	1,900	133	252,700	252,700	
4.4.4.5		Kayu bomeo,							
		balok	BK2015	M3	300,000	6	1,800,000	1,800,000	
4.4.4.6		Multiplex 12 mm	BK4011	LBR	29,000	31	899,000	899,000	
4.4.4.7		Oli bekisting	BK4035	M2	100	170	17,000	17,000	
4.4.5	Biaya operasi								
	alat								
4.4.5.1		M.premium	MO1005	LTR	700	93	65,100	65,100	
4.4.5.2		M.solar	MO1007	LTR	400	508	203,200	203,200	
4.4.5.3		M.olie mesin	MO1013	LTR	4,000	4	16,000	16,000	
4.4.6	Upah								

4.4.6.2	Besi beton ter- pasang	UB1012	Kg	70	13,175	922,250	922,250	
4.4.6.3	Cor beton dng Conc. pump	UB1064 PB3186	M3 M3	4,000	31	124,000	124,000	59,443,325
4.5	Sell beton							
4.5.1	Biaya penyusut- an alat							1,293,600
4.5.1.1	Nald vibrator D2*	AL1003	Hari	7,700	168	1,293,600		
4.5.1.2	Bar bander 3/4"-1,5"	AL1004	Hari	6,300	84	529,200		529,200
4.5.1.3	Bar cutter 7,5 HP	AL1006	Hari	4,550	84	382,200		382,200
4.5.1.4	Genset 40 KVA	AL1007	Hari	10,500	84	882,000		882,000
4.5.1.5	Air compresor 175 CFM	AL1010	Hari	13,300	50	665,000		665,000
4.5.1.6	Service crane	AL2010	Hari	115,500	33	3,811,500		3,811,500
4.5.2	Repair&overhaul							588,000
4.5.2.1	Nald vibrator D2*	RO1003	Hari	3,500	168	588,000		
4.5.2.2	Bar bander 3/4"-1,5"	RO1004	LTR	400	84	33,600		33,600
4.5.2.3	Bar cutter 7,5 HP	RO1005	Hari	2,100	84	176,400		176,400
4.5.2.4	Genset 40 KVA	RO1007	Hari	4,200	84	352,800		352,800
4.5.2.5	Air compresor 175 CFM	RO1010	Hari	5,600	50	280,000		280,000
4.5.3	Biaya sewa alat							
4.5.3.1	Concrete pump 15 M3/Jam	SA1004	Hari	115,000	16	1,840,000		1,840,000
4.5.4	Bahan							
4.5.4.1	Beton R.Mix K300-12	BF2007	M3	125,000	168	21,000,000		21,000,000
4.5.4.2	Besi beton	BH2010	Kg	875	13,423	11,745,125		11,745,125
4.5.4.3	Paku campur	BH3055	Kg	1,600	184	294,400		294,400
4.5.4.4	Kawat beton	BH3060	Kg	1,900	168	319,200		319,200
4.5.4.5	Kayu bomeo, balok	BK2015	M3	300,000	23	6,900,000		6,900,000
4.5.4.6	Multiplex 12 mm	BK4011	LBR	29,000	117	3,393,000		3,393,000
4.5.4.7	Oli bekisting	BK4035	M2	100	621	62,100		62,100

	Uraian	Uraian	Uraian	LTR	UU	QD	1/6,400	176,400
4.5.5.2	M.solar	MO1007	LTR	400	907	362,800	362,800	
4.5.5.3	M.olie mesin	MO1013	LTR	4,000	6	24,000	24,000	
4.5.6	Upah							
4.5.6.1	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	621	2,484,000	2,484,000	
4.5.6.2	Besi beton terpasang	UB1012	Kg	70	16,800	1,176,000	1,176,000	
4.5.6.3	Cor beton dng Conc. pump	UB1064	M3	4,000	168	672,000	672,000	
4.6	Tangga batang	PB3187	M3			20,333,900		
4.6.1	Biaya penyusutan alat							
4.6.1.1	Nald vibrator D2"	AL1003	Hari	7,700	133	1,024,100	1,024,100	
4.6.1.2	Bar bander 3/4"-1,5"	AL1004	Hari	6,300	133	837,900	837,900	
4.6.1.3	Bar cutter 7,5 HP	AL1005	Hari	4,550	133	605,150	605,150	
4.6.1.4	Genset 40 KVA	AL1007	Hari	10,500	133	1,396,500	1,396,500	
4.6.1.5	Air compresor 175 CFM	AL1010	Hari	13,300	66	877,800	877,800	
4.6.1.6	Service crane	AL2010	Hari	115,500	39	4,504,500	4,504,500	
4.6.2	Repair&overhaul							
4.6.2.1	Nald vibrator D2"	RO1003	Hari	3,500	133	465,500	465,500	
4.6.2.2	Bar bander 3/4"-1,5"	RO1004	LTR	400	133	53,200	53,200	
4.6.2.3	Bar cutter 7,5 HP	RO1005	Hari	2,100	133	279,300	279,300	
4.6.2.4	Genset 40 KVA	RO1007	Hari	4,200	133	558,600	558,600	
4.6.2.5	Air compresor 175 CFM	RO1010	Hari	5,600	66	369,600	369,600	
4.6.3	Biaya sewa alat							
4.6.3.1	Concrete pump 15 M3/Jam	SA1004	Hari	115,000	13	1,495,000	1,495,000	
4.6.4	Bahan							
4.6.4.1	Beton R.Mix K300-12	BF2007	M3	125,000	19	2,375,000	2,375,000	
4.6.4.2	Besi beton	BH2010	Kg	875	3,262	2,854,250	2,854,250	

4.6.4.6	balok	BK2015	M3	300,000	3	900,000	900,000
4.6.4.7	Multiplex 12 mm	BK4011	LBR	29,000	24	696,000	696,000
4.6.5	Oli bekisting	BK4035	M2	100	133	13,300	13,300
4.6.5.1	Biaya operasi alat						
4.6.5.2	M.premium	MO1005	LTR	700	28	19,600	19,600
4.6.5.3	M.solar	MO1007	LTR	400	152	60,800	60,800
4.6.6	M.olie mesin	MO1013	LTR	4,000	1	4,000	4,000
4.6.6.1	Upah						
4.6.6.2	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	133	532,000	532,000
4.7	Besi beton ter-pasang	UB1012	Kg	70	3,800	266,000	266,000
4.7.1	Dudukan bollard	PB3188	M3			101,275,025	
4.7.1.1	Biaya penyusutan alat						
4.7.1.2	Nald vibrator D2"	AL1003	Hari	7,700	609	4,689,300	4,689,300
4.7.1.3	Bar bander	AL1004	Hari	6,300	791	4,983,300	4,983,300
4.7.1.4	3/4"-1,5"	AL1005	Hari	4,550	791	3,599,050	3,599,050
4.7.1.5	Bar cutter 7,5 HP	AL1007	Hari	10,500	791	8,305,500	8,305,500
4.7.1.6	Genset 40 KVA	AL1010	Hari	13,300	274	3,644,200	3,644,200
4.7.2	Air compresor	AL2010	Hari	115,500	182	21,021,000	21,021,000
4.7.2.1	175 CFM						
4.7.2.2	Service crane						
4.7.2.3	Repair&overhaul						
4.7.2.4	Nald vibrator D2"	RO1003	Hari	3,500	609	2,131,500	2,131,500
4.7.2.5	Bar bander	RO1004	LTR	400	791	316,400	316,400
4.7.3	3/4"-1,5"	RO1005	Hari	2,100	791	1,661,100	1,661,100
4.7.3.1	Bar cutter 7,5 HP	RO1007	Hari	4,200	791	3,322,200	3,322,200
4.7.3.2	Genset 40 KVA						
4.7.3.3	Air compresor						
4.7.3.4	175 CFM	RO1010	Hari	5,600	274	1,534,400	1,534,400
4.7.3.5	Biaya sewa alat						
4.7.3.6	Concrete pump						
4.7.3.7	15 M3/Jam	SA1004	Hari	115,000	60	6,900,000	6,900,000

4.8.4	Bahan	15 M3/Jam	SA1004	Hari	115,000	40	4,600,000	4,600,000
4.8.4.1	Beton R.Mix K300-12		BF2007	M3	125,000	57	7,125,000	7,125,000
4.8.4.2	Besi beton		BH2010	Kg	875	9,933	8,691,375	8,691,375
4.8.4.3	Paku campur		BH3055	Kg	1,600	86	137,600	137,600
4.8.4.4	Kawat beton		BH3060	Kg	1,900	114	216,600	216,600
4.8.4.5	Kayu borneo, balok		BK2015	M3	300,000	10	3,000,000	3,000,000
4.8.4.6	Multiplex 12 mm		BK4011	LBIR	29,000	51	1,478,000	1,478,000
4.8.4.7	Oil bekisting		BK4035	M2	100	287	28,700	28,700
4.8.5	Biaya operasi alat							
4.8.5.1	M.premium		MO1005	LTR	700	86	60,200	60,200
4.8.5.2	M.solar		MO1007	LTR	400	482	192,800	192,800
4.8.5.3	M.olie mesin		MO1013	LTR	4,000	4	16,000	16,000
4.8.6	Upah							
4.8.6.1	Bekisting, buat-pasang bongkar		UB1010	M2	4,000	287	1,148,000	1,148,000
4.8.6.2	Besi beton ter-pasang		UB1012	Kg	70	11,484	803,880	803,880
4.8.6.3	Cor beton dng Conc. pump		UB1064	M3	4,000	57	228,000	228,000
4.9	Balok crane bl		PB3190	M3				
4.9.1	Biaya penyusutan alat						269,882,190	
4.9.1.1			AL1003	Hari	7,700	4,354	33,525,800	33,525,800
4.9.1.2			AL1004	Hari	6,300	1,741	10,868,300	10,868,300
4.9.1.3			AL1005	Hari	4,550	1,741	7,921,550	7,921,550
4.9.1.4			AL1007	Hari	10,500	1,741	18,280,500	18,280,500
4.9.1.5								
4.9.1.6			AL1010	Hari	13,300	326	4,335,800	4,335,800
4.9.2	Repair&overhaul		AL2010	Hari	115,500	435	50,242,500	50,242,500
4.9.2.1			RO1003	Hari	3,500	4,354	15,238,000	15,238,000

4.9.2.3	Bar cutter 7,5 HP	RO1005	Hari	2,100	1,741	3,656,100		3,656,100
4.9.2.4	Genset 40 KVA	RO1007	Hari	4,200	1,741	7,312,200		7,312,200
4.9.2.5	Air compresor							
	175 CFM	RO1010	Hari	5,600	326	1,825,600		1,825,600
4.9.3	Biaya sewa alat							
4.9.3.1	Concrete pump							
	15 M3/Jam	SA1004	Hari	115,000	217	24,955,000		24,955,000
4.9.4	Bahan							
4.9.4.1	Beton R.Mix							
	K300-12	BF2007	M3	125,000	311	38,875,000	38,875,000	
4.9.4.2	Besi beton	BH2010	Kg	875	40,616	35,539,000	35,539,000	
4.9.4.3	Paku campur	BH3055	Kg	1,600	155	248,000	248,000	
4.9.4.4	Kawat beton	BH3060	Kg	1,900	466	885,400	885,400	
4.9.4.5	Kayu borneo, balok	BK2015	M3	300,000	18	5,400,000	5,400,000	
4.9.4.6	Multiplex 12 mm	BK4011	LEBR	29,000	87	2,523,000	2,523,000	
4.9.4.7	Oil bekisting	BK4035	M2	100	497	49,700	49,700	
4.9.5	Biaya operasi alat							
4.9.5.1	M.premium	MO1005	LTR	700	933	653,100	653,100	
4.9.5.2	M.solar	MO1007	LTR	400	1,866	746,400	746,400	
4.9.5.3	M.oilie mesin	MO1013	LTR	4,000	15	60,000	60,000	
4.9.6	Upah							
4.9.6.1	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	497	1,988,000	1,988,000	
4.9.6.2	Besi beton ter-pasang	UB1012	Kg	70	47,272	3,308,040	3,308,040	
4.9.6.3	Cor beton dng Conc. pump	UB1064	M3	4,000	311	1,244,000	1,244,000	
4.10	Trench pipa ut	PB3181	M3					
4.10.1	Biaya penyusutan alat							
4.10.1.1	Nald vibrator D2"	AL1003	Hari	7,700	2,982	22,961,400		22,961,400
4.10.1.2	Bar bander 3/4"-1,5"	AL1004	Hari	6,300	1,043	6,570,900		6,570,900
4.10.1.3	Bar cutter 7,5 HP	AL1005	Hari	4,550	1,043	4,745,650		4,745,650
						319,112,075		

4.10.1.0	Air compresor	AL1010	Hari	13,300	2,534	33,702,200		33,702,200
4.10.1.6	175 CFM	AL2010	Hari	115,500	745	86,047,500		86,047,500
4.10.2	Repair&overhaul							
4.10.2.1	Nald vibrator D2"	RO1003	Hari	3,500	2,982	10,437,000		10,437,000
4.10.2.2	Bar bander							
	3/4"-1,5"	RO1004	LTR	400	149	59,600		59,600
4.10.2.3	Bar cutter 7,5 HP	RO1005	Hari	2,100	1,043	2,190,300		2,190,300
4.10.2.4	Genset 40 KVA	RO1007	Hari	4,200	1,043	4,380,600		4,380,600
4.10.2.5	Air compresor							
	175 CFM	RO1010	Hari	5,600	2,534	14,190,400		14,190,400
4.10.3	Biaya sewa alat							
4.10.3.1	Concrete pump							
	15 M3/Jam	SA1004	Hari	115,000	149	17,135,000		17,135,000
4.10.4	Bahan							
4.10.4.1	Beton R.Mix							
	K300-12	BF2007	M3	125,000	213	26,625,000		26,625,000
4.10.4.2	Besi beton	BH2010	Kg	875	23,217	20,314,875		20,314,875
4.10.4.3	Paku campur	BH3055	Kg	1,600	1,427	2,283,200		2,283,200
4.10.4.4	Kawat beton	BH3060	Kg	1,900	298	566,200		566,200
4.10.4.5	Kayu borneo,							
	balok	BK2015	M3	300,000	49	14,700,000		14,700,000
4.10.4.6	Multiplex 12 mm	BK4011	LBR	29,000	575	16,675,000		16,675,000
4.10.4.7	Oil bekisting	BK4035	M2	100	4,792	479,200		479,200
4.10.5	Biaya operasi							
	alat							
4.10.5.1	M.premium	MO1005	LTR	700	639	447,300		447,300
4.10.5.2	M.solar	MO1007	LTR	400	3,791	1,516,400		1,516,400
4.10.5.3	M.olie mesin	MO1013	LTR	4,000	25	100,000		100,000
4.10.6	Upah							
4.10.6.1	Bekisting, buat-							
	pasang bongkar	UB1010	M2	4,000	4,792	19,168,000		19,168,000
4.10.6.2	Besi beton ter-							
	pasang	UB1012	Kg	70	28,755	2,012,850		2,012,850
4.10.6.3	Cor beton dng							
	Conc. pump	UB1064	M3	4,000	213	852,000		852,000
4. 11	Trench cover út	PB3192	M3			61,679,425		61,679,425

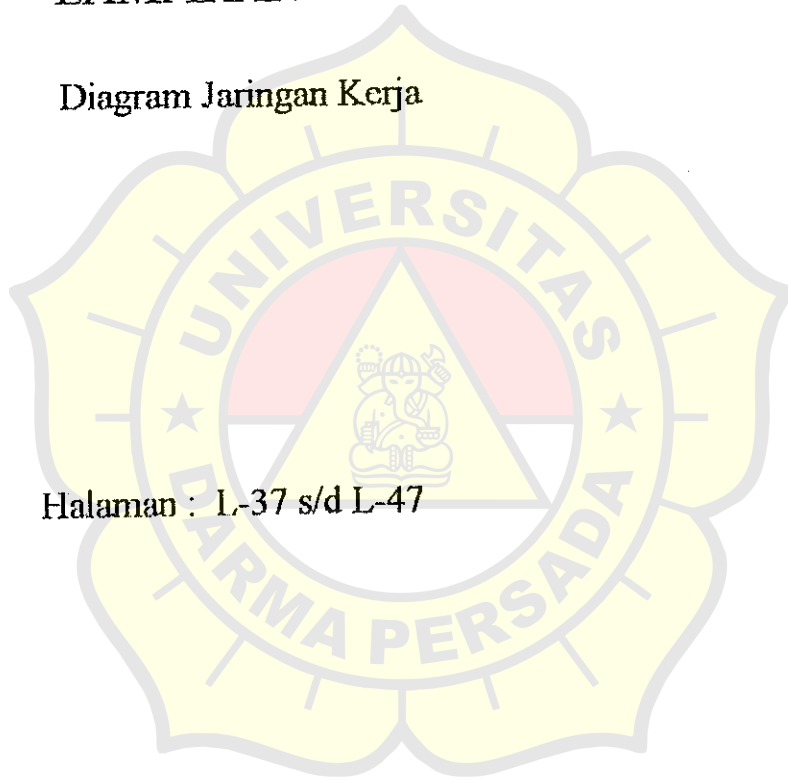
		KJ3000 /	M ²	4,000	20,214	80,856,000	80,856,000	80,856,000
5.5	Pancang sheet pile	KJ3008	M ²	15,000	20,214	303,210,000	303,210,000	303,210,000
5.6	Pembuatan sistem drainage	PB2008	BH			728,540		
5.6.1	Bahan Batu pecah 1/2 tangan	BE1020	M3	32,000	1	32,000		32,000
5.6.2	Pipa galvanis D8	BH3011	M	54,170	12	650,040		650,040
5.6.3	Kawat baja	BH3056	M2	7,500	3	22,500		22,500
5.6.4	Iluk lapis 2x1m x 4cm	BN6027	ikal	6,000	2	12,000		12,000
5.6.5	Filter cloth	BT7039	M2	5,000	2	10,000		10,000
5.6.6	Urugan batu pecah	UB1154	M3	2,000	1	2,000		2,000
5.7	Pengecatan Cat epoxy	KC1003	M2	25,000	1,466	36,650,000		36,650,000
5.8	Potong s.pile, bawah air	KS1001	BH	125,000	60	7,500,000		7,500,000
5.9	Tie rod D.60 mm L 12m	KS1003	BH	2,500,000	17	42,500,000		42,500,000
5.10	Ground anchor prestressed	KS1004	BH	4,500,000	147	661,500,000		661,500,000
5.11	Walling beam lengkap	KS1005	Kg	3,200	21,500	68,800,000		68,800,000
5.12	Temporary anchor	KS1006	BH	4,598	15	68,970		68,970
VI	Utilitas							
6.1	Fender 450hx1500L	KS3001	BH	3,500,000	4	14,000,000		14,000,000
6.2	Bolard 20 ton	KS2001	BH	3,500,000	20	70,000,000		70,000,000
6.3	Pasang winch	KS2002	BH	12,000,000	3	36,000,000		36,000,000
6.4	Pintu ponton baja	KS2003	BH	70,000,000	1	70,000,000		70,000,000
6.5	Dewatering	KP1001	LS	47,000,000	1	47,000,000		47,000,000
VII	Bangunan sipil							
	untuk M / E							
7.1	R. pompa							
7.1.1	Pintu besi 2.2x1.5m	KS5001	Unit	6,600,000	1	6,600,000		6,600,000
7.1.2	Ventilasi besi 2.1x0.5m	KS5002	Unit	1,400,000	1	1,400,000		1,400,000

7.1.5.18		Oli bekisting	BK4035	M2	100	30	3,000		3,000	
7.1.5.19	Biaya operasi alat		MO1005	LTR	700	6	4,200		4,200	
7.1.5.20			MO1007	LTR	400	38	15,200		15,200	
7.1.5.21			MO1013	LTR	4,000	1	4,000		4,000	
7.1.5.22	Upah	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	30	120,000		120,000	
7.1.5.23		Besi beton terpasang	UB1012	Kg	70	645	45,150		45,150	
7.1.5.25		Cor beton ding R. mix	UB1066	M3	5,000	4	20,000		20,000	
7.1.6	Plat L.T. BT. T=20cm		PB3213	M3				7,694,025		
7.1.6.1	Biaya penyusunan alat	Nakd vibrator D2"	AL1003	Hari	7,700	210	1,617,000		1,617,000	
7.1.6.2		Bar bander 3/4"-1,5"	AL1004	Hari	6,300	48	308,700		308,700	
7.1.6.3		Bar cutter 7,5 HP	AL1005	Hari	4,550	48	222,950		222,950	
7.1.6.4		Genset 40 KVA	AL1007	Hari	10,500	48	514,500		514,500	
7.1.6.5		Air compresor 175 CFM	AL1010	Hari	13,300	28	372,400		372,400	
7.1.6.6	Repair&overhaul	Nakd vibrator D2"	RO1003	Hari	3,500	210	735,000		735,000	
7.1.6.7		Bar bander 3/4"-1,5"	RO1004	LTR	400	7	2,800		2,800	
7.1.6.8		Bar cutter 7,5 HP	RO1005	Hari	2,100	48	102,900		102,900	
7.1.6.9		Genset 40 KVA	RO1007	Hari	4,200	48	205,800		205,800	
7.1.6.10		Air compresor 175 CFM	RO1010	Hari	5,600	28	156,800		156,800	
7.1.6.12	Bahan	Beton R.Mix K225-12	BF2003	M3	122,000	10	1,220,000		1,220,000	
7.1.6.13		Besi beton	BH2010	Kg	875	1,365	1,194,375		1,194,375	
7.1.6.14		Paku campur	BH3055	Kg	1,600	15	24,000		24,000	
7.1.6.15		Kawat beton	BH3060	Kg	1,900	13	24,700		24,700	
7.1.6.16		Kayu borneo, balok	BK2015	M3	300,000	1	300,000		300,000	
7.1.6.17		Multiplex 12 mm	BK4011	LBR	29,000	9	261,000		261,000	
7.1.6.18		Oli bekisting	BK4035	M2	100	50	5,000		5,000	
7.1.6.19	Biaya operasi									

LAMPIRAN II

Diagram Jaringan Kerja

Halaman : L-37 s/d L-47



7.1.8.23		pasang bongkar	UB1010	M2	4,000	27	108,000		108,000
7.1.8.24		Besi beton terpasang	UB1012	Kg	70	600	42,000		42,000
7.1.8.25		Cor beton dng R. mix	UB1066	M3	5,000	4	20,000		20,000
7.1.9		Balok atap BT. 20/30	PB3216	M3				1,210,715	
7.1.9.1		Biaya penyusutan alat	AL1003	Hari	7,700	14	107,800		107,800
7.1.9.2		Nald vibrator D2" Bar bander 3/4"-1,5"	AL1004	Hari	6,300	8	50,400		50,400
7.1.9.3		Bar cutter 7,5 HP	AL1005	Hari	4,550	8	36,400		36,400
7.1.9.4		Genset 40 KVA	AL1007	Hari	10,500	8	84,000		84,000
7.1.9.5		Air compresor 175 CFM	AL1010	Hari	13,300	4	53,200		53,200
7.1.9.6		Repair&overhaul Nald vibrator D2"	RO1003	Hari	3,500	14	49,000		49,000
7.1.9.7		Bar bander 3/4"-1,5"	RO1004	LTR	400	1	400		400
7.1.9.8		Bar cutter 7,5 HP	RO1005	Hari	2,100	8	16,800		16,800
7.1.9.9		Genset 40 KVA	RO1007	Hari	4,200	8	33,600		33,600
7.1.9.10		Air compresor 175 CFM	RO1010	Hari	5,600	4	22,400		22,400
7.1.9.11		Bahan Beton R.Mix K225-12	BF2003	M3	122,000	1	122,000		122,000
7.1.9.12		Besi beton	BH2010	Kg	875	233	203,875		203,875
7.1.9.13		Paku campur	BH3055	Kg	1,600	3	4,800		4,800
7.1.9.14		Kawat beton	BH3060	Kg	1,900	2	3,800		3,800
7.1.9.15		Kayu borneo, balok	BK2015	M3	300,000	1	300,000		300,000
7.1.9.16		Multiplex 12 mm	BK4011	LBR	29,000	2	58,000		58,000
7.1.9.17		Oil bekisting	BK4035	M2	100	8	800		800
7.1.9.18		Biaya operasi alat	MO1005	LTR	700	3	2,100		2,100
7.1.9.19		M.solar	MO1007	LTR	400	12	4,800		4,800
7.1.9.20		M.oile mesin	MO1013	LTR	4,000	1	4,000		4,000
7.1.9.21		Bekisting, bual-							
7.1.9.22		pasang bongkar	UB1010	M2	4,000	8	32,000		32,000

7.1.9.24	pasang Cor beton dng R. mix	UB1012 UB1066 PB3217	Kg M3 M3	70 5,000 1	222 1	15,540 5,000	15,540 5,000	15,540 5,000
7.1.10	Dinding 1/2 bata						1,210,715	
7.1.10.1	Biaya penyusutan alat	Nald vibrator D2* Bar bander 3/4"-1,5" Bar cutter 7,5 HP Genset 40 KVA Air compresor 175 CFM	Hari Hari Hari Hari Hari Hari	7,700 6,300 4,550 10,500 13,300 3,500	14 8 8 8 4 14	107,800 50,400 36,400 84,000 53,200 48,000	107,800 50,400 36,400 84,000 53,200 48,000	107,800 50,400 36,400 84,000 53,200 48,000
7.1.10.2		Bar bander 3/4"-1,5"	Hari LTR	6,300 400	8 1	50,400 400	50,400 400	50,400 400
7.1.10.3		Bar cutter 7,5 HP Genset 40 KVA Air compresor 175 CFM	Hari Hari Hari Hari	4,550 10,500 13,300 3,500	8 8 4 14	36,400 84,000 53,200 48,000	36,400 84,000 53,200 48,000	36,400 84,000 53,200 48,000
7.1.10.4		Nald vibrator D2* Bar bander 3/4"-1,5"	Hari LTR LTR	3,500 400 2,100	14 1 8	48,000 400 16,800	48,000 400 16,800	48,000 400 16,800
7.1.10.5		Bar cutter 7,5 HP Genset 40 KVA Air compresor 175 CFM	Hari Hari Hari Hari	4,200 4,200 5,600	8 8 4	33,600 33,600 22,400	33,600 33,600 22,400	33,600 33,600 22,400
7.1.10.6	Repair&overhaul	Beton R.Mix K225-12	M3	122,000	1	122,000	122,000	122,000
7.1.10.7		Besi beton BH2010	Kg	875	233	203,875	203,875	203,875
7.1.10.8		Paku campur BH3055	Kg	1,600	3	4,800	4,800	4,800
7.1.10.9		Kawat beton BH3060	Kg	1,900	2	3,800	3,800	3,800
7.1.10.10		Kayu borneo, balok BK2015	M3	300,000	1	300,000	300,000	300,000
7.1.10.11	Bahan	Multiplex 12 mm BK4011	LBR	29,000	2	58,000	58,000	58,000
7.1.10.12		Oil bekisting BK4035	M2	100	8	800	800	800
7.1.10.13								
7.1.10.14								
7.1.10.15								
7.1.10.16								
7.1.10.17								
7.1.10.18	Biaya operasi alat	M.premium MO1005	LTR	700	3	2,100	2,100	2,100
7.1.10.19		M.solar MO1007	LTR	400	12	4,800	4,800	4,800
7.1.10.20		M.oilie mesin MO1013	LTR	4,000	1	4,000	4,000	4,000
7.1.10.21	Upah	Bekisting, buat-pasang bongkar						
7.1.10.22		Besi beton ter-pasang	M2	4,000	8	32,000	32,000	32,000
7.1.10.23								
		UB1012	Kg	70	222	15,540	15,540	15,540

7.1.11	Beton ruang bawah	R. mix	UB1066	M3	5,000	1	5,000		5,000
7.1.11.1	Biaya penyusunan alat		PB321B	M3				43,897,035	
7.1.11.2		Nald vibrator D2"	AL1003	Hari	7,700	539	4,150,300		4,150,300
7.1.11.3		Bar bander							
7.1.11.4		3/4"-1,5"	AL1004	Hari	6,300	431	2,715,300		2,715,300
7.1.11.5		Bar cutter 7,5 HP	AL1005	Hari	4,550	431	1,961,050		1,961,050
7.1.11.6		Genset 40 KVA	AL1007	Hari	10,500	431	4,525,500		4,525,500
7.1.11.7		Air compresor							
7.1.11.8		175 CFM	AL1010	Hari	13,300	202	2,886,600		2,886,600
7.1.11.9	Repair&overhaul	Nald vibrator D2"	RO1003	Hari	3,500	539	1,886,500		1,886,500
7.1.11.10		Bar bander							
7.1.11.11		3/4"-1,5"	RO1004	LTR	400	62	24,800		24,800
7.1.11.12		Bar cutter 7,5 HP	RO1005	Hari	2,100	431	905,100		905,100
7.1.11.13		Genset 40 KVA	RO1007	Hari	4,200	431	1,810,200		1,810,200
7.1.11.14		Air compresor							
7.1.11.15		175 CFM	RO1010	Hari	5,600	202	1,131,200		1,131,200
7.1.11.16		Beton R.Mix							
7.1.11.17		K225-12	BF2003	M3	122,000	39	4,758,000		4,758,000
7.1.11.18		Besi beton	BH2010	Kg	875	13,259	11,601,625		11,601,625
7.1.11.19		Paku campur	BH3055	Kg	1,600	116	185,600		185,600
7.1.11.20		Kawat beton	BH3060	Kg	1,900	127	241,300		241,300
7.1.11.21		Kayu borneo,							
7.1.11.22		balok	BK2015	M3	300,000	8	2,400,000		2,400,000
7.1.11.23		Oil bekisting	BK4035	M2	100	385	38,500		38,500
7.1.11.24	Biaya operasi alat	M.premium	MO1005	LTR	700	115	80,500		80,500
7.1.11.25		M.solar	MO1007	LTR	400	600	240,000		240,000
7.1.11.26		M.olie mesin	MO1013	LTR	4,000	4	16,000		16,000
7.1.11.27	Upah	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	365	1,460,000		1,460,000
7.1.11.28		Besi beton ter-pasang	UB1012	Kg	70	12,628	883,960		883,960
7.1.11.29		Cor beton dng R. mix	UB1066	M3	5,000	39	195,000		195,000
7.2	R. kompresor								

7.2.4.23	besi beton ter- pasang	UB1012	Kg	70	860	60,200	60,200	60,200
7.2.4.24	Cor beton dng R. mix	UB1066 PB3214	M3 M3	5,000	5	25,000	25,000	25,000
7.2.5	Kolom BT. 25/25						4,972,360	
7.2.5.1	Biaya penyusut- an alat	AL1003	Hari	7,700	25	192,500	192,500	192,500
7.2.5.2	Bar bander	AL1004	Hari	6,300	49	308,700	308,700	308,700
7.2.5.3	Bar cutter 7,5 HP	AL1005	Hari	4,550	49	222,950	222,950	222,950
7.2.5.4	Genset 40 KVA	AL1007	Hari	10,500	49	514,500	514,500	514,500
7.2.5.5	Air compresor	AL1010	Hari	13,300	29	385,700	385,700	385,700
7.2.5.6	Repair&overhaul	RO1003	Hari	3,500	25	87,500	87,500	87,500
7.2.5.7	Bar bander	RO1004	LTR	400	7	2,800	2,800	2,800
7.2.5.8	3/4"-1,5"	RO1005	Hari	2,100	49	102,900	102,900	102,900
7.2.5.9	Genset 40 KVA	RO1007	Hari	4,200	49	205,800	205,800	205,800
7.2.5.10	Air compresor	RO1010	Hari	5,600	29	162,400	162,400	162,400
7.2.5.11	Bahan	BF2003	M3	122,000	4	488,000	488,000	488,000
7.2.5.12	Besi beton	BH2010	Kg	875	1,452	1,270,500	1,270,500	1,270,500
7.2.5.13	Paku campur	BH3055	Kg	1,600	17	27,200	27,200	27,200
7.2.5.14	Kawat beton	BH3060	Kg	1,900	14	26,600	26,600	26,600
7.2.5.15	Kayu borneo, balok	BK2015	M3	300,000	1	300,000	300,000	300,000
7.2.5.16	Multiplex 12 mm	BK4011	LBR	29,000	10	290,000	290,000	290,000
7.2.5.17	Oli bekisting	BK4035	M2	100	56	5,600	5,600	5,600
7.2.5.18	Biaya operasi alat	MO1005	LTR	700	5	3,500	3,500	3,500
7.2.5.19	M.solar	MO1007	LTR	400	76	30,400	30,400	30,400
7.2.5.20	M.olie mesin	MO1013	LTR	4,000	1	4,000	4,000	4,000
7.2.5.21	Bekisting, bual- pasang bongkar	UB1010	M2	4,000	56	224,000	224,000	224,000
7.2.5.22	Besi beton ter-							

	R. mix	UB1066	M3	5,000	4	20,000	20,000
7.2.6	Plat atap BT. T=15cm	PB3215	M3			15,445,075	
7.2.6.1	Biaya penyusutan alat						
7.2.6.2	Nald vibrator D2° Bar bander	AL1003	Hari	7,700	378	2,910,600	2,910,600
	3/4"-1,5"	AL1004	Hari	6,300	101	636,300	636,300
7.2.6.2.1	Bar cutter 7,5 HP	AL1005	Hari	4,550	101	458,550	458,550
7.2.6.3	Genset 40 KVA	AL1007	Hari	10,500	101	1,060,500	1,060,500
7.2.6.4	Air compresor						
	175 CFM	AL1010	Hari	13,300	63	837,900	837,900
7.2.6.5	Repair&overhaul	RO1003	Hari	3,500	378	1,323,000	1,323,000
7.2.6.6	Bar bander						
	3/4"-1,5"	RO1004	LTR	400	14	5,600	5,600
7.2.6.7	Bar cutter 7,5 HP	RO1005	Hari	2,100	101	212,100	212,100
7.2.6.8	Genset 40 KVA	RO1007	Hari	4,200	101	424,200	424,200
7.2.6.9	Air compresor						
7.2.6.10	175 CFM	RO1010	Hari	5,600	63	352,800	352,800
7.2.6.11	Bahan						
	Beton R.Mix						
	K225-12	BF2003	M3	122,000	18	2,196,000	2,196,000
7.2.6.12	Besi beton	BH2010	Kg	875	2,835	2,480,625	2,480,625
7.2.6.13	Paku campur	BH3055	Kg	1,600	36	57,600	57,600
7.2.6.14	Kawat beton	BH3060	Kg	1,900	27	51,300	51,300
7.2.6.15	Kayu borneo, balok	BK2015	M3	300,000	3	900,000	900,000
7.2.6.16	Multiplex 12 mm	BK4011	LBR	29,000	22	638,000	638,000
7.2.6.17	Oil bekisting	BK4035	M2	100	121	12,100	12,100
7.2.6.18	Biaya operasi alat						
	M.premium	MO1005	LTR	700	81	56,700	56,700
7.2.6.19	M.solar	MO1007	LTR	400	158	63,200	63,200
7.2.6.20	M.olie mesin	MO1013	LTR	4,000	1	4,000	4,000
7.2.6.21	Upah						
	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	121	484,000	484,000
7.2.6.22	Besi beton ter-pasang						
	Besi beton ter-pasang	UB1012	Kg	70	2,700	189,000	189,000
7.2.6.23	Cor beton dng						

	R. mix	UB1066	M3	5,000	18	90,000	90,000
7.2.7	Dinding 1/2 bata						
7.2.7.1	Bahan	PB3217	M3				4,448,800
7.2.7.2		BP1002	M3	30,000	18		
							796,800
7.2.7.3		BP2005	BH	80	9,960	796,800	
7.2.7.4		BQ2001	ZAK	7,000	166	1,162,000	
7.2.7.5	Upah	KC1002	M2	4,500	332	1,494,000	
7.2.7.6		UB1006	M2	2,000	166	332,000	
7.2.7.7		UB1134	M2	2,000	332	664,000	
7.2.7.8	Pelat LT BT T=30cm	PB3219	M3				24,468,725
7.2.8.1	Biaya penyusutan alat	AL1003	Hari	7,700	630	4,851,000	4,851,000
7.2.8.2							
7.2.8.3		AL1004	Hari	6,300	210	1,323,000	1,323,000
7.2.8.4		AL1005	Hari	4,550	210	955,500	955,500
7.2.8.5		AL1007	Hari	10,500	210	2,205,000	2,205,000
7.2.8.6	Repair&overhaul	AL1010	Hari	13,300	21	279,300	279,300
7.2.8.7		RO1003	Hari	3,500	630	2,205,000	2,205,000
7.2.8.8		RO1004	LTR	400	30	12,000	12,000
7.2.8.9		RO1005	Hari	2,100	210	441,000	441,000
7.2.8.10		RO1007	Hari	4,200	210	882,000	882,000
7.2.8.11	Bahan	RO1010	Hari	5,600	21	117,600	117,600
7.2.8.12		BF2003	M3	122,000	30	3,660,000	3,660,000
7.2.8.13		BH2010	Kg	875	6,867	6,008,625	6,008,625
7.2.8.14		BH3055	Kg	1,600	9	14,400	14,400
7.2.8.15		BH3060	Kg	1,900	66	125,400	125,400
7.2.8.16		BK2015	M3	300,000	1	300,000	300,000
7.2.8.17		BK4011	LBR	29,000	6	174,000	174,000
7.2.8.18	Biaya operasi alat	BK4035	M2	100	30	3,000	3,000
		MO1005	LTR	700	135	94,500	94,500

								51,000	51,000
7.2.8.20	M.olie mesin	MO1013	LTR	4,000	2	8,000		8,000	
7.2.8.21	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	30	120,000		120,000	
7.2.8.22	Besi beton terpasang	UB1012	Kg	70	6,540	457,800		457,800	
7.2.8.23	Cor beton dng R. mix	UB1066 PB3220	M3 M3	5,000	30	150,000	930,610	150,000	
7.2.9	Balok atap 15/20								
7.2.9.1	Biaya penyusutan alat	AL1003	Hari	7,700	14	107,800		107,800	
7.2.9.2	Nald vibrator D2" Bar bander								
	3/4"-1,5"	AL1004	Hari	6,300	4	25,200		25,200	
7.2.9.3	Bar cutter 7,5 HP	AL1005	Hari	4,550	4	18,200		18,200	
7.2.9.4	Genset 40 KVA	AL1007	Hari	10,500	4	42,000		42,000	
7.2.9.5	Air compresor								
	175 CFM	AL1010	Hari	13,300	3	39,900		39,900	
7.2.9.6	Repair&overhaul	RO1003	Hari	3,500	14	49,000		49,000	
7.2.9.7	Bar bander								
	3/4"-1,5"	RO1004	LTR	400	1	400		400	
7.2.9.8	Bar cutter 7,5 HP	RO1005	Hari	2,100	4	8,400		8,400	
7.2.9.9	Genset 40 KVA	RO1007	Hari	4,200	4	16,800		16,800	
7.2.9.10	Air compresor								
	175 CFM	RO1010	Hari	5,600	3	16,800		16,800	
7.2.9.11	Bahan								
	Beton R.Mix								
	K225-12	BF2003	M3	122,000	1	122,000		122,000	
7.2.9.12	Besi beton	BH2010	Kg	875	118	103,250		103,250	
7.2.9.13	Paku campur	BH3055	Kg	1,600	2	3,200		3,200	
7.2.9.14	Kawat beton	BH3060	Kg	1,800	1	1,800		1,800	
7.2.9.15	Kayu borneo, balok	BK2015	M3	300,000	1	300,000		300,000	
7.2.9.16	Multiplex 12 mm	BK4011	LBR	29,000	1	29,000		29,000	
7.2.9.17	Oli bekisting	BK4035	M2	100	6	600		600	
7.2.9.18	Biaya operasi alat								
	M.premium	MO1005	LTR	700	3	2,100		2,100	
7.2.9.19	M.solar	MO1007	LTR	400	7	2,800		2,800	
7.2.9.20	M.olie mesin	MO1013	LTR	4,000	1	4,000		4,000	

7.2.9.4.1	Upah	Belasting, buat-	UB1010	M2	4,000	6	24,000	24,000
7.2.9.22		pasang bongkar	UB1010	M2	4,000	6	24,000	24,000
		Besi beton ter-						
		pasang	UB1012	Kg	70	118	8,260	8,260
7.2.9.23		Cor beton dng						
		R. mix	UB1066	M3	5,000	1	5,000	5,000
7.3	R. oksigen							
7.3.1	Pintu besi 2,2x1.5m		KS5001	Unit	6,600,000	4	26,400,000	26,400,000
7.3.2	Ventilasi besi 2.1x0.5m		KS5002	Unit	1,400,000	4	5,600,000	5,600,000
7.3.3	Pondasi batu kali		PB3211	M3			5,891,000	
7.3.3.1	Bahan	Batu kali	BE1012	M3	30,000	85	2,550,000	2,550,000
7.3.3.2		Pasir pasang	BP1002	M3	30,000	36	1,080,000	1,080,000
7.3.3.3		Semen 3 roda	BQ2001	ZAK	7,000	246	1,722,000	1,722,000
7.3.3.4	Upah	batu kali	UB1008	M3	7,000	77	539,000	539,000
7.3.4	Sloof BT.25/50		PB3212	M3			4,913,840	
7.3.4.1	Biaya penyusut-							
	an alat	Nald vibrator D2"	AL1003	Hari	7,700	42	323,400	323,400
7.3.4.2		Bar bander						
		3/4"-1,5"	AL1004	Hari	6,300	38	239,400	239,400
7.3.4.3		Bar cutter 7.5 HP	AL1005	Hari	4,550	38	172,900	172,900
7.3.4.4		Genset 40 KVA	AL1007	Hari	10,500	38	399,000	399,000
7.3.4.5		Air compresor						
		175 CFM	AL1010	Hari	13,300	25	332,500	332,500
7.3.4.6	Repair&overhaul	Nald vibrator D2"	RO1003	Hari	3,500	42	147,000	147,000
7.3.4.7		Bar bander						
		3/4"-1,5"	RO1004	LTR	400	5	2,000	2,000
7.3.4.8		Bar cutter 7.5 HP	RO1005	Hari	2,100	38	79,800	79,800
7.3.4.9		Genset 40 KVA	RO1007	Hari	4,200	38	159,600	159,600
7.3.4.10		Air compresor						
		175 CFM	RO1010	Hari	5,600	25	140,000	140,000
7.3.4.11		Beton R.Mix						
7.3.4.12	Bahan	K225-12	BF2003	M3	122,000	6	732,000	732,000
7.3.4.13		Besi beton	BH2010	Kg	875	1,084	948,500	948,500
7.3.4.14		Paku campur	BH3055	Kg	1,600	15	24,000	24,000
7.3.4.15		Kawat beton	BH3060	Kg	1,900	10	19,000	19,000
7.3.4.16		Kayu borneo,						
		balok	BK2015	M3	300,000	2	600,000	600,000

7.3.4.17		Multiplex 12 mm	BK4011	LBR	29,000	9	261,000	261,000	
7.3.4.18		Oil bekisting	BK4035	M2	100	48	4,800	4,800	
7.3.4.19	Biaya operasi alat								
7.3.4.20		M.premium	MO1005	LTR	700	9	6,300	6,300	
7.3.4.21		M.solar	MO1007	LTR	400	61	24,400	24,400	
7.3.4.22	Upah	M.olie mesin	MO1013	LTR	4,000	1	4,000	4,000	
7.3.4.23		Bekisting, buat-pasang bongkar	UB1010	M2	4,000	48	192,000	192,000	
7.3.4.24		Besi beton terpasang	UB1012	Kg	70	1,032	72,240	72,240	
7.3.5	Kolom BT. 25/25	Cor beton ding	UB1066	M3	5,000	6	30,000	30,000	
7.3.5.1	Biaya penyusutan alat	R. mix	PB3214	M3			8,489,475		
7.3.5.2		Nald vibrator D2"	AL1003	Hari	7,700	42	323,400	323,400	
7.3.5.3		Bar bander	AL1004	Hari	6,300	84	529,200	529,200	
7.3.5.4		3/4"-1,5"	AL1005	Hari	4,550	84	382,200	382,200	
7.3.5.5		Bar cutter 7.5 HP	AL1007	Hari	10,500	84	882,000	882,000	
7.3.5.6	Repair&overhaul	Genset 40 KVA	AL1010	Hari	13,300	50	665,000	665,000	
7.3.5.7		Air compresor	RO1003	Hari	3,500	42	147,000	147,000	
7.3.5.8		Bar bander	RO1004	LTR	400	12	4,800	4,800	
7.3.5.9		3/4"-1,5"	RO1005	Hari	2,100	84	176,400	176,400	
7.3.5.10		Bar cutter 7.5 HP	RO1007	Hari	4,200	84	352,800	352,800	
7.3.5.11	Bahan	Genset 40 KVA	RO1010	Hari	5,600	50	280,000	280,000	
7.3.5.12		Air compresor	BF2003	M3	122,000	6	732,000	732,000	
7.3.5.13		175 CFM	BH2010	Kg	875	2,488	2,177,875	2,177,875	
7.3.5.14		Beton R.Mix	BH3055	Kg	1,600	29	46,400	46,400	
7.3.5.15		K225-12	BH3060	Kg	1,900	24	45,600	45,600	
7.3.5.16		Besi beton	BK2015	M3	300,000	2	600,000	600,000	
7.3.5.17		Paku campur	BK4011	LBR	29,000	17	493,000	493,000	
		Kawal beton	BK4035	M2	100	96	9,600	9,600	
		Kayu borneo, balok							
		Multiplex 12 mm							
		Oli bekisting							

			UNIT	QTY	UNIT PRICE	TOTAL		6,300
7.3.5.19	M.solar	MO1007	LTR	400	130	52,000		52,000
7.3.5.20	M.olie mesin	MO1013	LTR	4,000	1	4,000		4,000
7.3.5.21	Bekisting, buat- pasang bongkar	UB1010	M2	4,000	96	384,000		384,000
7.3.5.22	Besi beton ter- pasang	UB1012	Kg	70	2,370	165,900		165,900
7.3.5.23	Cor beton dng R. mix	UB1066	M3	5,000	6	30,000		30,000
7.3.6	Plat atap BT. T=15cm	PB3215	M3			14,315,800		2,748,900
7.3.6.1	Biaya penyusut- an alat	AL1003	Hari	7,700	357	2,748,900		2,748,900
7.3.6.2	Bar bander	AL1004	Hari	6,300	95	598,500		598,500
7.3.6.2.1	Bar cutter 7.5 HP	AL1005	Hari	4,550	95	432,250		432,250
7.3.6.3	Genset 40 KVA	AL1007	Hari	10,500	95	997,500		997,500
7.3.6.4	Air compresor	AL1010	Hari	13,300	60	798,000		798,000
7.3.6.5	Repair&overhaul	RO1003	Hari	3,500	357	1,248,500		1,248,500
7.3.6.6	Bar bander	RO1004	LTR	400	17	6,800		6,800
7.3.6.7	Bar cutter 7.5 HP	RO1005	Hari	2,100	95	199,500		199,500
7.3.6.8	Genset 40 KVA	RO1007	Hari	4,200	95	399,000		399,000
7.3.6.9	Air compresor	RO1010	Hari	5,600	60	336,000		336,000
7.3.6.10	Beton R.Mix	BF2003	M3	122,000	17	2,074,000		2,074,000
7.3.6.11	Bahan	BH2010	Kg	875	2,678	2,343,250		2,343,250
7.3.6.12		BH3055	Kg	1,600	34	54,400		54,400
7.3.6.13		BH3060	Kg	1,900	26	49,400		49,400
7.3.6.14		BK2015	M3	300,000	2	600,000		600,000
7.3.6.15		BK4011	LBR	29,000	20	580,000		580,000
7.3.6.16		BK4035	M2	100	114	11,400		11,400
7.3.6.17		MO1005	LTR	700	77	53,900		53,900
7.3.6.18	Biaya operasi alat							

7.3.6.20	M.oile mesin	MO1013	LTR	4,000	1	4,000					4,000				4,000
7.3.6.21	Upah Bekisting, bual- pasang bongkar	UB1010	M2	4,000	114	456,000					456,000				
7.3.6.22	Besi beton ter- pasang	UB1012	Kg	70	2,550	178,500					178,500				
7.3.6.23	Cor beton dng R. mix	UB1066 PB3217	M3 M3	5,000 30,000	17 20	85,000					85,000			5,145,600	
7.3.7	Dinding 1/2 bata	BP1002	M3												
7.3.7.1	Bahan	BP2006	BH	80	11,520	921,600									921,600
7.3.7.2	Bata merah	BQ2001	ZAK	7,000	192	1,344,000					1,344,000				1,344,000
7.3.7.3	11x23x4 cm	KC1002	M2	4,500	384	1,728,000					1,728,000				1,728,000
7.3.7.4	Semen 3 roda	UB1006	M2	2,000	192	384,000					384,000				384,000
7.3.7.5	Cat exterior ICI	UB1134	M2	2,000	384	768,000					768,000				768,000
7.3.7.6	Bata merah	PB3219	M3											25,273,610	
7.3.7.7	sedang Lt 1														
7.3.7.8	Plester & aci Lt.1														
7.3.8	Plat LT BT T=30cm														
7.3.8.1	Biaya penyusut- an alat	AL1003	Hari	7,700	651	5,012,700					5,012,700				5,012,700
7.3.8.2	Nald vibrator D2" Bar bander	AL1004	Hari	6,300	217	1,367,100					1,367,100				1,367,100
7.3.8.3	3/4"-1,5" Bar cutter 7,5 HP	AL1005	Hari	4,550	217	987,350					987,350				987,350
7.3.8.4	Genset 40 KVA	AL1007	Hari	10,500	217	2,278,500					2,278,500				2,278,500
7.3.8.5	Air compresor														
7.3.8.6	Repair&overhaul	AL1010	Hari	13,300	22	292,600					292,600				292,600
7.3.8.7	Nald vibrator D2" Bar bander	RO1003	Hari	3,500	651	2,278,500					2,278,500				2,278,500
7.3.8.8	3/4"-1,5" Bar cutter 7,5 HP	RO1004	LTR	400	31	12,400					12,400				12,400
7.3.8.9	Genset 40 KVA	RO1005	Hari	2,100	217	455,700					455,700				455,700
7.3.8.10	Air compresor	RO1007	Hari	4,200	217	911,400					911,400				911,400
7.3.8.11	Bahan	RO1010	Hari	5,600	22	123,200					123,200				123,200
7.3.8.12	Beton R.Mix	BF2003	M3	122,000	31	3,782,000					3,782,000				3,782,000
7.3.8.13	K225-12	BH2010	Kg	875	7,096	6,209,000					6,209,000				6,209,000
	Besi beton	BH3055	Kg	1,600	9	14,400					14,400				14,400
	Paku campur														

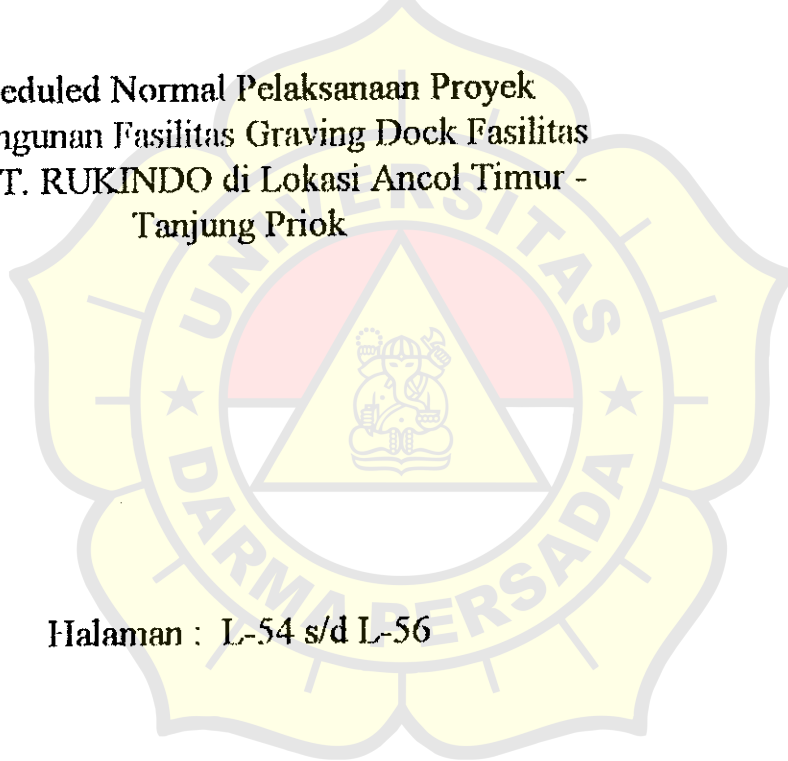
NO. URUT	INSTRUMEN	BMJUBU	Kg	1,900	68	128,200	128,200
7.3.8.15	Kayu borneo, balok	BK2015	M3	300,000	1	300,000	300,000
7.3.8.16	Multiplex 12 mm	BK4011	LBR	29,000	6	174,000	174,000
7.3.8.17	Oil bekisting	BK4035	M2	100	31	3,100	3,100
7.3.8.18	Biaya operasi alat	MO1005	LTR	700	140	98,000	98,000
7.3.8.19	M.solar	MO1007	LTR	400	211	84,400	84,400
7.3.8.20	M.olie mesin	MO1013	LTR	4,000	2	8,000	8,000
7.3.8.21	Bekisting, buat-pasang bongkar	UB1010	M2	4,000	31	124,000	124,000
7.3.8.22	Besi beton ter-pasang	UB1012	Kg	70	6,758	473,060	473,060
7.3.8.23	Cor beton dng R. mix	UB1066	M3	5,000	31	155,000	155,000
7.3.9	Balok atap 15/20	PB3220	M3			930,610	
7.3.9.1	Biaya penyusunan alat	AL1003	Hari	7,700	14	107,800	107,800
7.3.9.2	Bar bander 3/4"-1,5"	AL1004	Hari	6,300	4	25,200	25,200
7.3.9.3	Bar cutter 7,5 HP	AL1005	Hari	4,550	4	18,200	18,200
7.3.9.4	Genset 40 KVA	AL1007	Hari	10,500	4	42,000	42,000
7.3.9.5	Air compresor 175 CFM	AL1010	Hari	13,300	3	39,900	39,900
7.3.9.6	Repair&overhaul	RO1003	Hari	3,500	14	49,000	49,000
7.3.9.7	Bar bander 3/4"-1,5"	RO1004	LTR	400	1	400	400
7.3.9.8	Bar cutter 7,5 HP	RO1005	Hari	2,100	4	8,400	8,400
7.3.9.9	Genset 40 KVA	RO1007	Hari	4,200	4	16,800	16,800
7.3.9.10	Air compresor 175 CFM	RO1010	Hari	5,600	3	16,800	16,800
7.3.9.11	Bahan Beton R.Mix K225-12	BF2003	M3	122,000	1	122,000	122,000
7.3.9.12	Besi beton	BH2010	Kg	875	118	103,250	103,250
7.3.9.13	Paku campur	BH3055	Kg	1,600	2	3,200	3,200
7.3.9.14	Kawat beton	BH3060	Kg	1,900	1	1,900	1,900
7.3.9.15	Kayu borneo,						

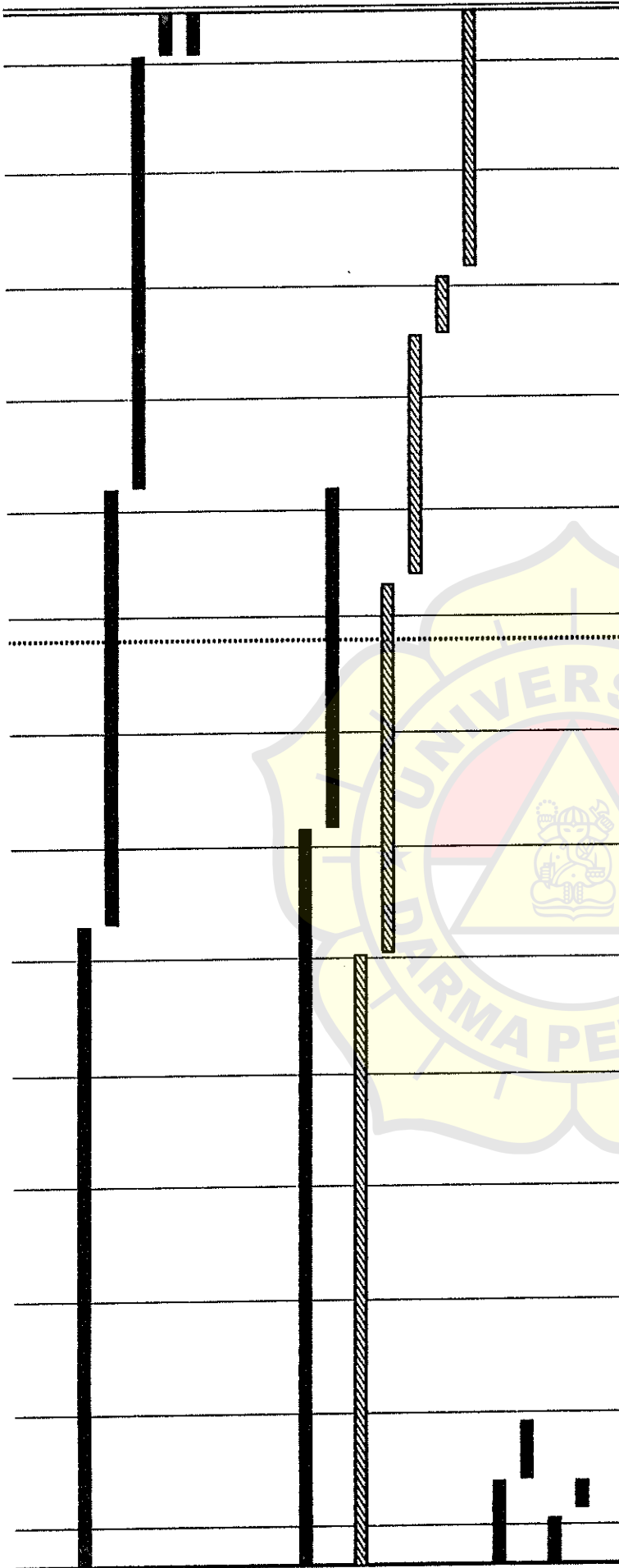
	Material	DN4010	M3	JUU,UUU	1	300,000	300,000
7.3.9.16	Multiplax 12 mm	BK4011	LBR	28,000	1	28,000	28,000
7.3.9.17	Oil bekisting	BK4035	M2	100	6	600	600
7.3.9.18	Biaya operasi alat	MO1005	LTR	700	3	2,100	2,100
7.3.9.19	M.solar	MO1007	LTR	400	7	2,800	2,800
7.3.9.20	M.olie mesin	MO1013	LTR	4,000	1	4,000	4,000
7.3.9.21	Upah Bekisting, buat-pasang bongkar	UB1010	M2	4,000	6	24,000	24,000
7.3.9.22	Besi beton ter-pasang	UB1012	Kg	70	118	8,260	8,260
7.3.9.23	Cor beton dng R. mix	UB1066	M3	5,000	1	5,000	5,000
VIII	Badan jalan						
8.1	Jalan kerja darat						
8.1.1	Pengadaan dan pemasangan geotextile	PP1016	M2			24,495,000	
8.1.1.1	Bahan Geotextile	BF4221	M2	4,500	4,899	22,045,500	22,045,500
8.1.1.2	Upah Pasang geotextile	UB2000	M2	500	4,899	2,449,500	2,449,500
8.1.2	Urugan tanah dari luar	KJ1007	M3	15,000	5,193	77,895,000	77,895,000
8.1.3	Urug sirtu	PB3207	M3			132,345,000	
8.1.3.1	Bahan Sub.base 60%	BP1006	M3	29,000	1,080	31,320,000	31,320,000
8.1.3.2	Biaya sewa alat Tandem roller	SA1015	Hari	105,000	945	99,225,000	
8.1.3.3	Upah urug sirtu	UB1160	M3	2,000	900	1,800,000	1,800,000
IX	Mekanikal / elektrikal						
9.1	Mekanikal					716,059,053	
9.1.1	Pem.kebakaran	PP1017	LS	36,523,653	1	36,523,653	36,523,653
9.1.2	Ins.gas oksigen	PP1018	LS	55,000,000	1	55,000,000	55,000,000
9.1.3	Ins.gas elpiji	PP1019	LS	60,000,000	1	60,000,000	60,000,000
9.1.4	Air bersih	PP1020	LS	50,000,000	1	50,000,000	50,000,000
9.1.5	Kompresor	PP1043	LS	500000000	1	500,000,000	500,000,000
9.1.6	Pompa pengering	PP1020	LS	14,535,400	1	14,535,400	14,535,400
9.2	Elektrikal					192,553,937	
9.2.1	Panel daya	PP1022	LS	47,153,937	1	47,153,937	47,153,937
							99,225,000
							1,800,000

LAMPIRAN IV

Scheduled Normal Pelaksanaan Proyek
Pembangunan Fasilitas Graving Dock Fasilitas
Laut P.T. RUKINDO di Lokasi Ancol Timur -
Tanjung Priok

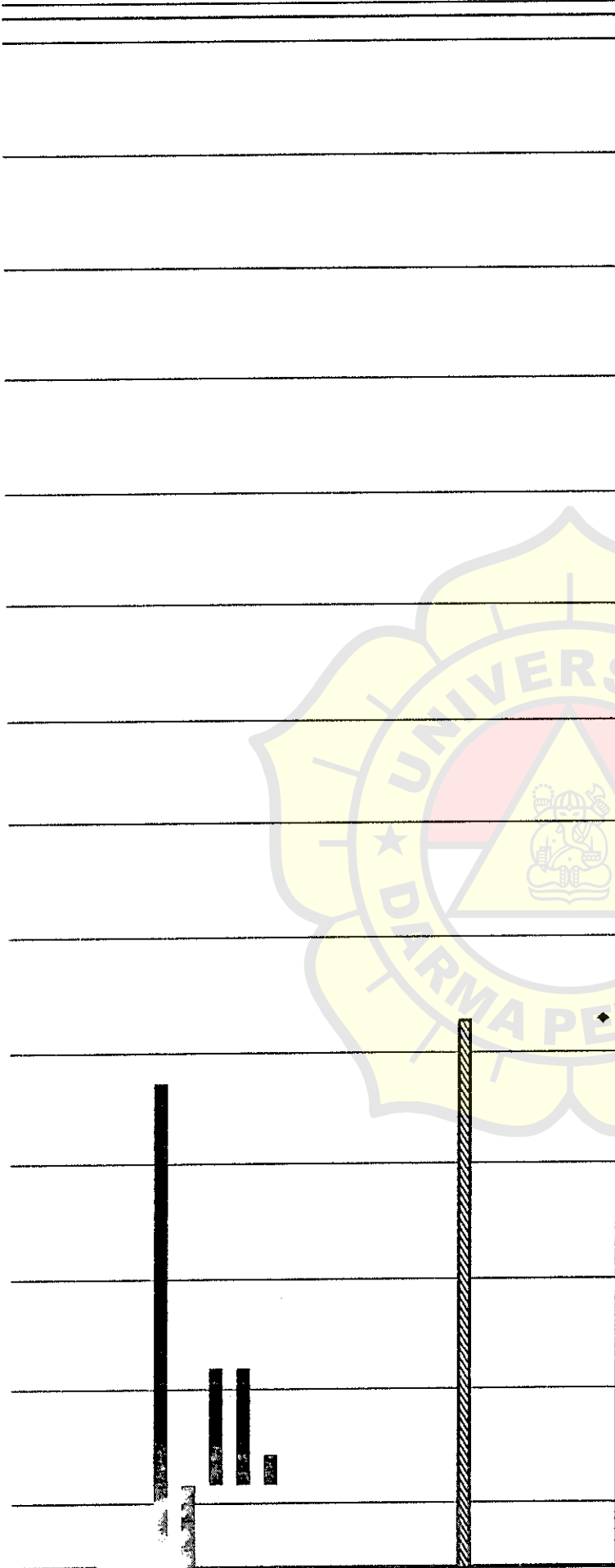
Halaman : L-54 s/d L-56





Project Pembangunan Fasilitas Greving Dood
 Date: 1/25/96

Critical
 Noncritical
 Progress
 Milestone
 Summary
 Rolled Up



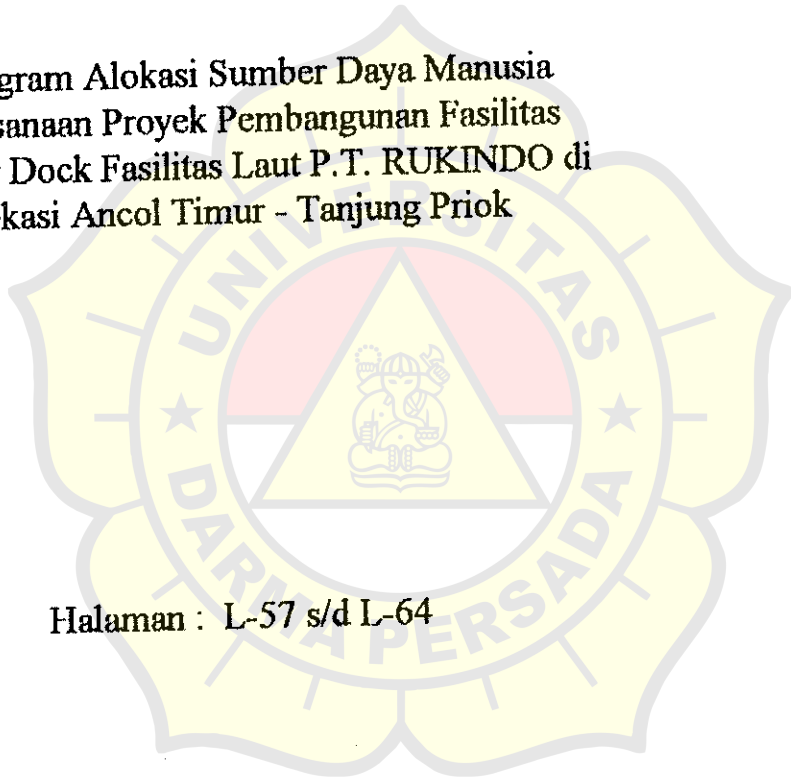
Project: Pembangunan Fasilitas Growing Doc
 Date: 1/25/96

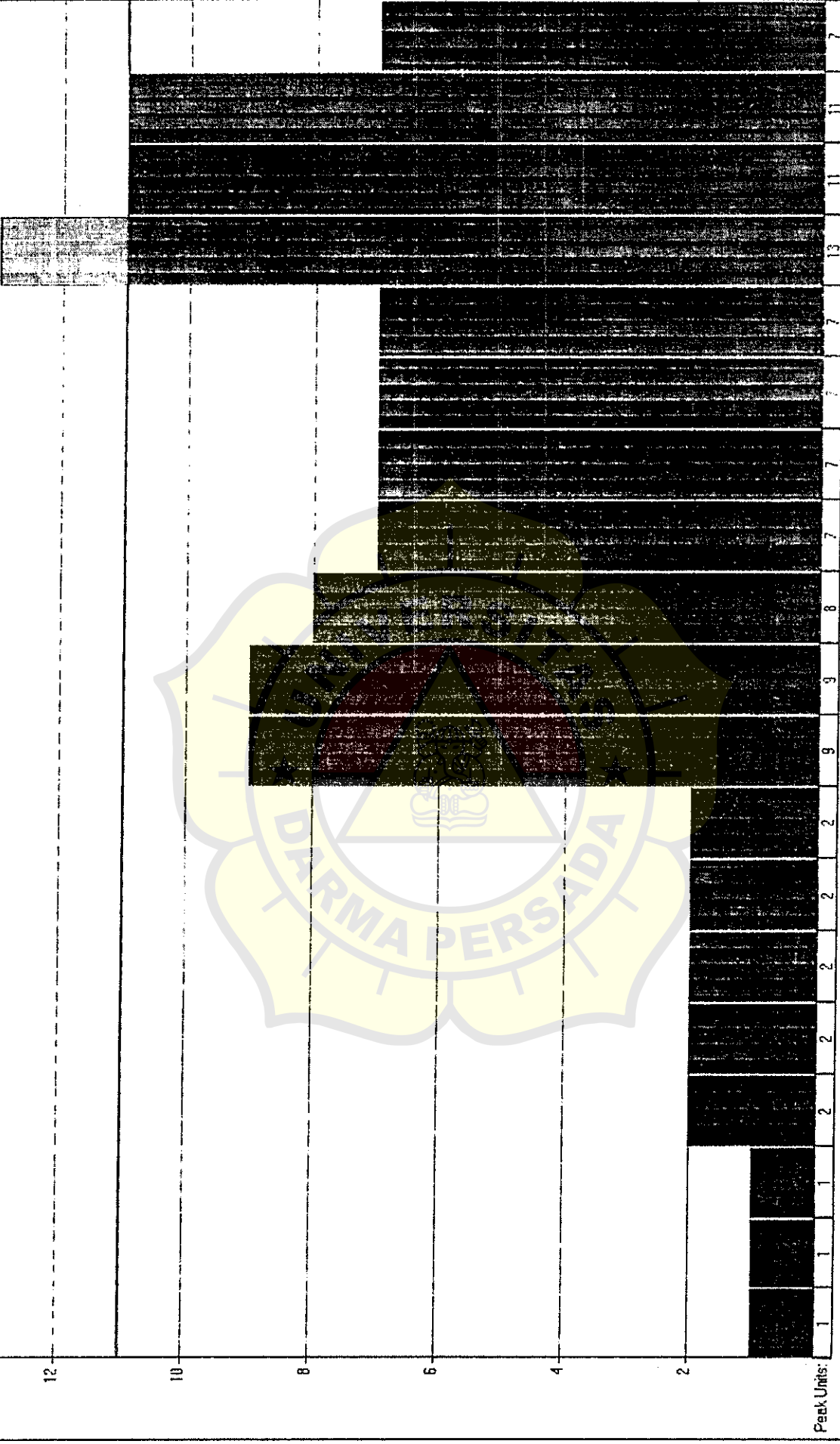
Critical  Progress  Summary 
 Noncritical  Milestone  Rolled Up 

LAMPIRAN V

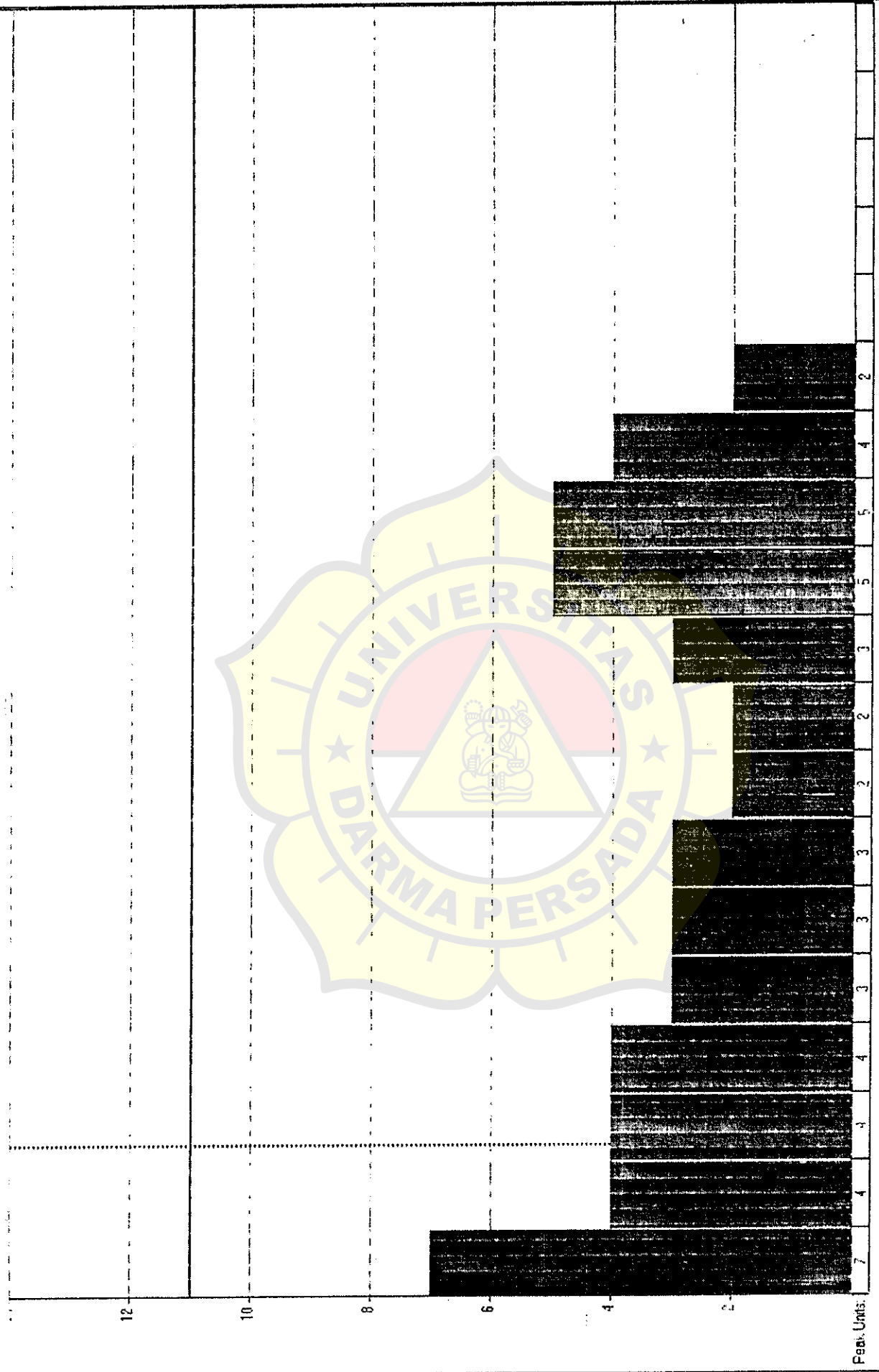
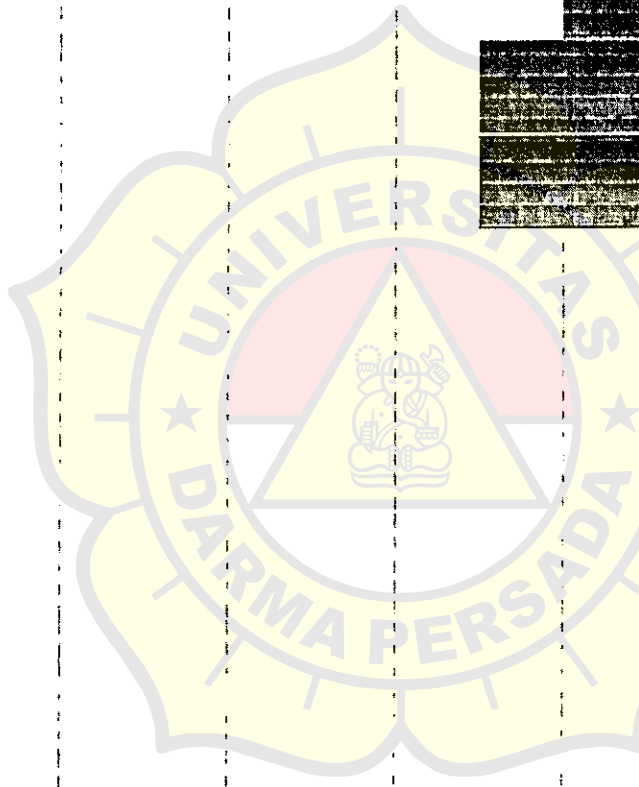
Histogram Alokasi Sumber Daya Manusia
Pelaksanaan Proyek Pembangunan Fasilitas
Graving Dock Fasilitas Laut P.T. RUKINDO di
Lokasi Ancol Timur - Tanjung Priok

Halaman : L-57 s/d L-64

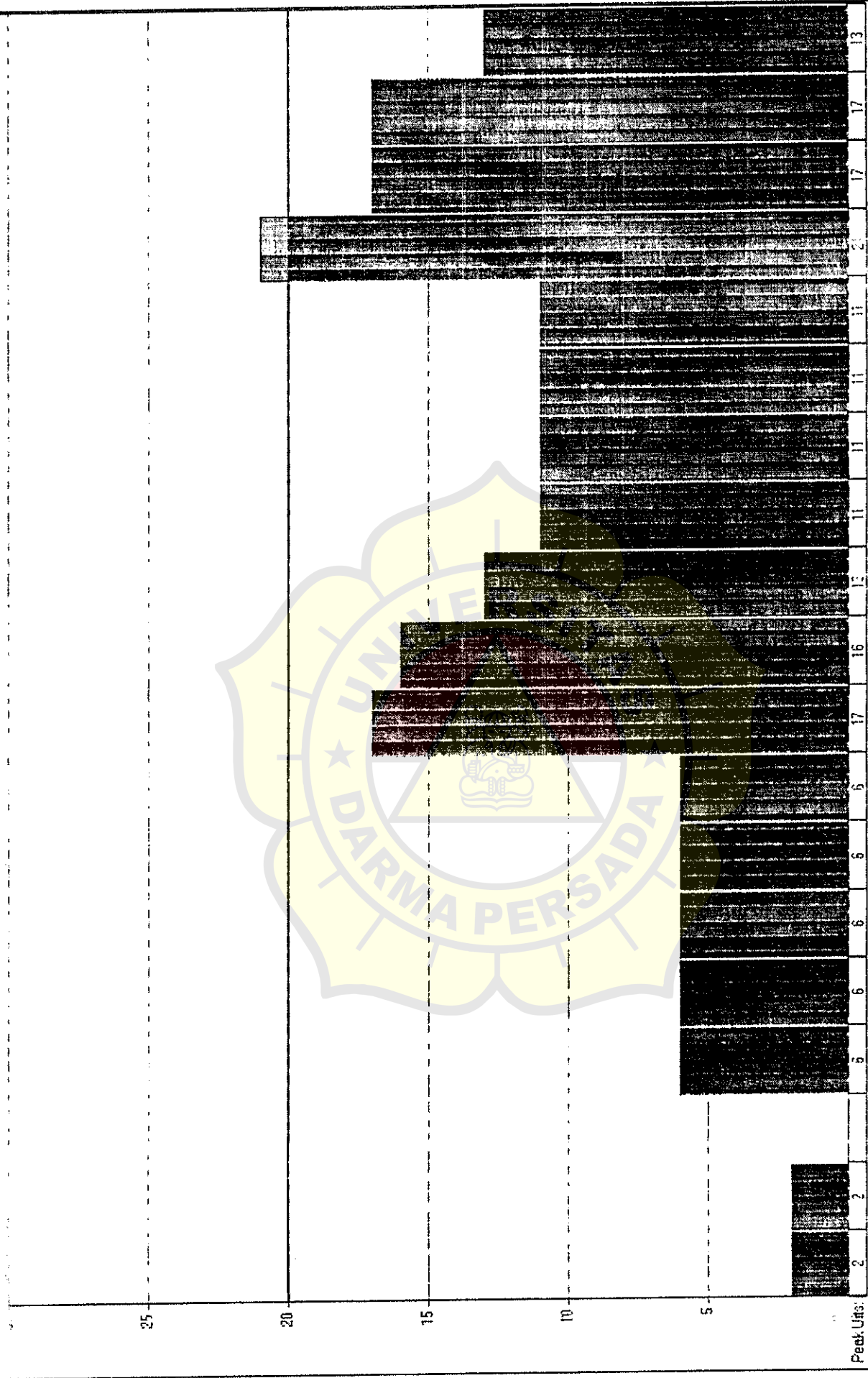
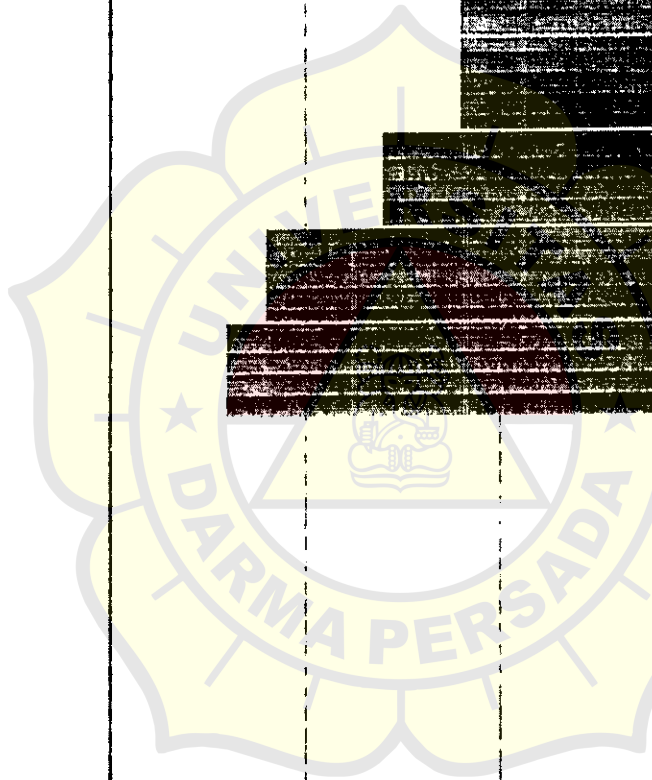




Mandor Overallocated: Allocated:



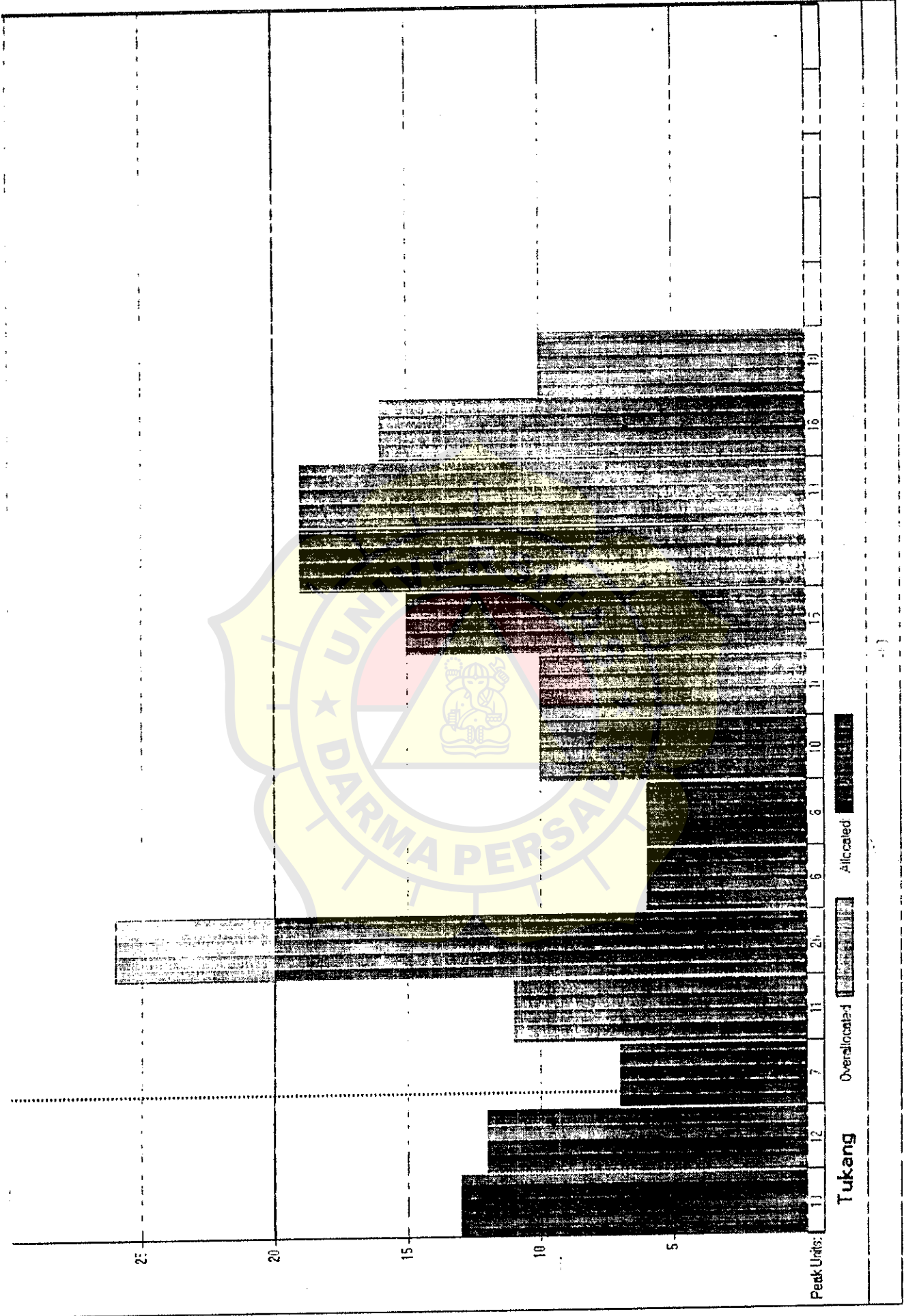
Mandor Overallocated Allocated



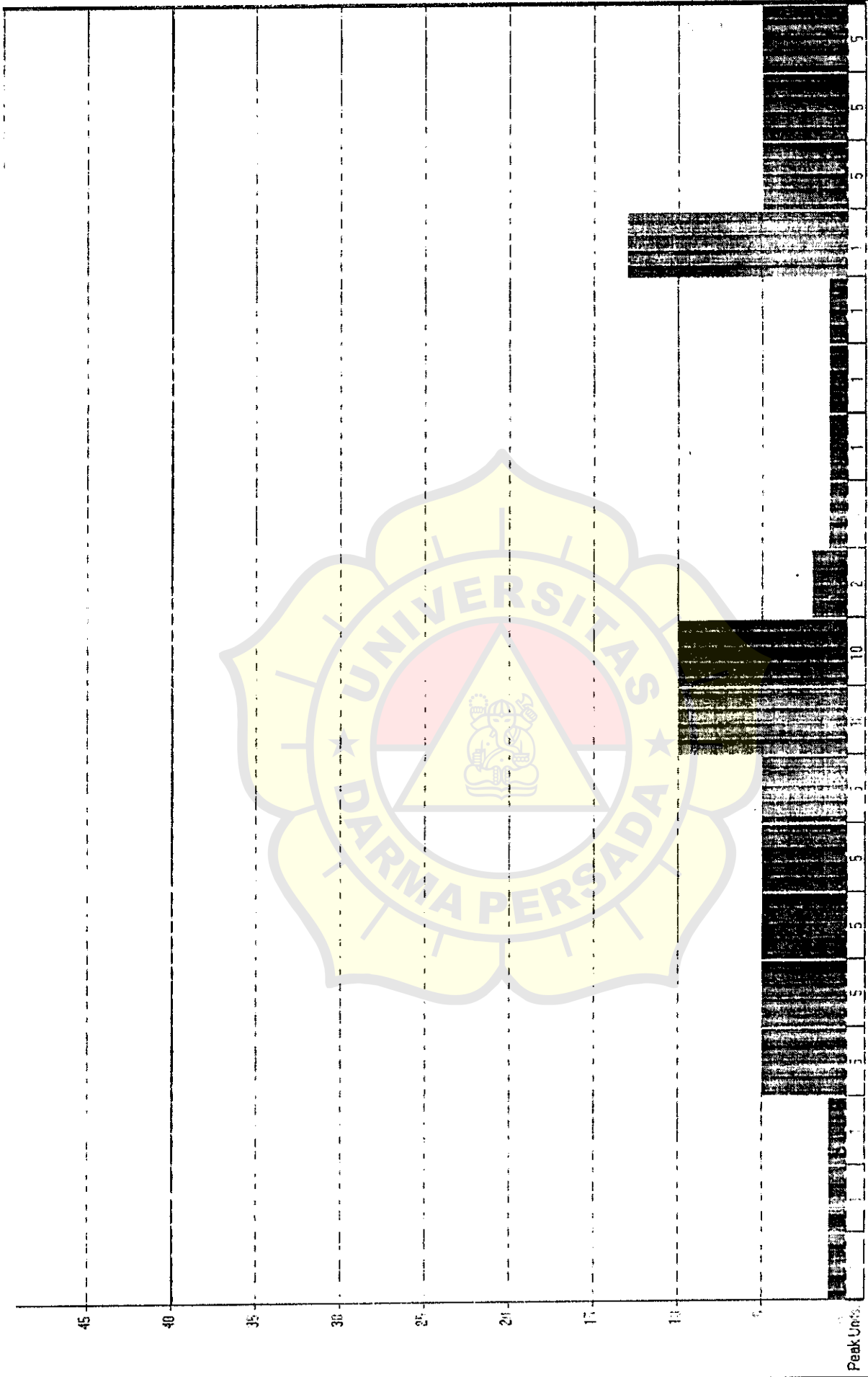
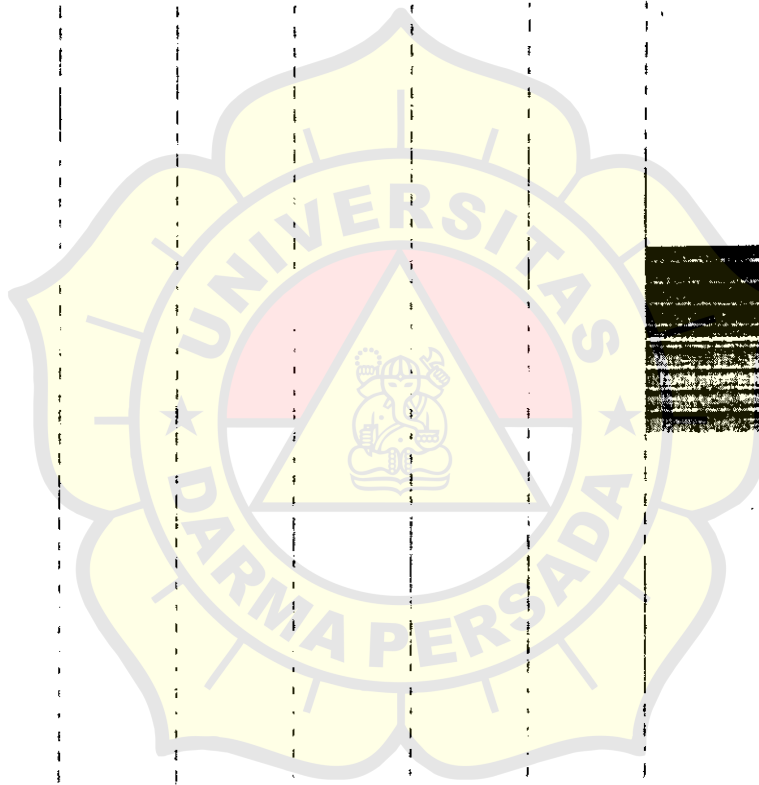
Peak Units:

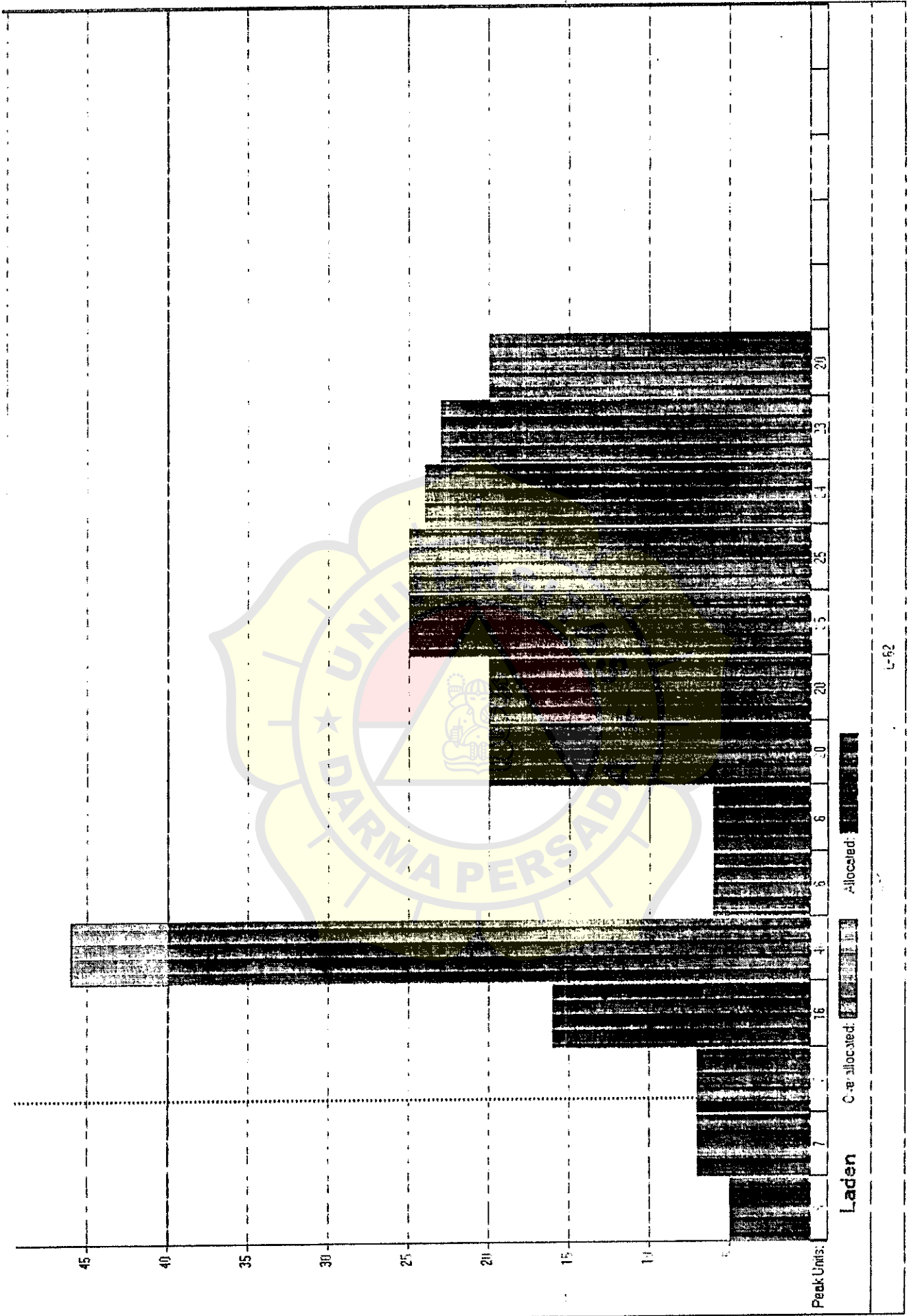
O: allocated
Allocated

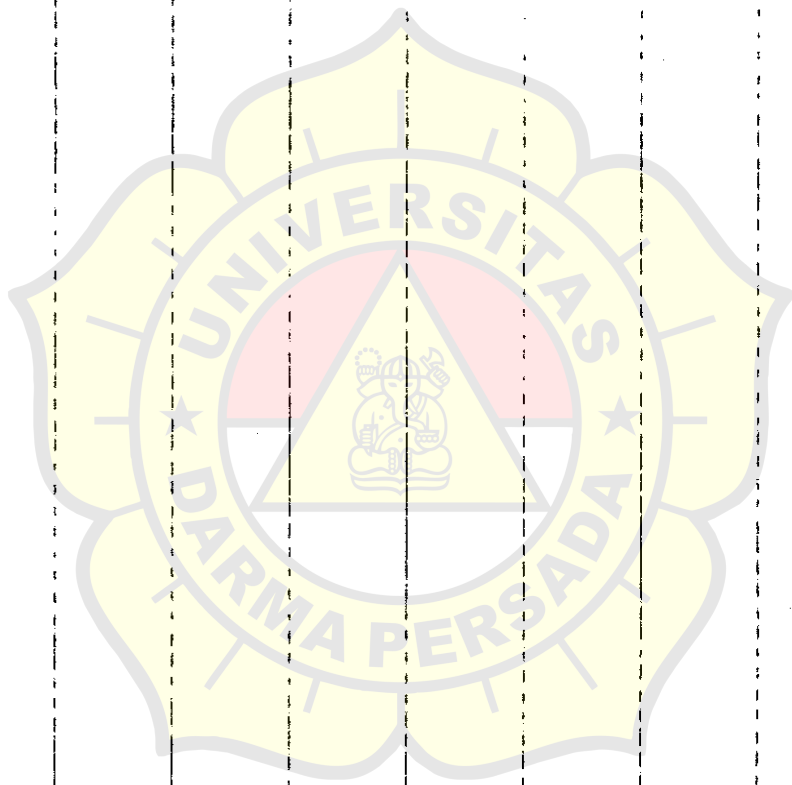
Tukang



Tukang Overallocated Allocated







1.8

1.6

1.4

1.2

1.0

0.8

0.6

0.4

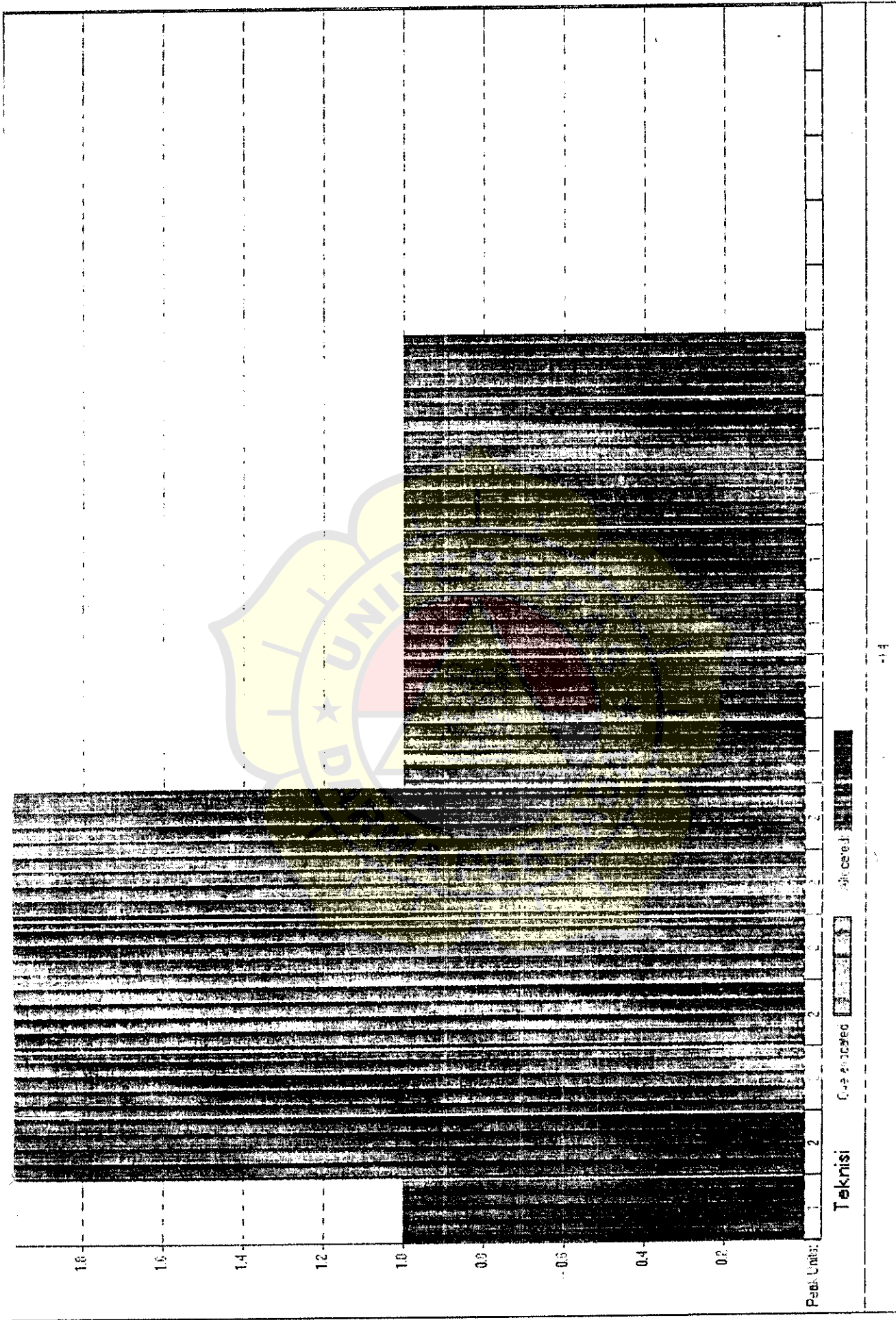
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Peak Units

Teknisi

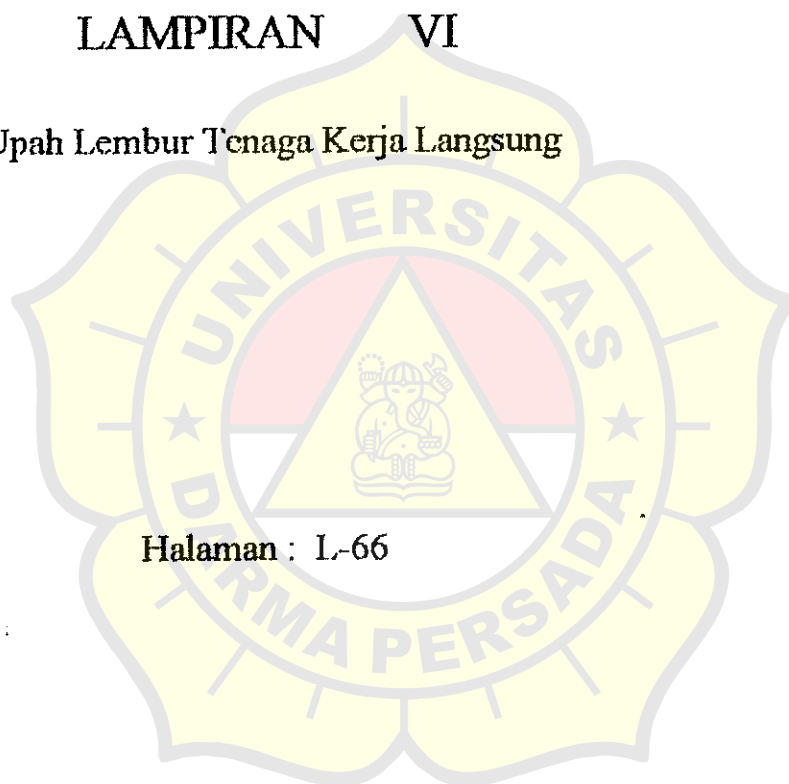
Overallocated:

Allocated:



LAMPIRAN VI

Upah Lembur Tenaga Kerja Langsung



Halaman : L-66

Tabel L.6.1
Upah Lembur Tenaga Kerja Langsung

Pekerjaan	Code pekerjaan	Jumlah Buruh (orang)	Jumlah Laden (orang)	Jumlah Mandor (orang)	Jumlah Teknisi (orang)	Jumlah Upah Lembur Tenaga Kerja Langsung (rupiah)
an	A1	2	1	1	-	4,250
n Buang tanah						
site	B1	4	-	2	-	7,000
aslr laut	B2	4	8	2	-	13,000
isan	B3	2	1	1	-	-
an pondasi pelat	C1	5	1	5	-	13,250
iang pancang pelat	C2	1	1	1	-	3,250
an pondasi winch	D1	3	1	1	-	-
iang pancang winch	D2	2	1	1	-	-
an pondasi crane	E1	3	1	1	-	-
iang pancang crane	E2	2	1	1	-	-
	F1	210	210	35	1	1,207,500
iaan turap baja type						
8,Z14,Z25	G1	3	12	-	-	18,000
an turap baja	G2	4	8	8	-	18,000
anchor prestressed dan						
beam lengkap	G3	10	-	2	1	20,000
ary anchor dan Tie rod						
mm, L=12m	G4	5	10	1	1	26,500
ngan turap baja	G5	3	1	1	-	-
iaan dan pemasangan fender						
illard 20ton winch	H1	4	2	1	-	-
iaan dan pemasangan pintu						
baja dan dewatering sistem	H2	20	40	2	1	125,000
an sipil M/E	I1	5	5	1	-	-
le timbun padatkan tanah &						
aan tiang pancang	J1	5	5	1	-	10,000
an dan pemadatan sirtu						
tu	J2	1	-	1	-	2,500
an Mekanikal dan Elektrikal	K1	180	180	18	-	342,000