

DIVISION 7.
Structures

THE NORTH JAVA CORRIDOR FLYOVER PROJECT
BILL OF QUANTITIES

NAGREG FLYOVER

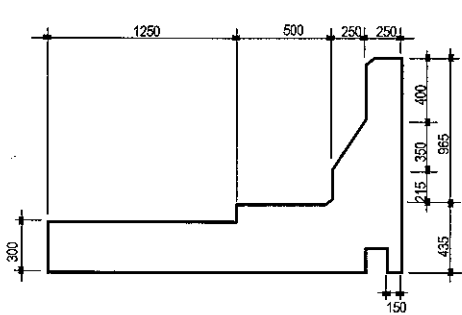
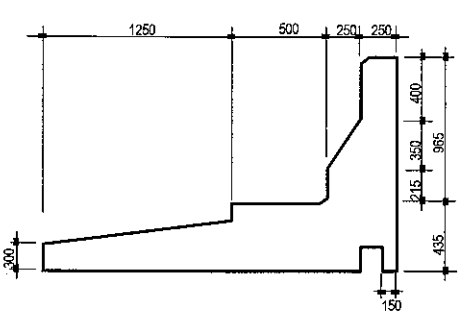
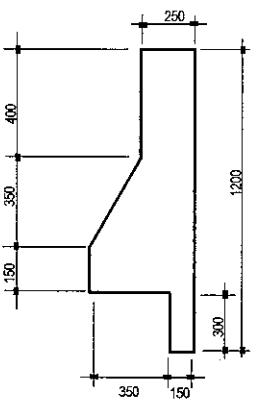
FINAL
up to september 30' 2006

NO. PAY ITEM	DESCRIPTION	UNIT	ESTIMATE QUANTITY	REMARKS
DIVISION 7 STRUCTURES				
7.1.(1a)	Structure Concrete , Class A (35 Mpa) (for Post Tension Double Girder)	Cu M	800.03	
7.1.(1b)	Structure Concrete , Class A (35 Mpa) for Steel Girder	Cu M	471.85	
7.1.(2)a	Structure Concrete , Class B (30 Mpa) for Pier Head	Cu M	104.54	
7.1.(2)b	Structure Concrete , Class B (30 Mpa) for Column	Cu M	53.75	
7.1.(2)c	Structure Concrete , Class B (30 Mpa) for Composite Column	Cu M	102.41	
7.1.(2)d	Structure Concrete , Class B (30 Mpa) for Abutment	Cu M	194.10	
7.1.(3)a	Structure Concrete , Class B-1 (28 Mpa) for Barrier , Median	Cu M	-	in Division 8
7.1.(3)b	Structure Concrete , Class B-1 (28 Mpa) for Parapet Wall	Cu M	1,058.77	
7.1.5	Structure Concrete , Class C (24 Mpa) for Footing, Approach Slab and Retaining Wall	Cu M	829.10	
7.1.6	Structure Concrete, Class D	Cu M		
7.1.8	Structure Concrete , Class E	Cu M	111.37	
SS.7.1(9)	Waterproofing on Deck	Sq M	2,576.00	
7.1(9)	Structural Column Casing (Ribbed Inner Surface t = 20 mm)	Kg	-	
SS7.1(10)	Structure Casing for Bored Pile (Inner Ribbed Surface t = 13 mm)	Kg	28,825.20	
7.1(10)	Structural Column Casing (Erected)	Kg	-	
SS7.1(11)	Steel Casing for Bored Pile (Erected)	Kg	28,825.20	
7.2.1	PC Strand Size 12.7 mm and Accessories	Kg	17,103.85	
7.2.2	PC Strand Size 21.8 mm and Accessories	Kg	11,263.35	
7.2.3	PC Bar and Accessories	Kg	1,061.29	
7.3.(4)	Reinforcing Steel Bars Deform	Kg	460,213.89	
7.3.(6)	Reinforcing Steel Bars D 51	Kg	-	
7.4.(1)	Furnish and Delivery of Steel Girder	Ton	220.84	
7.4.(2)	Furnish and Delivery of Steel Portal	Ton	134.01	
7.5.(3)	Erection of Steel Girder	Ton	220.84	
7.5.(4)	Erection of Steel Coping and Portal Portal	Ton	134.01	
7.6.(22)	Cast in Place Concrete Pile Dia 1500 mm	Ln M	288.00	
7.6.(23)	Cast in Place Concrete Pile Dia 1800 mm	Ln M	180.00	
7.6.(26)	Cast in Place Concrete Pile Dia 2500 mm	Ln M	221.00	
7.6.(27)	Pile Integrity Test	Each	20.00	
SS7.6.(28)	Pile Dynamic Analysis (PDA) Dia 1500 mm	Each	1.00	
SS7.6.(28)a	Pile Dynamic Analysis (PDA) Dia 1800 mm	Each	1.00	
SS7.6.(28)b	Pile Dynamic Analysis (PDA) Dia 2500 mm	Each	1.00	
7.9	Stone Masonry	Cu M	216.16	from highway
7.9.(1)	Blinding Stone	Cu M		
7.11.(1)	Expantion Joint (Type A)	Ln M	46.00	
7.11.(2)	Expantion Joint (Type B)	Ln M	-	
7.11.(3)	Restrainer Type - A	Set	4.00	
7.11.(4)	Restrainer Type - B	Set	-	
7.11.(5)	Stopper for Steel Girder	Set	4.00	
7.11.(6)	Fixed Anchor	Set	-	
7.11.(7)	Moved Anchor	Set	-	
7.12.(2)	Elastomeric Bearing Pad Type - A1	Set	-	
7.12.(2)a	Elastomeric Bearing Pad Type - A2	Set	-	
7.12.(2)b	Elastomeric Bearing Pad Type - A3	Set	4.00	
7.12.(2)c	Elastomeric Bearing Pad Type - A4	Set	-	
7.12.(7)a	Bridge Bearing for Steel Girder Type - B1	Set	4.00	
7.12.(7)b	Bridge Bearing for Steel Girder Type - B2	Set	-	
7.12.(7)c	Bridge Bearing for Steel Girder Type - C1	Set	-	
7.12.(7)d	Bridge Bearing for Steel Girder Type - C2	Set	1.00	
7.12.(7)e	Bridge Bearing for Steel Girder Type - C3	Set	1.00	
7.12.(7)f	Bridge Bearing for Steel Girder Type - C4	Set	-	
7.13	Steel Bridge Reilings	Ln.M	1,468.80	
7.14	Bridge Name Plate	Each	2.00	
7.15.(1)	Demolition of Existing Structure Masonry	Cu M	188.80	} from highway
7.15.(2)	Demolition of Existing Structure Concrete	Cu M	161.80	
7.15.(10)	Demolition of Existing Rigid Pavement	Sq M		
7.15.(11)	Demolition of Existing Hedge of Fence	Ln M	167.78	
7.15.(12)	Demolition of Existing Concrete Side Walk	Sq M		
7.15.(13)	Demolition of Existing Concrete Curb	Ln M		
7.16.(1)	Concrete Pavement (t = 27 cm)	Sq M		
7.16.(2)	Lean Concrete (t = 10 cm)	Sq M		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 23 - 08 - 2006		Sheet : 1 of 3						
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT										
KATAHIRA AND ENGINEERS INTERNATIONAL										
DRAWING NO : NCL - 004 - 003 - 004		QUANTITY :		CHECKED BY :						
NO	DESCRIPTION	h1	h2	I	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS
7.1.(1)a	Structure Concrete, Class A (Fc' = 35 Mpa) for post Tension Double Girder	0.250 0.450	0.450 0.450	2.646 1.062	0.926 0.478					Span girder span to span
		$(1.062 + 0.85) / 2$ $(0.739 + 0.761) / 2$	2 2	0.956 0.750	0.717					
		0.450 0.300	0.300 0.300	0.600 4.086	0.225 1.226					
		0.300	0.450	0.600	0.225					
		$(1.062 + 0.85) / 2$ $(0.739 + 0.761) / 2$	2 2	0.956 0.750	0.717					
		0.450 0.450	0.450 0.250	1.062 2.646	0.478 0.926	5.918				
		0.250	0.450	2.646	0.926					Girder on diafragma
		$(7.412 + 7.204) / 2$ $(0.739 + 0.761) / 2$	2 2	7.308 0.750	5.481 3.335					
		0.450	0.450	7.412						
		0.250	0.450	2.646	0.926	10.669				

CONSTRUCTION COST ESTIMATE WORKSHEET					Date Prepared : 15 - 09 - 2006			Sheet : 2 of 2	
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO : NSB - 08					CHECKED BY :				
QUANTITY :									
NO	DESCRIPTION	CALCULATION	Area	Total Area (Sq M)	Ln M	QTY	TOTAL QTY (Cu M)	REMARKS	
7.1.(2)a	Structure Concrete, Class B ($F_c' = 30 \text{ Mpa}$) for Pier Head								
		$3.14 \times 0.70 \times 0.70$	1.539						
		3.30×7.75	25.575	13.557	0.300	4.07			
		$((1.60 \times 7.75) + (3.30 \times 7.91932)) / 2$		19.267	0.600	11.56			
		$(7.91932 + 8.14993) / 2 \times 0.796$	6.393	6.393	0.950	6.07			
		$(7.91932 + 8.08863) / 2 \times 0.60$	4.802	4.802	0.950	4.56			
		1.40×8.55425	11.976						
		1.40×7.91932	11.087	11.531	2.275	26.23			
							52.50	PIER HEAD P8	
					TOTAL		52.50		
				SUMMARY P4 AND P8			104.54		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 08 - 2006	Sheet : of		
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : NSB - 01, 10		QUANTITY :	CHECKED BY :		
NO	DESCRIPTION	A1/A2	CALCULATION	QTY (Cu M)	REMARKS
7.1.(2)d	Structure Concrete, Class B (Fc' = 30 Mpa) for Abutment				
		A1	2.20 x 13 x 2.40	68.64	Footing
			Area 1.624 Sq M		Coulumn
			Height 5.790 M		
			1.624 x 5.790 x 2	18.81	
			4.20 x 5.790 x 0.4	9.73	Wall
			TOTAL	97.17	
		A2	2.20 x 13 x 2.40	68.64	Footing
			Area 1.624 Sq M		Coulumn
			Height 5.741 M		
			1.624 x 5.741 x 2	18.65	
			4.20 x 5.741 x 0.4	9.64	Wall
			TOTAL	96.93	
			SUMMARY	194.10	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 10/12/2006 10:40	Sheet : of
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING		CALCULATION Nagreg Flyover - Contract Package 2	
 <p>Section of Parapet at Approach</p>		<p>Structure Concrete</p> <p>A. At Approach Slab</p> <p>Data:</p> <p>1.19 sqm. = Area of Parapet from AutoCad Drawing</p> <p>10.00 m = Length of Parapet at Approach Slab (2 side)</p> <p>A.1. Volume of Concrete Parapet at Approach A</p> <p>Volume = 1.19 x 10.00 = 11.90 cum.</p> <p>A.2. Volume of Concrete Parapet at Approach B</p> <p>Volume = 1.19 x 10.00 = 11.90 cum.</p>	
 <p>Section of Parapet at M.S.E Wall</p>		<p>B. At MSE Wall</p> <p>Data:</p> <p>1.06 sqm. = Area of Parapet from AutoCad Drawing</p> <p>530.00 m = Length of Parapet at MSE Wall Approach A (2 side)</p> <p>150.00 m = Length of Parapet at MSE Wall Approach B (2 side)</p> <p>B.1. Volume of Concrete Parapet at MSE Wall (Approach A)</p> <p>Volume = 1.06 x 530.00 = 561.80 cum.</p> <p>B.2. Volume of Concrete Parapet at MSE Wall (Approach B)</p> <p>Volume = 1.06 x 150.00 = 159.00 cum.</p>	
 <p>Section of Parapet at Viaduct</p>		<p>C. At Viaduct</p> <p>Data:</p> <p>0.37 sqm. = Area of Parapet from AutoCad Drawing</p> <p>448.00 m = Length of Parapet at Viaduct (2 side)</p> <p>C.1. Volume of Concrete Parapet at Viaduct</p> <p>Volume = 0.37 x 448.00 = 165.76 cum.</p> <p>Total Concrete Volume of Parapet at Merak 1 = 910.36 cum.</p>	
REMARKS			






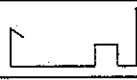


CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 11 - 09 - 2006	Sheet : 3 of 3	
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.5	Structure Concrete, Class C (24 Mpa) for Footing, Approach Slab and	Sta 0 + 260 H = 0.00 L = 20 M' Sta 0 + 280 H = 1.507 L = 20 M'		Retaining wall
	Retaining Wall	Sta 0 + 300 H = 0.00 Sta 0 + 344 H = 0.00 L = 16 M' Sta 0 + 360 H = 1.10 L = 60 M' Sta 0 + 420 H = 1.00 L = 140 M' Sta 0 + 560 H = 1.00 L = 20 M' Sta 0 + 580 H = 0.90 L = 27 M' Sta 0 + 607 H = 0.00		
		Quantity :		
		= (2.00 x 0.30 x 40)	24.00	
		= (0.50 x 1.507 x 20) x 2	30.14	
		= (2.00 x 0.30 x 263)	157.80	
		= (0.50 x 1.10 x 16 x 0.20)	1.76	
		= (1.10 + 1.00) / 2 x 60 x 0.20	12.60	
		= (1.00 + 1.00) / 2 x 140 x 0.20	28.00	
		= (1.00 + 0.90) / 2 x 20 x 0.20	3.80	
		= (0.50 x 0.90 x 27 x 0.20)	2.43	
		TOTAL	260.53	
		SUMMARY	829.10	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 25 - 08 - 2006	Sheet : 2 of 2	
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO : NMS - 013 to 016		QUANTITY :	CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Cu M)	REMARKS
7.1.(8)	Lean Concrete, Class E (Fc' = 17 Mpa)	A1 Stubwall		Stubwall
		= (42.125 x 1.50 x 0.10) x 2	12.64	
		= (42.125 x 1.00 x 0.10) x 2	8.43	
		Sub Total	21.06	
		A2 Stubwall		
		= (36.625 x 1.50 x 0.10) x 2	10.99	
		= (36.625 x 1.00 x 0.10) x 2	7.33	
		Sub Total	18.31	
		Retaining Wall		
		STA 0 + 260 to 0 + 300 = 40 Ln M		
		STA 0 + 344 to 0 + 607 = 263 Ln M		
		= 40 x 2.20 m x 0.10 m	8.80	
		= 263 x 2.20 m x 0.10 m	57.86	
		Sub Total	66.66	
		SUMMARY	111.37	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 24 - 08 - 2006	Sheet : 1 of 1	
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		10/9/2006 13:06		
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		QUANTITY :	CHECKED BY :	
NO	SKETCH DRAWING	DESCRIPTION	SUMMARY	REMARKS
7.3.(4)	REINFORCING STEEL BARS DEFORM			
		SUB STRUCTURE		
		Bored pile	-	163,774.00
		Abutment	42,246.00	
		Pier Column	21,168.00	
		Pier Head	28,690.00	
		Stubwall	24,145.00	
		Retaining Wall	19,800.28	
		SUPER STRUCTURE		
		Deck Slab	66,140.61	
		Girder	101,852.00	A1-P1-P2-P3-P4 and P8-P9-A2
		Parapet Wall	87,046.66	
		Approach Slab	4,106.00	
		OTHER		
		TOTAL	395,194.55	
7.3.(6)	REINFORCING STEEL BARS D 51	Bored pile	-	215,073.00





BAR BENDING SCHEDULE
PARAPET

PARAPET APPROACH

Rebar Name	Dia (mm)	Length (mm)	NOS	Unit Weight (kg/m')	Weight (kg)	Diagram	Remarks
a	16.00	300.00	5.00	1.58	23.70		
b	12.00	120.00	5.00	0.88	5.26		
c	14.00	135.00	5.00	0.88	5.92		
d	20.00	125.00	6.60	2.47	20.34		
e	12.00	254.00	5.00	0.88	11.14		
f	12.00	135.00	5.00	0.88	5.92		
g	12.00	100.00	14.00	1.21	16.93		
h	14.00	100.00	12.00	1.58	18.96		

108.162

PARAPET BRIDGE

Rebar Name	Dia (mm)	Length (mm)	NOS	Unit Weight (kg/m')	Weight (kg)	Diagram	Remarks
a	10	228	5	0.62	7.07		
b	16	115	5	1.58	9.09		
c	10	55	5	0.62	1.71		
d	10	100	12	0.62	7.44		

25.298

LENGTH OF PARAPET EACH FLYOVER

No.	Fly Over	A1 (meter)	A2 (meter)	AB1 (meter)	Bridge (meter)	Total (meter)	Remarks
1	Merak	92.95	122.95	115.00	920.00	1,581.80	
2	Balaraja	96.00	73.50	-	221.00	781.00	
3	Nagrek	270.00	80.00	-	224.00	1,148.00	
4	Gebang	104.66	144.65	-	385.00	1,268.62	
5	Peterongan	120.00	120.00	-	262.00	1,004.00	
6	Tanggulangin	110.66	110.66	-	200.00	842.63	

**QUANTITY CALCULATION REINFORCING BAR AT NAGREG FLY OVER
(PARAPET)**

status 10/9/2006 11:47
 LENGTH LENGTH
 FLY OVER 224.00 2 448.00
 448.00 Meter

RE-BAR AT BRIDGE NAGREG FLYOVER PER LN.M

1	a	2.28	5	0.62	7.068
2	b	1.15	5	1.58	9.085
3	c	0.55	5	0.62	1.705
4	d	1	12	0.62	7.44
					25.298

TOTAL WEIGHT
(KG)

448.00 11,333.50

LENGTH LENGTH
 ABUTMENT A1 270.00 2 540.00
 ABUTMENT A2 80.00 2 160.00
 ABUTMENT AB1 0.00 2 0.00
 700.00 Meter

RE-BAR PARAPET AT APPROACH NAGREG FLYOVER PER LN.M

1	a	3.00	5.00	1.58	23.70
2	b	1.20	5.00	0.88	5.26
3	c	1.35	5.00	0.88	5.92
4	d	1.25	6.60	2.47	20.34
5	e	2.54	5.00	0.88	11.14
6	f	1.35	5.00	0.88	5.92
7	g	1.00	14.00	1.21	16.93
8	h	1.00	12.00	1.58	18.96
					108.16165

700.00 75,713.16

TOTAL WEIGHT of REINFORCING STEEL PARAPET MERAK FO (kg)

87,046.66

NAGREG FLYOVER
 QUANTITY OF ABUTMENT AND PIER COLUMN REINFORCEMENT

7.3.(4) REINFORCING STEEL BARS GRADE 40

LOCATION		TYPE	WEIGHT (Kg)	TOTAL WEIGHT (Kg)	REMARKS / DRAWING NO
A1		FOOTING	9,457.00		NSB - 16
		RC COLUMN	8,098.00	21,133.00	NSB - 12
		WALL	3,578.00		NSB - 12
P1	P1 - L	RC COLUMN	2,332.00	4,767.00	NSB - 17
	P1 - R	RC COLUMN	2,435.00		NSB - 17
P2	P2 - L	RC COLUMN	2,235.00	4,185.00	NSB - 18
	P2 - R	RC COLUMN	1,950.00		NSB - 18
P3	P3 - L	RC COLUMN	2,807.00	5,690.00	NSB - 19
	P3 - R	RC COLUMN	2,883.00		NSB - 19
P4	P4	COMPOSITE COLUMN	256.00	256.00	NSB - 33
P5	P5	COMPOSITE COLUMN	256.00	256.00	NSB - 34
P6	P6 - L	COMPOSITE COLUMN	256.00	512.00	NSB - 35
	P6 - R	COMPOSITE COLUMN	256.00		NSB - 35
P7		COMPOSITE COLUMN	256.00	256.00	NSB - 34
P8		COMPOSITE COLUMN	256.00	256.00	NSB - 33
P9	P9 - L	RC COLUMN	2,532.00	4,990.00	NSB - 20
	P9 - R	RC COLUMN	2,458.00		NSB - 20
A2		FOOTING	9,457.00	21,113.00	NSB - 16
		RC COLUMN	8,078.00		NSB - 14
		WALL	3,578.00		NSB - 14
		TOTAL ABUTMENT A1 and A2		42,246.00	
		TOTAL PIER P1 s/d P9		21,168.00	

NAGREG FLYOVER
 QUANTITY OF BORED PILE REINFORCEMENT

LOCATION	WEIGHT PER 1 PC (Kg)		NO. REQ'D (PCS)	TOTAL WEIGHT (Kg)	
	REINFORCING STEEL BARS D 40	REINFORCING STEEL BARS D 51		REINFORCING STEEL BARS D 40	REINFORCING STEEL BARS D 51
A1	17,490.00	-	3.00	52,470.00	-
P1	2,210.00	9,456.00	2.00	4,420.00	18,912.00
P2	2,165.00	8,730.00	2.00	4,330.00	17,460.00
P3	2,306.00	11,741.00	2.00	4,612.00	23,482.00
P4	5,098.00	19,008.00	1.00	5,098.00	19,008.00
P5	12,948.00	37,113.00	1.00	12,948.00	37,113.00
P6	3,136.00	13,928.00	2.00	6,272.00	27,856.00
P7	12,387.00	35,873.00	1.00	12,387.00	35,873.00
P8	4,347.00	16,457.00	1.00	4,347.00	16,457.00
P9	2,210.00	9,456.00	2.00	4,420.00	18,912.00
A2	17,490.00	-	3.00	52,470.00	-
SUB TOTAL				163,774.00	215,073.00
TOTAL				378,847.00	

BREAK DOWN REINFORCING STEEL
NAGREG

	quantity	unit	weight (Kg)	total weight (Kg)
GIRDER	167.166	Cum	101.00	45,631.80
APPROACH SLAB	11.610	Cum	138.00	1,602.18
	11.610	Cum	138.00	1,602.18
MS WALL	560.210	Cum	109.00	61,062.89
	158.550	Cum	109.00	17,281.95
STUBWALL	A1		12,459.00	12,459.00
	A2		11,686.00	11,686.00
PARAPET (stubwall)	80.038	Cum	79.00	13,311.50
	69.588	Cum	79.00	11,573.50
				24,145.00 Stubwall
				152,066.00 Parapet
				176,211.00
				176,211.00

BREAK DOWN CONCRETE

NAGREG
A1 - A2 = $224 + (2 \times 0.95) = 225.90$ Ln M

Ramp A1 - MS Wall = 270.00 Ln M
MS Wall - End of Ramp = 84.25 Ln M

Ramp A2 - MS Wall = 80.00 Ln M
MS Wall - End of Ramp = 73.25 Ln M

Area 1 = 0.370 Sq M
Area 2 = 1.161 Sq M
Area 3 = 1.057 Sq M
Area 4 = 0.475 Sq M

Quantity	
= 225.90 x 0.370 x 2	167.17
= 5.00 x 1.161 x 2	11.61
= 265.00 x 1.057 x 2	560.21
= 84.25 x 0.475 x 2	80.04
= 5.00 x 1.161 x 2	11.61
= 75.00 x 1.057 x 2	158.55
= 73.25 x 0.475 x 2	69.59
	1,086.77

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10 - 09 - 2006		Sheet : of	
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO :		QUANTITY :		CHECKED BY :	
NO	DESCRIPTION	CALCULATION	QTY (Ton)	REMARKS	
7.5.(4)	Erection of Steel Coping and Portal		134.01		
		SUMMARY	134.01		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	BACK UP QUANTITY STONE MASONRY		Sheet: of						
PROJECT : NAGREG FLYOVER											
NORTH JAVA CORRIDOR FLYOVER PROJECT											
KATAHIRA AND ENGINEERS INTERNATIONAL											
DRAWING NO :			ESTIMATOR :		CHECKED BY :						
SKETCH DRAWING		CALCULATION				REMARKS					
		PROJECT : NAGREG FLYOVER									
<p style="text-align: center;">Sta 0+280 - 0+300</p>		STA	AREA	AV. AREA	DISTANCE		L (M)	VOL (Cu.M)			
					START	END					
		0 +020.00	0.45	0.45	0 +011.54	0 +030.75	19.22	8.65	LEFT SIDE		
		0 +080.00	0.52	0.52	0 +072.01	0 +080.00	7.99	4.16	BANDUNG BOUND		
		0 +100.00	0.56	0.54	0 +080.00	0 +111.27	31.27	16.90			
		TOTAL					58.48	29.71			
		<p style="text-align: center;">Sta 0+820 - 0+880</p>		STA	AREA	AV. AREA	DISTANCE		L (M)	VOL (Cu.M)	RIGHT SIDE BANDUNG BOUND
							START	END			
				0 +040.00	0.45	0.45	0 +032.96	0 +054.46	21.50	9.76	
				TOTAL					21.50	9.76	
0 +220.00	0.47			0.23	0 +212.18	0 +220.00	7.82	1.83	LEFT SIDE		
0 +240.00	0.47			0.47	0 +220.00	0 +240.00	20.00	9.38			
0 +260.00	0.52			0.49	0 +240.00	0 +260.00	20.00	9.87			
0 +280.00	1.65			1.09	0 +260.00	0 +280.00	20.00	21.70			
0 +300.00	0.54			1.09	0 +280.00	0 +301.68	21.68	23.73			
0 +340.00	0.48			0.51	0 +334.71	0 +340.00	5.29	2.68			
0 +360.00	0.45	0.46	0 +340.00	0 +360.00	20.00	9.24					
0 +380.00	0.56	0.50	0 +360.00	0 +380.00	20.00	10.08					
0 +400.00	0.58	0.57	0 +380.00	0 +400.00	20.00	11.35					
0 +420.00	0.73	0.65	0 +400.00	0 +420.00	20.00	13.07					
0 +440.00	0.64	0.69	0 +420.00	0 +440.00	20.00	13.72					
0 +460.00	0.61	0.62	0 +440.00	0 +460.00	20.00	12.49					
0 +480.00	0.63	0.62	0 +460.00	0 +480.00	20.00	12.37					
0 +500.00	0.60	0.61	0 +480.00	0 +505.25	25.25	15.45					
0 +540.00	0.36	0.36	0 +535.80	0 +547.03	11.23	4.02					
0 +660.00	0.44	0.44	0 +657.29	0 +670.36	13.08	5.70					
TOTAL					284.35	176.69					

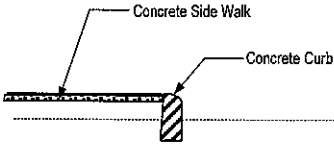
216.76

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared :			Sheet : 1 of 2			
PROJECT : NAGREG FLYOVER			BACK UP QUANTITY DEMOLITION OF MASONRY						
NORTH JAVA CORRIDOR FLYOVER PROJECT									
KATAHIRA AND ENGINEERS INTERNATIONAL									
DRAWING NO :		ESTIMATOR :				CHECKED BY :			
SKETCH DRAWING		QUANTITY CALCULATION						REMARKS	
		PROJECT : NAGREG FLYOVER							
		STA	L/R	Average	Length	Volume			
		Start	End	Area		(Cu.M)			
MAIN ROAD		00 + 884.13	00 + 888.35	L	0.360	4.219	1.519		
		00 + 889.55	00 + 920.02	L	0.360	30.473	10.970		
		00 + 926.62	00 + 937.75	L	0.360	11.126	4.005		
		00 + 938.57	00 + 959.67	L	0.360	21.099	7.596		
		00 + 924.53	00 + 978.18	L	0.360	53.655	19.316		
							43.406		
SERVICE ROAD		00 + 502.36	00 + 504.62	L	0.360	2.259	0.813		
		00 + 556.74	00 + 580.06	L	0.360	23.319	8.395		
		00 + 779.30	00 + 806.32	L	0.360	27.019	9.727		
		00 + 790.09	00 + 795.59	L	0.360	5.503	1.981		
		00 + 797.43	00 + 807.71	L	0.360	10.277	3.700		
		00 + 808.06	00 + 814.10	L	0.360	6.047	2.177		
		00 + 814.79	00 + 827.79	L	0.360	12.996	4.679		
		00 + 827.97	00 + 833.95	L	0.360	5.973	2.150		
		00 + 834.25	00 + 847.78	L	0.360	13.533	4.872		
		00 + 848.74	00 + 864.12	L	0.360	15.376	5.535		
		00 + 864.91	00 + 874.60	L	0.360	9.695	3.490		
								47.519	
			00 + 075.61	00 + 084.58	R	0.360	8.970	3.229	
			00 + 085.12	00 + 115.26	R	0.360	30.139	10.850	
			00 + 117.72	00 + 134.25	R	0.360	16.532	5.952	
			00 + 139.53	00 + 152.72	R	0.360	13.183	4.746	
								24.777	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :				Sheet: 2 of 2		
PROJECT : NAGREG FLYOVER			BACK UP QUANTITY DEMOLITION OF MASONRY					
NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO :		ESTIMATOR :			CHECKED BY :			
SKETCH DRAWING		QUANTITY CALCULATION PROJECT : NAGREG FLYOVER					REMARKS	
SERVICE ROAD		STA		L/R	Average	Length	Volume	
		Start	End		Area		(Cu.M)	
		00 + 158.09	00 + 170.28	L	0.360	12.195	4.390	
		00 + 177.86	00 + 183.30	L	0.360	5.440	1.958	
		00 + 183.91	00 + 189.83	L	0.360	5.917	2.130	
		00 + 195.93	00 + 210.30	L	0.360	14.377	5.176	
		00 + 210.04	00 + 220.03	L	0.360	9.996	3.599	
		00 + 222.25	00 + 229.81	L	0.360	7.562	2.722	
		00 + 232.73	00 + 240.49	L	0.360	7.759	2.793	
		00 + 240.00	00 + 257.84	L	0.360	17.836	6.421	
		00 + 262.17	00 + 265.97	L	0.360	3.796	1.367	
		00 + 436.48	00 + 443.22	L	0.360	6.744	2.428	
		00 + 443.43	00 + 450.95	L	0.360	7.514	2.705	
		00 + 463.70	00 + 480.56	L	0.360	16.857	6.069	
		00 + 485.94	00 + 490.14	R	0.360	4.200	1.512	
		00 + 490.78	00 + 498.34	R	0.360	7.559	2.721	
		00 + 502.05	00 + 554.26	R	0.360	52.209	18.795	
		00 + 598.83	00 + 601.77	R	0.360	2.936	1.057	
		00 + 602.51	00 + 610.20	L	0.360	7.691	2.769	
		00 + 613.20	00 + 620.00	L	0.360	6.801	2.448	
		00 + 621.50	00 + 627.38	R	0.360	5.881	2.117	
							73.177	
		QUANTITY OF DEMOLITION MASONRY =					188.879	Cu.M

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 10/3/2006 19:21		Sheet : 1 of 1				
PROJECT : NAGREG FLYOVER		BACK UP QUANTITY OF DEMOLITION CONCRETE						
NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO : NRD 022 - NRD 028		ESTIMATOR :		CHECKED BY :				
SKETCH DRAWING		QUANTITY CALCULATION PROJECT : NAGREG FLYOVER				REMARKS		
		STA	Length	Concrete	Volume			
		Start	End	Thickness	(Cu.M)	L/R		
MAIN ROAD		00 + 884.13	00 + 888.35	4.219	0.100	0.422	L	
		00 + 889.55	00 + 897.99	8.438	0.100	0.844	L	
		00 + 926.62	00 + 937.75	11.126	0.100	1.113	L	
		00 + 938.57	00 + 959.67	21.099	0.100	2.110	L	
		00 + 924.53	00 + 978.18	53.655	0.100	5.366	L	
		00 + 075.61	00 + 082.22	6.611	0.100	0.661	R	
		00 + 085.12	00 + 100.66	15.539	0.100	1.554	R	
		00 + 117.72	00 + 128.47	10.751	0.100	1.075	R	
		00 + 139.53	00 + 152.72	13.183	0.100	1.318	R	
						14.462		
SERVICE ROAD		00 + 502.36	00 + 504.62	2.259	0.100	0.226	L	
		00 + 556.74	00 + 563.59	6.847	0.100	0.685	L	
		00 + 779.30	00 + 806.32	27.019	0.100	2.702	L	
		00 + 790.09	00 + 795.59	5.503	0.100	0.550	L	
		00 + 797.43	00 + 807.71	10.277	0.100	1.028	R	
		00 + 808.06	00 + 814.10	6.047	0.100	0.605	R	
		00 + 814.79	00 + 827.79	12.996	0.100	1.300	R	
		00 + 827.97	00 + 833.95	5.973	0.100	0.597	R	
		00 + 834.25	00 + 847.78	13.533	0.100	1.353	R	
		00 + 848.74	00 + 864.12	15.376	0.100	1.538	R	
		00 + 864.91	00 + 874.60	9.695	0.100	0.970	R	
						11.553		
			00 + 158.09	00 + 170.28	12.195	0.100	1.220	R
			00 + 177.86	00 + 183.30	5.440	0.100	0.544	R
			00 + 183.91	00 + 189.83	5.917	0.100	0.592	R
			00 + 195.93	00 + 210.30	14.377	0.100	1.438	R
			00 + 210.04	00 + 220.03	9.996	0.100	1.000	R
			00 + 222.25	00 + 229.81	7.562	0.100	0.756	R
			00 + 232.73	00 + 240.49	7.759	0.100	0.776	R
			00 + 240.00	00 + 257.84	17.836	0.100	1.784	R
			00 + 262.17	00 + 265.97	3.796	0.100	0.380	R
			00 + 436.48	00 + 443.22	6.744	0.100	0.674	R
			00 + 443.43	00 + 448.95	5.514	0.100	0.551	R
			00 + 463.70	00 + 480.22	16.514	0.100	1.651	R
			00 + 485.94	00 + 490.14	4.200	0.100	0.420	R
			00 + 490.78	00 + 498.34	7.559	0.100	0.756	R
			00 + 502.05	00 + 512.11	10.064	0.100	1.006	R
			00 + 598.83	00 + 601.77	2.936	0.100	0.294	R
			00 + 602.51	00 + 607.00	4.491	0.100	0.449	R
			00 + 613.20	00 + 620.00	6.801	0.100	0.680	R
		00 + 621.50	00 + 627.38	5.881	0.100	0.588	R	
					15.558			
QUANTITY OF DEMOLITION OF EXISTING CONCRE				41.573	Cu.M			

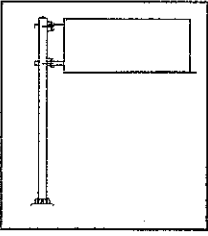
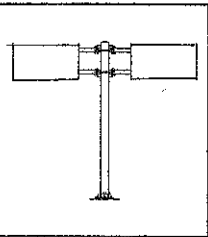
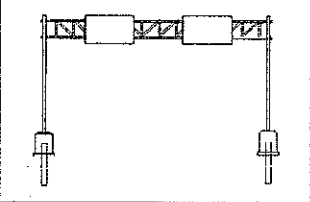
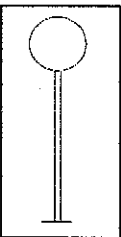
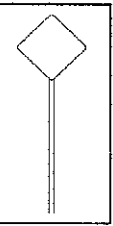
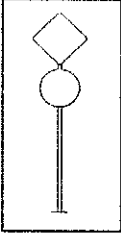
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :		Sheet : 1 of 1		
PROJECT : NAGREG FLYOVER			BACK UP QUANTITY DEMOLITION OF HEDGE OR FENCE			
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO :		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		QUANTITY CALCULATION				REMARKS
		PROJECT : NAGREG FLYOVER				
		STA	Length	L/R		
		Start	End			
MAIN ROAD		00 + 054.46	00 + 060.39	5.933	L	
		00 + 084.76	00 + 112.13	27.370	L	
		00 + 108.59	00 + 136.30	27.712	L	
		61.015				
		00 + 890.21	00 + 911.49	21.279	L	
	21.279					
SERVICE ROAD		00 + 511.49	00 + 511.65	0.162	L	
		00 + 521.23	00 + 528.84	7.619	L	
		00 + 563.46	00 + 567.96	4.500	L	
		00 + 828.07	00 + 828.17	0.095	L	
		00 + 833.20	00 + 833.77	0.568	L	
	12.944					
SERVICE ROAD		00 + 153.00	00 + 153.67	0.673	R	
		00 + 183.62	00 + 189.66	6.038	R	
		00 + 189.60	00 + 191.07	1.469	R	
		00 + 190.82	00 + 199.25	8.425	R	
		00 + 201.36	00 + 209.15	7.795	R	
		00 + 212.13	00 + 220.33	8.201	R	
		00 + 249.18	00 + 255.92	6.731	R	
		00 + 449.44	00 + 462.86	13.415	R	
		00 + 501.71	00 + 511.24	9.529	R	
		00 + 525.43	00 + 535.70	10.265	R	
		72.541				
		QUANTITY DEMOLITION OF HEDGE OF FENCE =				167.779 M
					169.38 ✓	

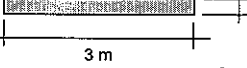
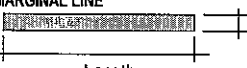
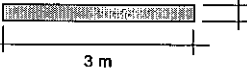
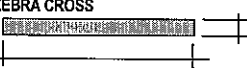



CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/20/2006 14:21	Sheet : of		
PROJECT : NAGREK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : NRS-019, NRD-020, NRD-021, NRD-022, NRD-023, NRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION			REMARKS
		Nagrek Fly Over - Contract Package 2			
		Item No. 7.15(4) - Demolition of Concrete Side Walk			
		MAIN ROAD / FLYOVER			
		STATION		WIDTH	AREA
		START	END		
		0+000.000	0+000.000	0.000	0.000
		0+000.000	0+000.000	0.000	0.000
		SUB TOTAL LENGTH			0.000
		STATION		WIDTH	AREA
		START	END		
		0+000.000	0+000.000	0.000	0.000
		0+000.000	0+000.000	0.000	0.000
		SUB TOTAL LENGTH			0.000
		SERVICE ROAD			
		STATION		LEFT SIDE WIDTH	AREA
		START	END		
		0+000.000	0+000.000	0.000	0.000
		0+000.000	0+000.000	0.000	0.000
		SUB TOTAL LENGTH			0.000
		STATION		RIGHT SIDE WIDTH	AREA
		START	END		
		0+000.000	0+000.000	0.000	0.000
		0+000.000	0+000.000	0.000	0.000
		SUB TOTAL LENGTH			0.000
		TOTAL	= 0.000 cum.		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/20/2006 11:07	Sheet : of			
PROJECT : NAGREK PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : NRS-019, NRD-020, NRD-021, NRD-022, NRD-023, NRD024		ESTIMATOR :	CHECKED BY :			
SKETCH DRAWING		CALCULATION Nagrek Fly Over - Contract Package 2			REMARKS	
<p>Concrete Side Walk</p> <p>Concrete Curb</p>		Item No. 7.15(5) : Demolition of Concrete Curb				
		MAIN ROAD / FLYOVER				
		STATION		LENGTH		
		START	END			
		0+000.000	0+000.000	0.000		
		0+000.000	0+000.000	0.000		
		SUB TOTAL LENGTH		0.000		
		MAIN ROAD / FLYOVER				
		STATION		LENGTH		
		START	END			
		0+000.000	0+000.000	0.000		
		0+000.000	0+000.000	0.000		
		SUB TOTAL LENGTH		0.000		
		SERVICE ROAD				
		STATION		LEFT SIDE LENGTH		
		START	END			
		0+000.000	0+000.000	0.000		
		0+000.000	0+000.000	0.000		
		SUB TOTAL LENGTH		0.000		
		STATION		RIGHT SIDE LENGTH		
START	END					
0+000.000	0+000.000	0.000				
0+000.000	0+000.000	0.000				
SUB TOTAL LENGTH		0.000				
TOTAL	0.000 m.					

DIVISION 8.
Miscellaneous

CONSTRUCTION COST ESTIMATE WORKSHEET			Date Prepared :		Sheet : 1 of 2		
PROJECT : NAGREG FLYOVER			BACK UP QUANTITY SOLID SODING				
NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL			8-1 (1)				
DRAWING NO :		ESTIMATOR :		CHECKED BY :			
SKETCH DRAWING		QUANTITY CALCULATION			REMARKS		
		PROJECT : NAGREG FLYOVER					
		STA	Length	Average	Area		
		Start	End	Width	(Sq.M)		
MAIN ROAD / FLY OVER		00 + 496.24	00 + 506.34	10.100	15.221	153.732	
		00 + 506.34	00 + 513.83	7.489	14.447	108.194	
		00 + 513.83	00 + 517.94	4.106	6.713	27.564	
		00 + 532.10	00 + 534.77	2.672	5.296	14.151	
		00 + 534.77	00 + 538.35	3.578	11.645	41.666	
		00 + 538.35	00 + 545.16	6.813	12.082	82.315	
		00 + 545.16	00 + 560.58	15.418	9.888	152.453	
		00 + 560.58	00 + 602.04	41.459	5.584	231.507	
		00 + 000.00	00 + 603.38	603.382	1.430	862.836	
		00 + 625.30	00 + 625.87	0.568	0.756	0.429	
		00 + 625.87	00 + 627.56	1.693	3.657	6.191	
		00 + 627.56	00 + 628.16	0.600	6.160	3.696	
		00 + 000.00	00 + 629.11	629.113	6.420	4038.905	
		00 + 629.11	00 + 635.24	6.127	3.901	23.901	
		00 + 635.24	00 + 635.73	0.492	0.741	0.365	
		00 + 717.09	00 + 718.09	1.001	10.597	10.608	
		00 + 718.09	00 + 718.74	0.647	12.680	8.204	
			TOTAL		5766.717	Sq.M	
SERVICE ROAD		00 + 662.75	00 + 663.12	0.373	2.433	0.908	
		00 + 663.12	00 + 680.25	17.125	2.559	43.823	
		00 + 680.25	00 + 696.93	16.687	2.880	48.059	
		00 + 696.93	00 + 700.93	3.993	3.460	13.816	
		00 + 700.93	00 + 704.08	3.157	3.838	12.117	
			TOTAL		118.721	Sq.M	
		QUANTITY SOLID SODING		=	5885.438	Sq.M	✓

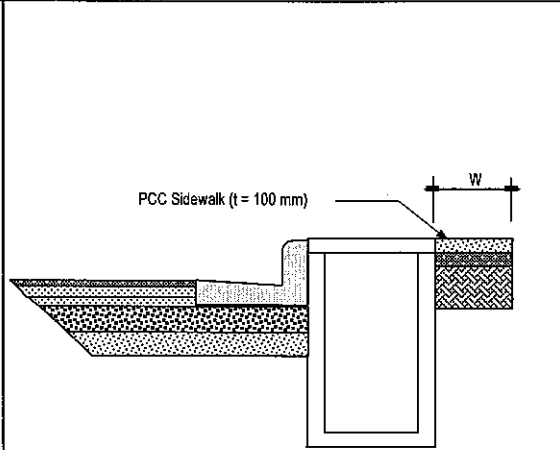
CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		BACK UP QUAMTITY ROAD SIGN	
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		ESTIMATOR :	CHECKED BY :
SKETCH DRAWING	CALCULATION		REMARKS Drawing No.
 <p>Overhead Sign Type A</p>  <p>Overhead Sign Type B</p>  <p>Overhead Sign Type C</p>  <p>Regulatory and Warning Sign Type A</p>  <p>Regulatory and Warning Sign Type A</p>  <p>Regulatory and Warning Sign Type A</p>	0		
	- Overhead Sign Type B = 1 Each		NTR - 001
	- Overhead Sign Type B = 1 Each		NTR - 002
	2		
	- Reg & Warning Sign Type A = 3 Each		NTR - 001
	- Reg & Warning Sign Type A = 3 Each		NTR - 002
	- Reg & Warning Sign Type A = 12 Each		NTR - 003
	- Reg & Warning Sign Type A = 9 Each		NTR - 004
	27		
	- Reg & Warning Sign Type A = 7 Each		NTR - 001
	- Reg & Warning Sign Type A = 3 Each		NTR - 002
	- Reg & Warning Sign Type A = 9 Each		NTR - 003
	- Reg & Warning Sign Type A = 5 Each		NTR - 004
	24		
	- Reg & Warning Sign Type B = 2 Each		NTR - 003
	SUMMARY QUANTITY ROAD SIGN		
	- Overhead Sign Type A 0 Each		
	- Overhead Sign Type B 2 Each		
	- Overhead Sign Type C 0 Each		
	- Regulatory & Warning Sign Type A 51 Each		
- Regulatory & Warning Sign Type B 2 Each			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet: of				
PROJECT : NAGREK FLY OVER							
NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO :		ESTIMATOR :	CHECKED BY :				
SKETCH DRAWING		CALCULATION				REMARKS	
		Nagrek Flyover - Contract Package 2					
1	SEPARATOR LINE  3 m 'Note : - Area of 1 Marking = 0.36 M ² '	Item No. : - Road Marking				ROAD MARKING	
		Note: See Detailed Construction Layout Plan Dwg. # NTR-003 - NTR-008 for reference.				FLYOVER	
2	MARGINAL LINE  Length 'Note : - Area of Marking = Length x 0.12 m'	Station	Marginal Strip Length	Separator Line Sum of Marks	Warning Line Sum of Marks	Zebra Cross Sum of Marks	Area (m ²)
		00 + 000.00	1230.0	0	0	0	147.597
3	WARNING LINE  3 m 'Note : - Area of 1 Marking = 0.36 M ² '					SUM	147.60
		TOTAL AREA ROAD MARKING FLYOVER =				147.60 (m ²)	
4	ZEBRA CROSS  4 m 'Note : - Area of 1 Marking = 1.2 M ² '	TOTAL AREA				734.48 (m ²)	
5	ARROW a. TYPE 1 (DIRECT)  'Note : - Area of 1 Arrow = 1.1M ² ' b. TYPE 2 (TURN LEFT/RIGHT)  'Note : - Area of 1 Marking = 1.18 M ² ' c. TYPE 3 (DIRECT AND TURN LEFT/RIGHT)  'Note : - Area of 1 Marking = 1.48 M ² '						

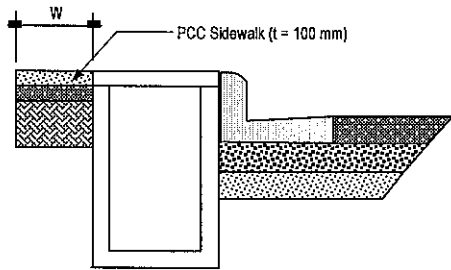
PROJECT : NAGREG FLYOVER		
NORTH JAVA CORRIDOR FLYOVER PROJECT		
KATAHIRA AND ENGINEERS INTERNATIONAL		

DRAWING NO :	ESTIMATOR :	CHECKED BY :	
--------------	-------------	--------------	--

SKETCH DRAWING	CALCULATION	REMARKS
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Section of PCC Sidewalk



Section of PCC Sidewalk

Nagreg Flyover - Contract Package 2

Item No. 8.9.(5) - Concrete Sidewalk

Note: See Detailed Construction Layout Plan

Dwg. # NRD-022 - NRD-028 for reference.

At Right Service Road

Length	Ave. Width	Area
(m)	(m)	(m ²)
115.738	0.921	106.59
177.138	0.947	167.75
67.652	0.789	53.38
94.054	0.403	37.90
215.813	0.444	95.82
Sub-Total =		461.44 sqm.

At Left Service Road

Length	Ave. Width	Area
(m)	(m)	(m ²)
443.990	0.890	395.15
150.687	0.402	60.58
120.664	0.401	48.39
Sub-Total =		504.12 sqm.

At Main Road

140.00	0.921	128.94
109.00	0.444	48.40
128.00	1.025	131.20
104.00	0.401	41.70
Sub-Total =		350.24 sqm.

Total Area of Concrete Sidewalk

At= 1,315.80 sqm.

DIVISION 9.
Facilities

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : NAGREG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		BACK UP ELECTRICAL	
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		ESTIMATOR :	CHECKED BY :
SKETCH DRAWING		CALCULATION	
ELECTRICAL UNDER VIADUCT		1. Panel LP-PJU FO = 0 Each	
		2. Cealling sont 150 watt = 20 Each	
		3. Cable NYY 2 x 2.5 mm ² = 210+20x5 = 310 m	
FLY OVER		1. Panel LP-PJU.FO = 1 Each	
		2. Ligthing Pole (sont 250 watt) = 25 Each	
		3. Cable NYY 2x2.5mm ² = 25x11.5 = 287.5 m	
		4. Cable NYFGBY 4 x 10mm ² = (860-140)+(830-170)+25X2 = 1430 M	
SERVICE ROAD		1. Panel LP-PJU.1 = 1 Each	
		2. Panel LP-PJU.2 = 1 Each	
		3. Panel LP-PJU.3 = 1 Each	
		4. Panel LP-PJU.4 = 1 Each	
		5. Panel LP-PJU.5 = 1 Each	
		6. Lighting Pole = 57 Each	
		7. Cable NYY 2x2.5 mm ² = 57 x 11.5 = 655.5 M	
		8. Cable NYFGBY 4 x 10 mm ² = 1160X2+57x2 = 2434 m	
		9. Cable NYFGBY 4 x 25 mm ² :	
		PLN to LP-PJU.1 = 570 m	
		PLN to LP-PJU.2 = 305 m	
		PLN to LP-PJU.3 = 10 m	
		PLN to LP-PJU.4 = 10 m	
		PLN to LP-PJU.5 = 130 m	
		1615 M	
		Cable NYFGBY 4 x 50 mm ² = 200 M	
		SUMMARY QUANTITY NAGREG FO	
		1. Panel LP-PJU.FO = 1 Each	
		Panel LP-PJU.1 = 1 Each	
		Panel LP-PJU.2 = 1 Each	
		Panel LP-PJU.3 = 1 Each	
		Panel LP-PJU.4 = 1 Each	
		Panel LP-PJU.5 = 1 Each	
	2. Ligthing Pole (sont 250 watt) = 82 Each		
	3. Ceilling Sont 150 watt = 20 Each		
	4. Cable NYY 2 x 2.5 mm ² = 1253 M		
	Cable NYFGBY 4 x 10 mm ² = 3864 M		
	Cable NYFGBY 4 x 25 mm ² = 1615 M		
	Cable NYFGBY 4 x 50 mm ² = 200 M		

**Relocation & Protection
of Existing Utilities**

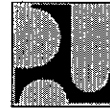
COST ESTIMATE FOR UTILITY PROTECTION AND RELOCATION

NAGREG FLYOVER

No.	Description	Unit	Estimate Quantity	Unit Price (Rp.)	Amount (Rp.)	Remarks
1	Mobilization and Demobilization (Oil Pipe Construction Equipment)	Ls				
	ABOVE GROUND					
2	Relocation of Existing Electricity (PLN), Pole medium Voltage	Each				
3	Relocation of Existing Electricity (PLN), Pole Low Voltage	Each				
4	Electric Cable Above Ground	Ln.M				
5	Relocation of Existing Telephone Utility pole	Each				
6	Telephone Cable Above Ground	Ln.M				
	UNDER GROUND					
7	Crossing Under Ground Duct with PVC dia 4"	Ln.M				
8	Oil Pipe Relocation dia 400 mm	Ln.M				
9	Cost for Connection	Ls				
10	Protection of Existing Oil Pipe Type A	Ln.M				
11	Protection of Existing Oil Pipe Type D	Ln.M				
12	Dig and deepen Optic Cable	Ln.M				
				TOTAL COST	0.00	



JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

DETAILED DESIGN STUDY
OF
NORTH JAVA CORRIDOR FLYOVER PROJECT
IN THE REPUBLIC OF INDONESIA

QUANTITY CALCULATION
GEBANG FLYOVER

CONTRACT PACKAGE 2
(NAGREG - GEBANG)



KATAHIRA & ENGINEERS INTERNATIONAL

**THE NORTH JAVA CORRIDOR FLYOVER PROJECT
QUANTITY CALCULATION
GEBANG FLYOVER**

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DIVISION 1.
General

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :	Sheet : of	
PROJECT : GEBANG FLYOVER		BACK QUANTITY GENERAL		
NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :	ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING	QUANTITY CALCULATION		REMARKS	
	PROJECT : GEBANG FLYOVER			
	Pay Item	Unit	Quantity	
	1.2 Mobilization and Demobilization	Ls	1	
	1.2 (1)b. Engineer facilities	Ls	1	
	1.8 Maintenance and Protection of traffic	Ls	1	

DIVISION 2.

Drainage

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	BACK UP QUANTITY OF MORTARED STONE WORK		Sheet : of			
PROJECT : GEBANG FLYOVER								
NORTH JAVA CORRIDOR FLYOVER PROJECT								
KATAHIRA AND ENGINEERS INTERNATIONAL								
DRAWING NO :			ESTIMATOR :		CHECKED BY :			
SKETCH DRAWING			CALCULATION		REMARKS			
<p>MORTARED STONE WORK TYPE III</p>			PROJECT : GEBANG FLYOVER					
			Drawing GDG - 001 (Drainage Schedule at grade)					
			DMH to DMH		Heigh	Length	Area	Quantity
					M	M	Sq.M	Cu. M
			DMH-100	DMH-99	0.759	10.000	1.147	11.472
								Type III
			TOTAL					11.472
			QUANTITY OF MORTARED STONWORK =					11.472 Cu. M

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 10/9/2006 14:40	Sheet: 1 of 1
PROJECT : GEBANG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT		BACK UP DRAINAGE	
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		ESTIMATOR :	CHECKED BY :
SKETCH DRAWING	CALCULATION		REMARKS
Drainage Schedule at Flyover	Drawing No. GDV 001: Drainage Schedule - Deck drain Type II (L) = 0 Each - Deck drain Type II (R) = 0 Each - PVC dia 200 mm = 118.9 M - Steel Gutter = 80 M - Outer Gutter = 225 M Approach 1 - Deck drain Type II (L) = 0 Each - Deck drain Type II (R) = 7 Each - PVC dia 200 mm = 14.58 M Approach 2 - Deck drain Type II (L) = 0 Each - Deck drain Type II (R) = 8 Each - PVC dia 200 mm = 21.74 M		
Drainage Schedule Under Flyover	Drawing No. GDV 002 : - Uditch DS 1 = 260.6 M - Uditch DS 5 = 200 M - PVC dia 250 mm = 135.2 M - RCP dia 600 mm = 29.7 M (Type B) - Manhole Type VII = 15 Each - Manhole Type VIII = 2 Each - Catch Basin Type I = 15 Each Drawing No. GDG 001 : Drainage Slope Right - Uditch DS 4 = 555.9 M - RCP dia 800 mm = 383.6 M (Type A) - Manhole Type I = 28 Each - Manhole Type II = 0 Each - Manhole Type III = 15 Each - Manhole Type IV = 1 Each - Manhole Type V = 3 Each - Manhole Type VI = 2 Each Drainage Slope Left - Uditch DS 4 = 584.5 M - RCP dia 800 mm = 294.4 M (Type A) - Manhole Type I = 29 Each - Manhole Type II = 0 Each - Manhole Type III = 12 Each - Manhole Type IV = 0 Each - Manhole Type V = 0 Each - Manhole Type VI = 3 Each		
SUMMARY QUANTITY OF DRAINAGE - PVC Drain Pipe dia 150 mm 0.00 M - PVC Drain Pipe dia 200 mm 155.22 M - PVC Drain Pipe dia 250 mm 135.20 M - RCP dia 600 mm (Type B) 29.70 M - RCP dia 800 mm (Type A) 678.00 M - RCP dia 800 mm (Type B) 0.00 M - Manhole Type I 57.00 Each - Manhole Type II 0.00 Each - Manhole Type III 27.00 Each - Manhole Type IV 1.00 Each - Manhole Type V 3.00 Each - Manhole Type VI 5.00 Each - Manhole Type VII 15.00 Each - Manhole Type VIII 2.00 Each - Catch Basin Type I 15.00 Each - Uditch DS 1 260.60 M - Uditch DS 4 1140.40 M - Uditch DS 4A 39.60 M - Uditch DS 5 200.00 M - Deck Drain Type I 0.00 Each - Deck Drain Type II 15.00 Each - Steel Gutter 80.00 M - Outer Gutter 225.00 M			
			- Uditch DS 4A 39.6

DIVISION 3.
Earthworks

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/21/2006 16:43	Sheet : of		
PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION Gebang Fly Over - Contract Package 2			REMARKS
Item No. 3.1(1) - Clearing and Grubbing					
MAIN ROAD BEFORE FLYOVER					
STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA	
0+003.704	0.000	0.000	0.000	0.000	
0+005.704	1.500	0.750	2.000	1.500	
0+023.450	1.500	1.500	17.746	26.619	
0+025.450	0.000	0.750	2.000	1.500	
0+028.330	0.000	0.000	2.880	0.000	
0+030.330	1.500	0.750	2.000	1.500	
0+106.358	1.500	1.500	76.028	114.042	
0+108.358	0.000	0.750	0.000	0.000	
0+110.827	0.000	0.000	2.469	0.000	
0+112.827	1.500	0.750	2.000	1.500	
0+148.000	1.500	1.500	35.173	52.760	
SUB TOTAL LEFT AREA				199.421	
STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA	
0+003.704	0.000	0.000	0.000	0.000	
0+020.000	0.330	0.165	16.296	2.689	
0+040.000	0.995	0.663	20.000	13.250	
0+050.803	1.517	1.256	10.803	13.589	
0+054.044	3.196	2.357	3.241	7.637	
0+055.011	6.723	4.960	0.967	4.796	
0+057.741	6.909	6.816	2.730	18.608	
0+059.367	3.611	5.260	1.626	8.553	
0+060.000	3.282	3.447	0.633	2.182	
0+062.047	2.460	2.871	2.047	5.877	
0+062.962	2.427	2.444	0.915	2.236	
0+080.000	3.975	3.201	17.038	54.539	
0+100.000	5.340	4.658	20.000	93.150	
0+120.000	5.946	5.643	20.000	112.860	
0+140.000	6.490	6.218	20.000	124.360	
0+148.000	6.705	6.598	8.000	52.780	
SUB TOTAL RIGHT AREA				517.084	
MAIN ROAD AFTER FLYOVER					
STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA	
0+908.000	1.500	1.500	0.000	0.000	
0+979.458	1.500	1.500	71.458	107.187	
0+981.458	0.000	0.750	2.000	1.500	
0+987.023	0.000	0.000	0.000	0.000	
0+989.023	1.500	0.750	2.000	1.500	
1+038.225	1.500	1.500	49.202	73.803	
1+040.225	0.000	0.750	2.000	1.500	
0+000.000	0.000	0.000	0.000	0.000	
0+000.000	0.000	0.000	0.000	0.000	
SUB TOTAL LEFT AREA				185.490	
STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA	
0+908.000	6.425	3.213	0.000	0.000	
0+920.000	6.367	6.396	12.000	76.752	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/21/2006 16:43	Sheet : of		
PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION			REMARKS
		Gebang Fly Over - Contract Package 2			
		Item No. 3.1(1) - Clearing and Grubbing			
	0+940.000	5.419	5.893	20.000	117.860
	0+957.291	4.157	4.788	17.291	82.789
	0+960.000	4.900	4.529	2.709	12.268
	0+962.000	8.071	6.486	2.000	12.971
	0+964.712	8.677	8.374	2.712	22.710
	0+965.795	5.225	6.951	1.083	7.528
	0+969.069	3.685	4.455	3.274	14.586
	0+980.000	3.480	3.583	10.931	39.160
	1+000.000	2.327	2.904	20.000	58.070
	1+020.000	1.160	1.744	20.000	34.870
	1+038.074	0.000	0.580	18.074	10.483
	SUB TOTAL RIGHT AREA				490.047
		SERVICE ROAD			
	STA	LEFT SIDE WIDTH	AVE. LEFT WIDTH	LENGTH	AREA
	0+148.000	1.500	1.500	0.000	0.000
	0+169.996	1.500	1.500	21.996	32.994
	0+171.996	0.000	0.750	2.000	1.500
	0+175.007	0.000	0.000	0.000	0.000
	0+177.322	1.500	0.750	2.315	1.736
	0+206.031	1.500	1.500	28.709	43.064
	0+208.251	0.000	0.750	2.220	1.665
	0+210.387	0.000	0.000	0.000	0.000
	0+212.455	1.500	0.750	2.068	1.551
	0+249.125	1.500	1.500	36.670	55.005
	0+251.240	0.000	0.750	2.115	1.586
	0+256.039	0.000	0.000	0.000	0.000
	0+259.002	1.500	0.750	2.963	2.222
	0+311.599	1.500	1.500	52.597	78.896
	0+313.690	0.000	0.750	2.091	1.568
	0+316.792	0.000	0.000	0.000	0.000
	0+319.455	1.500	0.750	2.663	1.997
	0+415.992	1.500	1.500	96.537	144.806
	0+418.765	0.000	0.750	2.773	2.080
	0+464.696	0.000	0.000	0.000	0.000
	0+467.321	1.500	0.750	2.625	1.969
	0+908.000	1.500	1.500	440.679	661.019
	0+000.000	0.000	0.000	0.000	0.000
	SUB TOTAL LEFT AREA				1,033.657
	STA	RIGHT SIDE WIDTH	AVE. RIGHT WIDTH	LENGTH	AREA
	0+148.000	5.000	2.500	1.200	105.130
	0+194.274	5.000	5.000	46.274	231.370
	0+197.366	6.230	5.615	3.092	17.362
	0+198.767	9.249	7.740	1.401	10.843
	0+200.000	9.379	9.314	1.233	11.484
	0+201.189	9.495	9.437	1.189	11.221
	0+202.505	6.320	7.908	1.316	10.406
	0+204.568	5.142	5.731	2.063	11.823
	0+205.689	5.000	5.071	1.121	5.685
	0+311.603	5.000	5.000	105.914	529.570
	0+314.633	6.181	5.591	3.030	16.939
	0+316.090	9.102	7.642	1.457	11.134

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/21/2006 16:43		Sheet : of		
PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION Gebang Fly Over - Contract Package 2				REMARKS
		Item No. 3.1 (1) - Clearing and Grubbing				
	0+318.569	10.203	9.653	2.479	23.929	
	0+320.000	6.088	8.146	1.431	11.656	
	0+322.943	5.000	5.544	2.943	16.316	
	0+340.000	5.000	5.000	17.057	85.285	
	0+360.000	3.774	4.387	20.000	87.740	
	0+364.058	3.455	3.615	4.058	14.668	
	0+365.899	4.062	3.759	1.841	6.919	
	0+366.757	5.381	4.722	0.858	4.051	
	0+367.747	5.762	5.572	0.990	5.516	
	0+368.171	3.877	4.820	0.424	2.043	
	0+369.638	2.977	3.427	1.467	5.027	
	0+380.000	1.682	2.330	10.362	24.138	
	0+399.660	0.000	0.841	19.660	16.534	
	0+499.458	0.000	0.000	99.798	0.000	
	0+500.000	0.014	0.007	0.542	0.004	
	0+520.000	0.557	0.286	20.000	5.710	
	0+520.638	0.562	0.560	0.638	0.357	
	0+540.000	1.762	1.162	19.362	22.499	
	0+560.000	3.677	2.720	20.000	54.390	
	0+580.000	4.081	3.879	20.000	77.580	
	0+593.079	3.748	3.915	13.079	51.198	
	0+597.656	3.988	3.868	4.577	17.704	
	0+600.000	4.373	4.181	2.344	9.799	
	0+602.539	5.025	4.699	2.539	11.931	
	0+603.227	6.934	5.980	0.688	4.114	
	0+607.040	8.143	7.539	3.813	26.744	
	0+609.244	2.534	5.339	2.204	11.766	
	0+616.508	2.566	2.550	7.264	18.523	
	0+616.847	7.242	4.904	0.339	1.662	
	0+620.000	4.703	5.973	3.153	18.831	
	0+622.271	3.201	3.952	2.271	8.975	
	0+625.829	2.318	2.760	3.558	9.818	
	0+633.041	2.318	2.318	7.212	16.717	
	0+640.000	1.802	2.060	6.959	14.336	
	0+650.124	1.136	1.469	10.124	14.872	
	0+660.000	1.132	1.134	9.876	11.199	
	0+680.000	2.933	2.033	20.000	40.650	
	0+693.457	5.000	3.967	13.457	53.377	
	0+700.000	5.000	5.000	6.543	32.715	
	0+794.352	5.000	5.000	94.352	471.760	
	0+797.424	6.206	5.603	3.072	17.212	
	0+798.851	9.179	7.693	1.427	10.977	
	0+800.000	9.665	9.422	1.149	10.826	
	0+800.284	9.789	9.727	0.284	2.762	
	0+801.496	6.422	8.106	1.212	9.824	
	0+804.785	5.000	5.711	3.289	18.783	
	0+820.000	5.000	5.000	15.215	76.075	
	0+908.000	5.000	5.000	88.000	440.000	
		SUB TOTAL RIGHT AREA			2,872.481	
	Total Area		= 3,774.48 sqm.	✓		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :		Sheet : 1 of 2		
PROJECT : GEBANG FLYOVER			BACK QUANTITY SELECTED TREE REMOVAL			
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO :		ESTIMATOR :		CHECKED BY		
SKETCH DRAWING		QUANTITY CALCULATION				REMARKS
		PROJECT : GEBANG FLYOVER				
		Selected Tree Removal Dia ≤ 300 mm				
		Main Road				
		Sta	L/R	Quantity	Unit	
		0 + 053	R	1.00	Each	
		0 + 914	R	1.00	Each	
		0 + 976	R	1.00	Each	
		TOTAL		3.00	Each	
		Service Road				
		Sta	L/R	Quantity	Unit	
		0 + 155	R	1.00	Each	
		0 + 257	R	1.00	Each	
		0 + 304	R	1.00	Each	
		0 + 311	R	1.00	Each	
		0 + 697	R	1.00	Each	
		0 + 718	L R	2.00	Each	
		0 + 723	R	1.00	Each	
		0 + 730	R	1.00	Each	
		0 + 743	R	1.00	Each	
		0 + 828	R	1.00	Each	
		0 + 849	R	1.00	Each	
		0 + 880	R	1.00	Each	
		0 + 891	R	1.00	Each	
		TOTAL		14.00	Each	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared :		Sheet : 2 of 2
PROJECT : GEBANG FLYOVER		BACK QUANTITY SELECTED TREE REMOVAL		
NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :		ESTIMATOR :	CHECKED BY	
SKETCH DRAWING		QUANTITY CALCULATION PROJECT : GEBANG FLYOVER		REMARKS
		Selected Tree Removal Dia \geq 300 mm		
		Main Road		
		Sta	L/R	Quantity Unit
		0 + 073	R	1.00 Each
		0+ 925	R	1.00 Each
		0+ 853	R	1.00 Each
		TOTAL		3.00 Each
		Servive Road		
		Sta	L/R	Quantity Unit
		0 + 145	L R	1.00 Each
		0+ 200	L	1.00 Each
		0+ 233	L R	2.00 Each
		0+ 268	R	1.00 Each
		0+ 415	L	1.00 Each
		0+ 824	L	1.00 Each
		0+ 836	L	1.00 Each
		0+ 851	L	1.00 Each
		0+ 873	L	1.00 Each
		0+ 898	L	1.00 Each
		TOTAL		11.00 Each
		SUMMARY QUANTITY SELECTED TREE REMOVAL		
		Selected Tree Removal Dia \leq 300 mm	=	17.00 Each
		Selected Tree Removal Dia \geq 300 mm	=	14.00 Each

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 10/4/2006 17:44		Sheet : of		
PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :		CHECKED BY :		
SKETCH DRAWING		CALCULATION Gebang Fly Over - Contract Package 2				REMARKS
Item No. 3.2 (f) - Common Excavation						
MAIN ROAD BEFORE FLYOVER						
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME		
0+003.704	0.000	0.000	0.000	0.000		
0+005.704	1.125	0.563	2.000	1.125		
0+023.450	1.125	1.125	17.746	19.964		
0+025.450	0.000	0.563	2.000	1.125		
0+028.330	0.000	0.000	2.880	0.000		
0+030.330	1.125	0.563	2.000	1.125		
0+106.358	1.125	1.125	76.028	85.532		
0+108.358	0.000	0.000	0.000	0.000		
0+110.827	0.000	0.000	2.469	0.000		
0+112.827	1.125	0.563	2.000	1.125		
0+148.000	1.125	1.125	35.173	39.570		
SUB TOTAL LEFT VOLUME				149.565		
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME		
0+003.704	0.000	0.000	0.000	0.000		
0+020.000	0.248	0.124	16.296	2.017		
0+040.000	0.746	0.497	20.000	9.938		
0+050.803	1.138	0.942	10.803	10.176		
0+054.044	2.397	1.767	3.241	5.728		
0+055.011	5.042	3.720	0.967	3.597		
0+057.741	5.182	5.112	2.730	13.956		
0+059.367	2.708	3.945	1.626	6.415		
0+060.000	2.462	2.585	0.633	1.636		
0+062.047	1.845	2.153	2.047	4.408		
0+062.962	1.820	1.833	0.915	1.677		
0+080.000	2.981	2.401	17.038	40.904		
0+100.000	4.005	3.493	20.000	69.863		
0+120.000	4.460	4.232	20.000	84.645		
0+140.000	4.868	4.664	20.000	93.270		
0+148.000	5.029	4.948	8.000	39.585		
SUB TOTAL RIGHT VOLUME				387.813		
MAIN ROAD AFTER FLYOVER						
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME		
0+908.000	1.125	0.563	0.000	0.000		
0+979.458	1.125	1.125	71.458	80.390		
0+981.458	0.000	0.563	2.000	1.125		
0+987.023	0.000	0.000	5.565	0.000		
0+989.023	1.125	0.563	2.000	1.125		
1+038.225	1.125	1.125	49.202	55.352		
1+040.225	0.000	0.563	2.000	1.125		
SUB TOTAL LEFT VOLUME				139.118		
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME		
0+908.000	4.819	2.409	0.000	0.000		
0+920.000	4.775	4.797	12.000	57.564		
0+940.000	4.064	4.420	20.000	88.395		
0+957.291	3.118	3.591	17.291	62.092		

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 10/4/2006 17:44			Sheet : of		
PROJECT : GEBANG PROJECT							
NORTH JAVA CORRIDOR FLYOVER PROJECT							
KATAHIRA AND ENGINEERS INTERNATIONAL							
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :			CHECKED BY :		
SKETCH DRAWING		CALCULATION					REMARKS
Gebang Fly Over - Contract Package 2							
Item No. 3.2 (1) - Common Excavation							
0+960.000	3.675	3.396	2.709	9.201			
0+962.000	6.053	4.864	2.000	9.728			
0+964.712	6.508	6.281	2.712	17.033			
0+965.795	3.919	5.213	1.083	5.646			
0+969.069	2.764	3.341	3.274	10.939			
0+980.000	2.610	2.687	10.931	29.370			
1+000.000	1.745	2.178	20.000	43.553			
1+020.000	0.870	1.308	20.000	26.153			
1+038.074	0.000	0.435	18.074	7.862			
SUB TOTAL RIGHT VOLUME				367.535			
SERVICE ROAD							
STA	LEFT SIDE AREA	AVE. LEFT AREA	LENGTH	VOLUME			
0+148.000	1.125	0.563	0.000	0.000			
0+169.996	1.125	1.125	21.996	24.746			
0+171.996	0.000	0.563	2.000	1.125			
0+175.007	0.000	0.000	3.011	0.000			
0+177.322	1.125	0.563	2.315	1.302			
0+206.031	1.125	1.125	28.709	32.298			
0+208.251	0.000	0.563	2.220	1.249			
0+210.387	0.000	0.000	2.136	0.000			
0+212.455	1.125	0.563	2.068	1.163			
0+249.125	1.125	1.125	36.670	41.254			
0+251.240	0.000	0.563	2.115	1.190			
0+256.039	0.000	0.000	4.799	0.000			
0+259.002	1.125	0.563	2.963	1.667			
0+311.599	1.125	1.125	52.597	59.172			
0+313.690	0.000	0.563	2.091	1.176			
0+316.792	0.000	0.000	3.102	0.000			
0+319.455	1.125	0.563	2.663	1.498			
0+415.992	1.125	1.125	96.537	108.604			
0+418.765	0.000	0.563	2.773	1.560			
0+464.696	0.000	0.000	45.931	0.000			
0+467.321	1.125	0.563	2.625	1.477			
0+908.000	1.125	1.125	440.679	495.764			
SUB TOTAL LEFT VOLUME				775.243			
STA	RIGHT SIDE AREA	AVE. RIGHT AREA	LENGTH	VOLUME			
0+148.000	3.750	1.875	0.000	0.000			
0+194.274	3.750	3.750	46.274	173.528			
0+197.366	4.673	4.211	3.092	13.021			
0+198.767	6.937	5.805	1.401	8.132			
0+200.000	7.034	6.986	1.233	8.613			
0+201.189	7.121	7.078	1.189	8.415			
0+202.505	4.740	5.931	1.316	7.805			
0+204.568	3.857	4.298	2.063	8.867			
0+205.689	3.750	3.803	1.121	4.263			
0+311.603	3.750	3.750	105.914	397.178			
0+314.633	4.636	4.193	3.030	12.704			
0+316.090	6.827	5.731	1.467	8.350			
0+318.569	7.652	7.239	2.479	17.946			
0+320.000	4.566	6.109	1.431	8.742			
0+322.943	3.750	4.158	2.943	12.237			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 10/4/2006 17:44	Sheet : of		
PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT					
KATAHIRA AND ENGINEERS INTERNATIONAL					
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING		CALCULATION Gebang Fly Over - Contract Package 2			REMARKS
		Item No. 3.2 (1) - Common Excavation			
	0+340.000	3.750	3.750	17.057	63.964
	0+360.000	2.831	3.290	20.000	65.805
	0+364.058	2.591	2.711	4.058	11.001
	0+365.899	3.047	2.819	1.841	5.190
	0+366.757	4.036	3.541	0.858	3.038
	0+367.747	4.322	4.179	0.990	4.137
	0+368.171	2.908	3.615	0.424	1.533
	0+369.638	2.233	2.570	1.467	3.771
	0+380.000	1.262	1.747	10.362	18.104
	0+399.660	0.000	0.631	19.660	12.401
	0+499.458	0.000	0.000	99.798	0.000
	0+500.000	0.011	0.005	0.542	0.003
	0+520.000	0.418	0.214	20.000	4.263
	0+520.638	0.422	0.420	0.638	0.268
	0+540.000	1.322	0.872	19.362	16.874
	0+560.000	2.758	2.040	20.000	40.793
	0+580.000	3.061	2.909	20.000	58.185
	0+593.079	2.811	2.936	13.079	38.398
	0+597.656	2.991	2.901	4.577	13.278
	0+600.000	3.280	3.135	2.344	7.349
	0+602.539	3.769	3.524	2.539	8.948
	0+603.227	5.201	4.485	0.688	3.085
	0+607.040	6.107	5.654	3.813	21.558
	0+609.244	1.901	4.004	2.204	8.825
	0+616.508	1.925	1.913	7.264	13.892
	0+616.847	5.432	3.678	0.339	1.247
	0+620.000	3.527	4.479	3.153	14.123
	0+622.271	2.401	2.964	2.271	6.731
	0+625.829	1.739	2.070	3.558	7.364
	0+633.041	1.739	1.739	7.212	12.538
	0+640.000	1.352	1.545	6.959	10.752
	0+650.124	0.852	1.102	10.124	11.154
	0+660.000	0.849	0.851	9.876	8.400
	0+680.000	2.200	1.524	20.000	30.488
	0+693.457	3.750	2.975	13.457	40.033
	0+700.000	3.750	3.750	6.543	24.536
	0+794.352	3.750	3.750	94.352	353.820
	0+797.424	4.655	4.202	3.072	12.909
	0+798.851	6.884	5.769	1.427	8.233
	0+800.000	7.249	7.067	1.149	8.119
	0+800.284	7.342	7.295	0.284	2.072
	0+801.496	4.817	6.079	1.212	7.368
	0+804.785	3.750	4.283	3.289	14.088
	0+820.000	3.750	3.750	15.215	57.056
	0+908.000	3.750	3.750	88.000	330.000
	SUB TOTAL RIGHT VOLUME				2,075.513
	TOTAL	= 3,894.787 cum.			

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 10/4/2006 18:05	Sheet : of			
PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024		ESTIMATOR :	CHECKED BY :			
SKETCH DRAWING		CALCULATION			REMARKS	
		Cebang Fly Over - Contract Package 2				
		Item No. 3.1(3) - Excavation of Existing Pavement				
		MAIN ROAD BEFORE FLYOVER				
STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOL
			START	END	LENGTH	
0+000.000	0.000	0.000	0+000.000	0+000.000	0.000	0.000
0+020.000	0.000	0.000	0+000.000	0+020.000	20.000	0.000
0+040.000	0.000	0.000	0+020.000	0+040.000	20.000	0.000
0+060.000	0.000	0.000	0+040.000	0+060.000	20.000	0.000
0+080.000	0.000	0.000	0+060.000	0+080.000	20.000	0.000
0+100.000	0.000	0.000	0+080.000	0+100.000	20.000	0.000
0+120.000	0.000	0.000	0+100.000	0+120.000	20.000	0.000
0+140.000	0.000	0.000	0+120.000	0+140.000	20.000	0.000
0+160.000	0.000	0.000	0+140.000	0+148.000	8.000	0.000
SUB TOTAL LEFT VOLUME						0.000
RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOL	
		START	END	LENGTH		
0.000	0.000	0+000.000	0+003.704	3.704	0.000	
0.190	0.095	0+003.704	0+020.000	16.296	1.548	
0.190	0.190	0+020.000	0+040.000	20.000	3.800	
0.190	0.190	0+040.000	0+060.000	20.000	3.800	
0.190	0.190	0+060.000	0+080.000	20.000	3.800	
0.190	0.190	0+080.000	0+100.000	20.000	3.800	
0.190	0.190	0+100.000	0+120.000	20.000	3.800	
0.190	0.190	0+120.000	0+140.000	20.000	3.800	
0.000	0.095	0+140.000	0+148.000	8.000	0.760	
SUB TOTAL RIGHT VOLUME					25.108	
		MAIN ROAD AFTER FLYOVER				
STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOLUME
			START	END	LENGTH	
0+900.000	0.000	0.000	0+900.000	0+908.000	8.000	0.000
0+920.000	0.000	0.000	0+908.000	0+920.000	12.000	0.000
0+940.000	0.000	0.000	0+920.000	0+940.000	20.000	0.000
0+960.000	0.000	0.000	0+940.000	0+960.000	20.000	0.000
0+980.000	0.000	0.000	0+960.000	0+980.000	20.000	0.000
1+000.000	0.000	0.000	0+980.000	1+000.000	20.000	0.000
1+020.000	0.000	0.000	1+000.000	1+020.000	20.000	0.000
1+040.000	0.000	0.000	1+020.000	1+038.073	18.073	0.000
SUB TOTAL LEFT VOLUME						0.000
RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOLUME	
		START	END	LENGTH		
0.000	0.000	0+900.000	0+908.000	8.000	0.000	
0.190	0.190	0+908.000	0+920.000	12.000	2.280	
0.190	0.190	0+920.000	0+940.000	20.000	3.800	
0.190	0.190	0+796.233	0+960.000	163.767	31.116	
0.190	0.190	0+796.233	0+980.000	183.767	34.916	
0.190	0.190	0+796.233	1+000.000	203.767	38.716	
0.190	0.190	0+796.233	1+020.000	223.767	42.516	
0.190	0.190	0+796.233	1+038.073	241.840	45.950	
SUB TOTAL RIGHT VOLUME					199.293	
		SERVICE ROAD				
STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOLUME

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	10/4/2006 18:05		Sheet : of	
PROJECT : GEBANG PROJECT						
NORTH JAVA CORRIDOR FLYOVER PROJECT						
KATAHIRA AND ENGINEERS INTERNATIONAL						
DRAWING NO :		ESTIMATOR :	CHECKED BY :			
GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024						
SKETCH DRAWING		CALCULATION				REMARKS
Cebang Fly Over - Contract Package 2						
Item No. 3.1(3) - Excavation of Existing Pavement						
			START	END	LENGTH	VOLUME
0+320.000	0.000	0.000	0+320.000	0+320.000	0.000	0.000
0+340.000	0.000	0.000	0+320.000	0+340.000	20.000	0.000
0+360.000	0.000	0.000	0+340.000	0+360.000	20.000	0.000
0+380.000	0.000	0.000	0+360.000	0+380.000	20.000	0.000
0+400.000	0.000	0.000	0+380.000	0+400.000	20.000	0.000
0+420.000	0.000	0.000	0+400.000	0+420.000	20.000	0.000
0+440.000	0.000	0.000	0+420.000	0+440.000	20.000	0.000
0+460.000	0.000	0.000	0+440.000	0+460.000	20.000	0.000
0+480.000	0.000	0.000	0+460.000	0+480.000	20.000	0.000
0+500.000	0.000	0.000	0+480.000	0+500.000	20.000	0.000
0+520.000	0.000	0.000	0+500.000	0+520.643	20.643	0.000
0+540.000	0.190	0.095	0+520.643	0+540.000	19.357	1.839
0+560.000	0.190	0.190	0+540.000	0+560.000	20.000	3.800
0+580.000	0.190	0.190	0+560.000	0+580.000	20.000	3.800
0+600.000	0.190	0.190	0+580.000	0+607.049	27.049	5.139
0+620.000	0.190	0.190	0+616.985	0+620.000	3.015	0.573
0+640.000	0.190	0.190	0+620.000	0+640.000	20.000	3.800
0+660.000	0.000	0.095	0+640.000	0+650.122	10.122	0.962
0+680.000	0.000	0.000	0+650.122	0+650.122	0.000	0.000
0+700.000	0.000	0.000	0+650.122	0+650.122	0.000	0.000
SUB TOTAL LEFT VOLUME						19.913
RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOLUME	
		START	END	LENGTH		
0.000	0.000	0+320.000	0+326.854	6.854	0.000	
0.172	0.086	0+326.854	0+340.000	13.146	1.130	
1.042	0.607	0+340.000	0+357.527	17.527	10.640	
0.190	0.190	0+357.527	0+399.662	42.135	8.006	
0.000	0.095	0+399.662	0+400.000	0.338	0.032	
0.000	0.000	0+400.000	0+420.000	20.000	0.000	
0.000	0.000	0+420.000	0+440.000	20.000	0.000	
0.000	0.000	0+440.000	0+460.000	20.000	0.000	
0.000	0.000	0+460.000	0+499.404	39.404	0.000	
0.190	0.095	0+499.404	0+500.000	0.596	0.057	
0.190	0.190	0+500.000	0+520.000	20.000	3.800	
0.190	0.190	0+520.000	0+540.000	20.000	3.800	
0.190	0.190	0+540.000	0+560.000	20.000	3.800	
0.190	0.190	0+560.000	0+580.000	20.000	3.800	
0.190	0.190	0+580.000	0+608.932	28.932	5.497	
0.190	0.190	0+616.843	0+620.000	3.157	0.600	
0.190	0.190	0+620.000	0+640.000	20.000	3.800	
0.190	0.190	0+640.000	0+660.000	20.000	3.800	
0.953	0.571	0+660.000	0+684.900	24.900	14.228	
0.000	0.476	0+684.900	0+696.671	11.771	5.608	
SUB TOTAL RIGHT VOLUME						68.598
TOTAL	= 312.911 cum.					

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared : 21 - 09 - 2006	Sheet : 2 of 2
PROJECT : GEBANG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :		QUANTITY :	CHECKED BY :
NO	DESCRIPTION	CALCULATION	QTY (Cu M)
3.2 (3)	Structure Excavation to a depth not exceeding 2 m	A1 W = 1.50 m L = 38.90 m H = 2.00 m W = 1.00 m L = 38.90 m H = 0.60 m Quantity = 1.50 x 2.00 x 38.90 x 2 = 1.00 x 0.60 x 38.90 x 2 sub total	233.40 46.68 280.08
		A2 W = 1.50 m L = 37.90 m H = 2.00 m W = 1.00 m L = 37.90 m H = 0.60 m Quantity = 1.50 x 2.00 x 37.90 x 2 = 1.00 x 0.60 x 37.90 x 2 sub total	227.40 45.48 272.88
SUMMARY			648.64

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/27/2006 14:17	Sheet : of	
PROJECT : GEBANG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :	ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING	CALCULATION			REMARKS
	Gebang Flyover - Contract Package 2			
	3.1(13) - Embankment with Materials from Borrow Excavation			
	I. At Abutment A1			
	A. Along Stub Wall			
	Input Data:			
	H1cb = 1.891 m.	Ht. Borrow Materials at the start of Stub Wall		
	H2cb = 0.000 m.	Ht. Borrow Materials at the end of Stub Wall		
	W = 8.000 m.	Width of Borrow Materials		
	Ls = 77.800 m.	Total length of Stub Wall		
	$\text{Volume(s)} = \left(\frac{H2cb + H1cb}{2} \times W \times Ls \right) = 588.48 \text{ cum.}$			
	Total Volume of Borrow Materials along Approach A			
	Vta =	588.48	cum.	

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared 9/27/2006 14:17	Sheet : of	
PROJECT : GEBANG FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT				
KATAHIRA AND ENGINEERS INTERNATIONAL				
DRAWING NO :	ESTIMATOR :	CHECKED BY :		
SKETCH DRAWING	CALCULATION			REMARKS
	Gebang Flyover - Contract Package 2			
	3.1(13) - Embankment with Materials from Borrow Excavation			
	I. At Abutment A2			
	A. Along Stub Wall			
	Input Data:			
	H1cb = 1.770 m.	Ht. Borrow Materials at the start of Stub Wall		
	H2cb = 0.000 m.	Ht. Borrow Materials at the end of Stub Wall		
	W = 8.000 m.	Width of Borrow Materials		
	Ls = 75.800 m.	Total length of MSE Wall		
	$\text{Volume(s)} = \left[\frac{(H2cb + H3cb)}{2} \times W \times Lm \right] = 536.66 \text{ cum.}$			
	Total Volume of Borrow Materials along Approach B			
	Vtb =	536.66 cum.		
	Total =	1,125.14 cum.		

CONSTRUCTION COST ESTIMATE WORKSHEET	Date Prepared 9/20/2006 14:29	Sheet : of	
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PROJECT : GEBANG PROJECT NORTH JAVA CORRIDOR FLYOVER PROJECT			
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KATAHIRA AND ENGINEERS INTERNATIONAL			
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DRAWING NO : GRS-019, GRD-020, GRD-021, GRD-022, GRD-023, GRD024	ESTIMATOR :	CHECKED BY :	
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SKETCH DRAWING	CALCULATION	REMARKS
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Gebang Fly Over - Contract Package 2

Item No. 3.2 (3) - Permeable backfill						

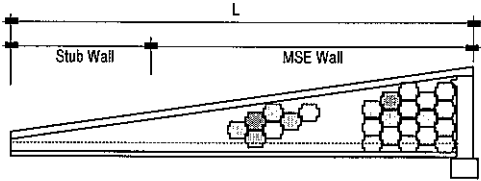
MAIN ROAD

STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOLUME
			START	END	LENGTH	
0+020.000	0.019	0.010	0+009.652	0+026.450	16.798	0.160
0+040.000	0.000	0.000	0+026.450	0+040.000	13.550	0.000
0+060.000	0.000	0.000	0+040.000	0+060.000	20.000	0.000
0+080.000	0.024	0.012	0+068.543	0+080.000	11.457	0.137
0+100.000	0.022	0.011	0+080.000	0+100.000	20.000	0.220
0+120.000	0.022	0.011	0+100.000	0+120.000	20.000	0.220
0+140.000	0.000	0.000	0+120.000	0+124.500	4.500	0.000
0+920.000	0.017	0.009	0+908.000	0+920.000	12.000	0.102
0+940.000	0.023	0.012	0+920.000	0+948.825	28.825	0.331
0+960.000	0.000	0.000	0+948.825	0+960.000	11.175	0.000
0+980.000	0.000	0.000	0+960.000	0+980.000	20.000	0.000
1+000.000	0.000	0.000	0+980.000	1+000.000	20.000	0.000
1+020.000	0.029	0.015	1+012.445	1+034.411	21.966	0.319
SUB TOTAL LEFT VOLUME						1.489

RIGHT SIDE AREA	AVE. RIGHT AREA	DISTANCE			VOLUME
		START	END	LENGTH	
0.000	0.000	0+000.000	0+020.000	20.000	0.000
0.315	0.158	0+031.458	0+051.275	19.817	3.121
0.000	0.158	0+051.275	0+060.000	8.725	1.374
0.000	0.000	0+060.000	0+980.000	920.000	0.000
0.029	0.015	0+987.500	1+000.000	12.500	0.181
0.000	0.015	1+000.000	1+012.600	12.600	0.183
SUB TOTAL RIGHT VOLUME					4.859

SERVICE ROAD

STA	LEFT SIDE AREA	AVE. LEFT AREA	DISTANCE			VOLUME
			START	END	LENGTH	
0+180.000	0.000	0.000	0+180.000	0+180.000	0.000	0.000
0+200.000	0.000	0.000	0+180.000	0+200.000	20.000	0.000
0+380.000	0.000	0.000	0+200.000	0+380.000	180.000	0.000
0+400.000	0.000	0.000	0+380.000	0+400.000	20.000	0.000
0+420.000	0.000	0.000	0+400.000	0+420.000	20.000	0.000
0+440.000	0.000	0.000	0+420.000	0+440.000	20.000	0.000
0+500.000	0.000	0.000	0+440.000	0+500.000	60.000	0.000
0+520.000	0.022	0.022	0+512.652	0+520.000	7.348	0.162
0+540.000	0.000	0.011	0+520.000	0+529.760	9.760	0.107
0+640.000	0.000	0.000	0+529.760	0+649.211	119.451	0.000
0+660.000	0.020	0.020	0+649.211	0+660.000	10.789	0.216
0+700.000	0.019	0.019	0+660.000	0+700.000	40.000	0.760
0+760.000	0.000	0.000	0+700.000	0+760.000	60.000	0.000
0+780.000	0.000	0.000	0+760.000	0+780.000	20.000	0.000
0+820.000	0.000	0.000	0+780.000	0+820.000	40.000	0.000
0+840.000	0.028	0.028	0+821.985	0+840.000	18.015	0.504
0+860.000	0.021	0.021	0+840.000	0+868.252	28.252	0.593
0+900.000	0.000	0.000	0+868.252	0+900.000	31.748	0.000
0+920.000	0.023	0.023	0+915.885	0+920.000	4.115	0.095
0+940.000	0.023	0.012	0+920.000	0+952.300	32.300	0.371
0+960.000	0.000	0.000	0+952.300	0+960.000	7.700	0.000
0+980.000	0.000	0.000	0+960.000	0+980.000	20.000	0.000
1+000.000	0.000	0.000	0+980.000	1+000.000	20.000	0.000

CONSTRUCTION COST ESTIMATE WORKSHEET		Date Prepared	Sheet : of
PROJECT : FLYOVER NORTH JAVA CORRIDOR FLYOVER PROJECT			
KATAHIRA AND ENGINEERS INTERNATIONAL			
DRAWING NO :	ESTIMATOR :	CHECKED BY :	
SKETCH DRAWING	CALCULATION		REMARKS
	Gebang Flyover - Contract Package 2		
	Item No. 3.1(23) - Subgrade Preparation on Embankment		
	A. Along Approach A		
	Input Data:		
	W = 8.145 m.	Ave. Width of Borrow Materials	
	Lm = 168.000 m.	Total length of Approach	
	Area 1 = 8.145	x	168.000
	Area 1 = 1,368.36	sqm.	
	B. Along Approach B		
	Input Data:		
	W = 8.145 m.	Ave. Width of Borrow Materials	
	Lm = 207.000 m.	Total length of Approach	
	Area 2 = 8.145	x	207.000
	Area 2 = 1,686.02	sqm.	
	Total Area = 3,054.38	sqm.	

