JUSTIFIKASI DAN ASAS PERKIRAAN KADAR HARGA

1 Jadual Kadar Harga Kerja-Kerja Penyiasatan Tapak 2015 ini disediakan berdasarkan kadar harga-kadar harga dalam Jadual Kadar Harga Kerja-Kerja Penyiasatan Tapak 2012 dan Sebutharga-Sebutharga bagi Kerja-Kerja Penyiasatan Tapak yang telah panggil oleh JKR dalam tempoh 2013 hingga 2015.

2 Kadar harga yang dicadangkan adalah purata kadar harga bagi tempoh 2016 hingga 2018.

3 Secara umumnya, kadar harga diperolehi dengan membuat unjuran berdasarkan analisis ke atas data-data yang diperolehi dari Sebutharga-Sebutharga yang telah panggil oleh JKR dalam tempoh 2013 hingga 2015.

4 Bagi item-item yang tidak mempunyai data-data sebutharga tersebut, kadar harga diperolehi dengan membuat unjuran ke atas kadar harga-kadar harga dalam Jadual Kadar Harga Kerja-Kerja Penyiasatan Tapak 2012 berdasarkan *Tender Price Index* (TPI) terkini yang dikeluarkan oleh JKR dalam Buku Kos Purata Semeter Persegi Kerja Bangunan Edisi 2/2014 (Julai - Disember 2014).

5 Penambahan item baru adalah diperlukan kerana terdapat skop kerja baru mengikut perkembangan teknologi semasa. Kadar harga - kadar harga item baru ini adalah berasaskan data-data yang diperolehi dari Sebutharga-Sebutharga yang telah panggil oleh JKR dalam tempoh 2013 hingga 2015 dan telah dianalisis dan diunjur menggunakan average TPI terkini untuk digunapakai bagi tempoh 2016 hingga 2018.

KERAJAAN MALAYSIA
JABATAN KERJA RAYA

JADUAL KADAR HARGA KERJA-KERJA PENYIASATAN TAPAK 2015
(JKH SI 2015)

Schedule of Rates for the Site Investigation works.

SCHEDULE OF RATES FOR SITE INVESTIGATION WORKS

BILL 1: GENERAL CONDITION & PRELIMINARIES			
Item	**Description of Work**	**Unit**	**JKHSI 2015**
1	**General Conditions and Preliminaries**		
1.1	Allow for the following items: a) Public Liability Insurance b) Work Insurance c) SOCSO	LS	1,500.00
1.2	Allow for compliance with the following:- 1.2.1 Comprehend contract requirement 1.2.2 Conduct site evaluation 1.2.3 Plan and organise for mobilisation & demobilisation 1.2.4 Liase with the relevant authorities, client & consultant 1.2.5 Term of contract and specifications 1.2.6 Prepare and arrange laboratory testing 1.2.7 Setting out 1.2.8 Safety and convenience of the public 1.2.9 Water supply, Electrical power supply 1.2.10 Damage of overhead and underground mains and services 1.2.11 Clearance of site on completion 1.2.12 Preparation and submission of factual reports certified by a Professional a) 6 sets of Spiral binding b) 6 copy of CD (for softcopy report, lab results & photo) c) Soft copy in PDF format (CD) d) Soft copy for field and lab work in Excel format (CD) e) Soft copy of photos for each Borehole (CD) f) As built drawing in Autocad format (CD)	LS	2,200.00
1.3	Allow for professional survey works for the purpose of setting out for both road or buildong project whereby the S.O. cannot determine any levels, boundary story and any other point reference which are required for the execution of the works, as directed and certified by the S.O. The survey including level formation, reduce level and as-build drawing	LS	3,600.00
1.4	Building project : Construction of borehole marker with concrete base 300 mm x 300 mm x 200 mm with PVC Pipe 50mm diameter for every borehole until minimum depth of 0.5 m. The markings of the borehole must be clear and permanent (at PVC pipe and/or concrete base).	No	79.00
1.5	Road project : Construction of borehole marker with concrete base 300 mm x 300 mm x 200 mm with PVC Pipe 50mm diameter for every borehole until minimum depth of 0.5 m. The markings of the borehole must be clear and permanent (at PVC pipe and/or concrete base).	No	79.00
1.6	Supervision cost by Professional Engineer (PE) or/and PE representative on site/laboratory to monitor, supervise and check the SI works. The SI report must be check and certified by PE having adequate experience in geotechnical field.	LS	5,600.00
1.7	**Underground Utilities Detection Mapping** Allow for underground utilities detection mapping works for each borehole location		
1.7.1	Mobilisation and demobilisation of GPR equipments	LS	3,200.00
1.7.2	Ground Penetration Radar (GPR) Survey	No	190.00
1.7.3	Data Processing and Reporting	LS	2,500.00

BILL 2 : DEEP BORING WITH BORING PLANT			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
2	**Mobilisation & demobilisation of boring plant**		
2.1	**Mobilisation of boring plant and ancilliaries to the site and demobilisation upon completion**		
2.1.1	Up to 25km from Contractor's office	LS	1,700.00
2.1.2	Over 25km and up to 75km from contractor's office	LS	3,100.00
2.1.3	Over 75km and up to 125km from contractor's office	LS	3,800.00
2.1.4	Over 125km and up to 175km from contractor's office	LS	4,400.00
2.1.5	Over 175km and up to 225km from contractor's office	LS	5,000.00
2.1.6	Over 225km and up to 275km from contractor's office	LS	5,500.00
2.1.7	Over 275km and up to 325km from contractor's office	LS	6,100.00
2.1.8	Over 325km and up to 375km from contractor's office	LS	6,600.00
2.1.9	Over 375km and up to 425km from contractor's office	LS	7,200.00
2.1.10	Over 425km and up to 475km from contractor's office	LS	7,700.00
2.1.11	Over 475km and up to 525km from contractor's office	LS	8,300.00
2.1.12	Over 525km from contractor's office	LS	8,800.00
2.2	Extra over Item 2.1 if Site is in the states of Kelantan (excluding Kota Bharu District) Terengganu (excluding Kuala Terengganu district) Pahang (excluding Kuantan and Temerloh district) and the Ulu Perak (Grik) district in Perak	LS	310.00
2.3	Provision of staging over swampy ground / shallow water	No.	6,100.00
2.4	Provision of drum pontoon over water	No.	8,400.00
2.5	**Setting up and shifting of Boring Plant** Move the boring plant to the test position including setting up and dismantling upon completion of borehole where the site is on:-		
2.5.1	Flat Land		
2.5.1.1	Distance up to 100m	No.	470.00
2.5.1.2	Distance over 100m up to 500m	No.	640.00
2.5.1.3	Distance over 500m	No.	950.00
2.5.2	Undulating Land		
2.5.2.1	Distance up to 100m	No.	760.00
2.5.2.2	Distance over 100m up to 500m	No.	1,300.00
2.5.2.3	Distance over 500m	No.	1,800.00
2.5.3	On Slope		
2.5.3.1	Distance up to 100m		
2.5.3.1.1	Degree 0-30	No.	1,300.00
2.5.3.1.2	Degree 31-45	No.	1,800.00
2.5.3.1.3	Degree 46 and above	No.	2,300.00
2.5.3.2	Distance over 100m up to 500m		
2.5.3.2.1	Degree 0-30	No.	1,900.00
2.5.3.2.2	Degree 31-45	No.	2,400.00
2.5.3.2.3	Degree 46 and above	No.	2,900.00
2.5.3.3	Distance over 500m		
2.5.3.3.1	Degree 0-30	No.	2,500.00
2.5.3.3.2	Degree 31-45	No.	3,000.00
2.5.3.3.3	Degree 46 and above	No.	3,600.00
2.5.4	Swampy Ground		
2.5.4.1	Distance up to 100m	No.	1,600.00
2.5.4.2	Distance over 100m up to 500m	No.	2,100.00
2.5.4.3	Distance over 500m	No.	3,000.00

BILL 2 : DEEP BORING WITH BORING PLANT (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
2.5.5	Primary Jungle		
2.5.5.1	Distance up to 100m	No.	3,400.00
2.5.5.2	Distance over 100m up to 500m	No.	6,200.00
2.5.5.3	Distance over 500m	No.	10,000.00
2.5.6	Over Water / Swampy Ground		
2.5.6.1	with staging	No.	2,600.00
2.5.6.2	with drum pontoon	No.	2,000.00
2.6	**Boring in soil**		
2.6.1	Carry out boring in soil whether cased or uncased Rotary Boring (NW size):-		
2.6.1.1	Depth from existing ground level not exceeding 10m	m	42.00
2.6.1.2	Ditto exceeding 10m but n.e. 20m	m	55.00
2.6.1.3	Ditto exceeding 20m but n.e. 30m	m	55.00
2.6.1.4	Ditto exceeding 30m but n.e 40m	m	56.00
2.6.1.5	Ditto exceeding 40m but n.e 50m	m	66.00
2.6.1.6	Ditto exceeding 50m	m	130.00
2.6.2	Carry out boring in soil whether cased or uncased Rotary Boring (HW size):-		
2.6.2.1	Depth from existing ground level not exceeding 10m	m	53.00
2.6.2.2	Ditto exceeding 10m but n.e. 20m	m	70.00
2.6.2.3	Ditto exceeding 20m but n.e. 30m	m	70.00
2.6.2.4	Ditto exceeding 30m but n.e 40m	m	70.00
2.6.2.5	Ditto exceeding 40m but n.e 50m	m	82.00
2.6.2.6	Ditto exceeding 50m	m	170.00
2.6.3	Extra over item 2.6.1 to 2.6.2 for foam drilling, bentonite or other material deemed to be suitable for boring work	m	38.00
2.7	**Drilling in rock**		
2.7.1	Carry out diamond core drilling of 30.2 mm minimum diameter into any kind of rock including delivery of cores in standard boxes to the specified Laboratory:		
2.7.1.1	Depth from existing ground level not exceeding (n.e.) 10 m	m	170.00
2.7.1.2	Ditto exceeding 10 m but n.e. 20 m	m	190.00
2.7.1.3	Ditto exceeding 20 m but n.e. 30 m	m	220.00
2.7.1.4	Ditto exceeding 30 m but n.e. 40 m	m	250.00
2.7.1.5	Ditto exceeding 40 m	m	310.00

BILL 2 : DEEP BORING WITH BORING PLANTS (Cont'd)

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
2.7.2	Extra over Items 2.7.1 if the core is of 52 mm minimum diameter, taken as directed by the S.O.	m	57.00
2.7.3	Extra over Items 2.7.1 if the rock (as analysis) by Jabatan Penyiasatan Kajibumi, Kuala Lumpur) is one of the following types: granite granodiorite, quartz - porphyry, rhyolite, vein-quartz, siliceous standstone or quartzite	m	110.00
2.7.4	Extra over Item 2.7.2 if the rock types are those in Item 2.7.3	m	110.00
2.7.5	Reaming through rock when encountering cavities/boulders (NW casing)	m	100.00
2.8	**In-situ Field Tests**		
2.8.1	Carry out Standard Penetration Test including provision of disturbed samples:-		
2.8.1.1	Depth from existing ground level not exceeding 10m	No.	28.00
2.8.1.2	Ditto exceeding 10m but n.e. 20m	No.	31.00
2.8.1.3	Ditto exceeding 20m but n.e. 30m	No.	32.00
2.8.1.4	Ditto exceeding 30m but n.e 40m	No.	38.00
2.8.1.5	Ditto exceeding 40m	No.	44.00
2.8.2	Carry out Acker Vane Shear Test		
2.8.2.1	Depth from existing ground level not exceeding 10m	No.	54.00
2.8.2.2	Ditto exceeding 10m but n.e. 20m	No.	59.00
2.8.2.3	Ditto exceeding 20m but n.e. 30m	No.	72.00
2.8.2.4	Ditto exceeding 30m but n.e 40m	No.	79.00
2.8.2.5	Ditto exceeding 40m	No.	89.00
2.9	**Soil & Water Sampling**		
2.9.1	Obtain undisturbed samples with thin-walled sampler (60mm diameter)		
2.9.1.1	Depth from existing ground level not exceeding 10m	No.	41.00
2.9.1.2	Ditto exceeding 10m but n.e. 20m	No.	47.00
2.9.1.3	Ditto exceeding 20m but n.e. 30m	No.	53.00
2.9.1.4	Ditto exceeding 30m but n.e 40m	No.	60.00
2.9.1.5	Ditto exceeding 40m	No.	65.00
2.9.2	Extra over 2.9.1 if using 72mm diameter UD tube	No.	27.00
2.9.3	Extra over 2.9.1 if using piston sampler	No	140.00
2.9.4	Carry out Undisturbed 'Mazier' core sampling using 74mm dia. triple tube core barrel with retractable shoe		
2.9.4.1	Depth from existing ground level not exceeding 10m	No.	150.00
2.9.4.2	Ditto exceeding 10m but n.e. 20m	No.	190.00
2.9.4.3	Ditto exceeding 20m but n.e. 30m	No.	200.00
2.9.4.4	Ditto exceeding 30m but n.e 40m	No.	210.00
2.9.4.5	Ditto exceeding 40m	No.	250.00

BILL 2 : DEEP BORING WITH BORING PLANTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
2.8	**Other In-Borehole Tests**		
2.8.1	Carry out ground water level observation in borehole	No.	95.00
2.8.2	Standpipe		
2.8.2.1	Supply & install slotted PVC standpipe in borehole	No	420.00
2.8.2.2	Supply & install PVC pipe up to 10 m depth	m	34.00
2.8.2.3	Supply & install PVC pipe exceeding 10 m depth	m	40.00
2.8.3	Standpipe Piezometer		
2.8.3.1	Supply & install piezometer tip in borehole	No	640.00
2.8.3.2	Supply & install PVC pipe up to 10 m depth	m	34.00
2.8.3.3	Supply & install PVC pipe exceeding 10 m depth	m	40.00
2.8.3.4	Supply & install protective cover	No.	380.00
2.8.4	Monitoring of water level in standpipe /standpipe piezometer after completion of field work data twice a week for one month. Report of monitoring works have to be submitted to the client in softcopy and hardcopy format [Reading : twice per trip (am & pm)]	Trip	1,000.00

BILL 3 : DEEP SOUNDING AND PIEZOCONE

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
3.0	**Sounding and Piezocone Plant (10 Tonnes) - Mobilisation & Demobilisation**		
3.1	Bring the Deep Sounding or Piezocone Plant to the site and remove the same from the Site after completion of the work, including erecting the plant at the first sounding position, when the site is:		
3.1.1	Up to 25km from contractor's office	LS	1,200.00
3.1.2	Over 25km and up to 125km from contractor's office	LS	4,800.00
3.1.3	Over 125km and up to 225km from contractor's office	LS	5,500.00
3.1.4	Over 225km and up to 325km from contractor's office	LS	6,200.00
3.1.5	Over 325km and up to 425km from contractor's office	LS	6,900.00
3.1.6	Over 425km and up to 525km from contractor's office	LS	7,500.00
3.1.7	Over 525km from contractor's office	LS	8,200.00
3.1.8	Extra over Item 3.1 if Site is in the states of Kelantan (excluding Kota Bharu district) Terengganu (excluding Kuala Terengganu district) Pahang (excluding Kuantan and Temerloh district) and the Ulu Perak (Grik) district in Perak	LS	500.00
3.2	**Sounding and Piezocone Plant (20 Tonnes) - Mobilisation & Demobilisation**		
3.2.1	Bring the Deep Sounding or Piezocone Plant to the site and remove the same from the Site after completion of the work, including erecting the plant at the first sounding position, when the site is:		
3.2.1.1	Up to 25km from contractor's office	LS	9,900.00
3.2.1.2	Over 25km and up to 125km from contractor's office	LS	11,000.00
3.2.1.3	Over 125km and up to 225km from contractor's office	LS	12,000.00
3.2.1.4	Over 225km and up to 325km from contractor's office	LS	13,000.00
3.2.1.5	Over 325km and up to 425km from contractor's office	LS	14,000.00
3.2.1.6	Over 425km and up to 475km from contractor's office	LS	15,000.00
3.2.1.7	Over 525km from contractor's office	LS	17,000.00
3.2.2	Extra over Item 3.1 if Site is in the states of Kelantan (excluding Kota Bharu district) Terengganu (excluding Kuala Terengganu district) Pahang (excluding Kuantan and Temerloh district) and the Ulu Perak (Grik) district in Perak	LS	500.00
3.3	**Deep Sounding - Setting up & Dismantling within the Site**		
3.3.1	Move the Deep Sounding Plant from one sounding position to the next including dismantling it at the old position and erecting it at the new position on land	LS	480.00
3.3.2	Ditto but over swampy ground including the provision of staging and/or matting	LS	6,200.00
3.3.3	Extra over item 3.3.1 when the new position is at a site different from that of the old position but the two different sites are grouped together in the works on land	LS	3,400.00
3.3.4	Extra over item 3.3.2 when the new position is at a site different from that of the old position but the two different sites are grouped together in the works over swampy ground including the provision of staging and/or matting	LS	3,900.00
3.4	**Piezocone - Setting up & Dismantling within the Site**		
3.4.1	Move the Piezocone Plant from one sounding position to the next including dismantling it at the old position and erecting it at the new position on land	LS	530.00
3.4.2	Ditto but over swampy ground including the provision of staging and/or matting	LS	5,300.00
3.4.3	Extra over item 3.4.1 when the new position is at a site different from that of the old position but the two different sites are grouped together in the works on land	LS	3,200.00
3.4.4	Extra over item 3.4.2 when the new position is at a site different from that of the old position but the two different sites are grouped together in the works over swampy ground including the provision of staging and/or matting	LS	3,000.00

BILL 3 : DEEP SOUNDING AND PIEZOCONE (Cont'd)

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
3.5	**Deep Sounding Test**		
3.5.1	Carry out Deep Sounding test:-		
3.5.1.1	Depth from existing ground level not exceeding n.e. 10m	m	24.00
3.5.1.2	Ditto exceeding 10m but n.e. 20m	m	26.00
3.5.1.3	Ditto exceeding 20m but n.e. 30m	m	29.00
3.5.1.4	Ditto exceeding 300m but n.e. 40m	m	33.00
3.5.1.5	Ditto exceeding 40m	m	42.00
3.5.2	Extra over 3.5.1 if friction reducer is used	Hole	60.00
3.6	**Piezocone Test**		
3.6.1	Carry out Piezocone tests:-		
3.6.1.1	Depth from existing ground level not exceeding (n.e.) 10m	m	34.00
3.6.1.2	Ditto exceeding 10m but n.e. 20m	m	42.00
3.6.1.3	Ditto exceeding 20m but n.e. 30m	m	49.00
3.6.1.4	Ditto exceeding 300m but n.e. 40m	m	57.00
3.6.1.5	Ditto exceeding 40m	m	62.00
3.7	**Dissipation Test**		
3.7.1	Carry out dissipation test up to maximum of one hour	No.	200.00
3.7.2	Extra over item 3.7.1 for dissipation test exceeding one hour	No.	210.00

BILL 4 : OTHER FIELD TESTS

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
4.0	**Other Field Tests**		
4.1	**Mobilisation of personnel and equipment to site and demobilisation upon completion.**		
4.1.1	Up to 25km from contractor's office	Sum	1,400.00
4.1.2	Over 25km and up to 225km from contractor's office	Sum	1,800.00
4.1.3	Over 225km and up to 425km from contractor's office	Sum	2,200.00
4.1.4	Over 425km from contractor's office	Sum	2,500.00
4.1a	**Setting Out**		
4.1a.1	Setting out of geophysical survey lines at fixed sensor interval and taking the reduce level at each sensor position.	LS	1,300.00
4.2	**Mackintosh or JKR Probes**		
4.2.1	Carry out Mackintosh or JKR Probe test to depth not exceeding 15m below ground level or 400 blows per 0.30m penetration whichever achieved first	No.	150.00
4.3	**Hand Auger Boring**		
4.3.1	Carry out hand auger boring including provision of disturbed samples:-		
4.3.1.1	Depth from existing ground level not exceeding 2.5m	M	33.00
4.3.1.2	Ditto exceeding 2.5m but n.e 5.0m	M	38.00
4.3.1.3	Ditto exceeding 5.0m but n.e 7.5m	M	49.00
4.3.2	Allow for determining over-night water table in hand bores	hole	7.60
4.3.3	Obtain undisturbed sample using thin - walled tube sampler (60mm dia.) from bored hole:-		
4.3.3.1	Depth from existing ground level not exceeding 2.5m	No.	30.00
4.3.3.2	Ditto exceeding 2.5m but n.e 5.0m	No.	39.00
4.3.3.3	Ditto exceeding 5.0m but n.e 7.5m	No.	70.00
4.4	**Trial Pit**		
4.4.1	Carry out trial pit excavation and backfilling of pit size 2m X 2m X 2m inclusive of small disturbed sample	No	600.00
4.4.2	Mapping and logging of pit faces	No.	270.00
4.4.3	Provision of shoring and dewatering	No.	1,400.00
4.5	**Penetration Vane Shear Test**		
4.5.1	Extra over item 4.1 for Mobilisation of Penetration Field Vane	Sum	640.00
4.5.2	Carry out Vane Shear Test using Penetration Vane samples:		
4.5.2.1	Depth from existing ground level not exceeding (n.e.) 10m	No.	76.00
4.5.2.2	Ditto exceeding 10m but n.e. 20m	No.	89.00
4.5.2.3	Ditto exceeding 20m but n.e. 30m	No.	99.00
4.5.2.4	Ditto exceeding 30m but n.e. 40m	No.	110.00
4.5.2.5	Ditto exceeding 40m	No.	110.00

BILL 4 : OTHER FIELD TESTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
4.6	**Plate Loading Test**		
4.6.1	Extra over item 4.1 for Mobilisation of Equipment	Sum	2,100.00
4.6.2	Carry out Plate Loading test (MS 2038:SECTION 5:2006)	No.	4,700.00
4.7	**Permeability Test**		
4.7.1	To carry out permeability test in soil by Constant Head Method (MS 2038:SECTION 5:2006)	No.	650.00
4.7.2	To carry out permeability test in soil by Constant Variable Method (MS 2038:SECTION 5:2006)	No.	590.00
4.7.3	To carry out permeability test in rock by single or double Packer (MS 2038:SECTION 5:2006)	No.	1,600.00
4.8	**Insitu California Bearing Ratio Tests**		
4.8.1	Provision of reacting load (lorry) Up to 3 tonnes	Day	1,300.00
4.8.2	Carry out Insitu California Bearing Ratio Test (MS 2038:SECTION 5:2006)	No.	190.00
4.9	**Field Density Test**		
4.9.1	Carry out Field Density Tests:-		
4.9.1.1	Sand replacement method (Small Pouring Cylinder) (MS 2038:SECTION 5:2006)	No.	170.00
4.9.1.2	Sand replacement method (Large Pouring Cylinder) (MS 2038:SECTION 5:2006)	No.	200.00
4.9.1.3	Core cutter method (MS 2038:SECTION 5:2006)	No.	95.00
4.10	**Dynamic Cone Penetration Test (DCP)**		
4.10.1	Carry out 150mm diameter pavement coring	No.	140.00
4.10.2	Dynamic cone Penetration Test in pavement cored hole through the base course (crusher run), sub-base and sub-grade up to 1.2 m below the road surface	No.	150.00
4.10.3	Re-instate cored hole with bituminous premix or approved material	No.	54.00

BILL 4 : OTHER FIELD TESTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
4.11	**ABS Inclinometer**		
4.11.1	Supply, install and to make sure the biaxial ABS inclinometer (or approved equivalent) pipe in prebore Borehole including grouting for the depth not exceeding (n.e.) 10 m from ground	No.	2,100.00
4.11.2	Ditto for depth exceeeding 10 m but n.e. 20 m	m	320.00
4.11.3	Ditto for depth exceeeding 20 m but n.e. 30 m	m	320.00
4.11,4	Ditto for depth exceeding 30 m but n.e. 40 m	m	320.00
4.11.5	Ditto for depth more than 40 m	m	320.00
4.11.6	Supply and install lockable steel protective cover cast in concrete plinth	No.	480.00
4.12	**Report**		
4.12.1	Monitor and provide comprehensive report for inclinometer reading (collection of data, analysis and verification)		
4.12.1.1	To obtain inclinometer data as per schedule	Trip	1,500.00
4.12.1.2	Provide a comprehensive report every month	No.	530.00
4.12.1.3	Provide two (2) softcopy and five (5) set hardcopy of final report : analyse, check and endorsed by Professional Engineer	LS	2,100.00
4.13	**Settlement Plate**		
4.13.1	Supply and install settlement plate of 600mm x 600mm x 10mm thick with 50m ext. dia. G.I. pipes welded on the plate and 75mm int. dia. G.I. pipe as protective casing for depth not exceeding 5m	No.	560.00
4.13.2	For depth exceeeding 5m but n.e. 10m	m	81.00
4.13.3	For depth exceeeding 10m but n.e. 20m	m	86.00
4.14	**Pressuremeter Test**		
4.14.1	Perform Pressuremeter Tests in soil(with two (2) unload / reload cycle) as per specification at specified borehole, location and depth :-		
4.14.1.1	At a depth from existing ground or water bed level to a depth not exceeding (n.e.) 10m	No.	650.00
4.14.1.2	- Ditto - but exceeding 10m to n.e. 20m	No.	660.00
4.14.1.3	- Ditto - but exceeding 20m to n.e. 30m	No.	700.00
4.14.1.4	- Ditto - but exceeding 30m	No.	760.00
4.14.1.5	Extra over Item 2.4.2 for perform Pressure Meter Test in rock	No.	1,100.00
4.14.2	Perform Pressuremeter Tests (with three (3) unload / reload cycle) as per speciifcation at specified borehole, location and depth :-		
4.14.2.1	At a depth from existing ground or water bed level to a depth not exceeding (n.e.) 10m	No.	740.00
4.14.2.2	- Ditto - but exceeding 10m to n.e. 20m	No.	760.00
4.14.2.3	- Ditto - but exceeding 20m to n.e. 30m	No.	790.00
4.14.2.4	- Ditto - but exceeding 30m	No.	840.00
4.14.2.5	Extra over item 2.4.3 for perform pressure meter test in rock	No.	1,400.00

BILL 4 : OTHER FIELD TESTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
4.15	**Ground Settlement Marker (GSM)**		
4.15.1	Supply and install ground settlement marker at location as per drawing or as directed by the S.O., including barricade, necessary protection works and take initial reading after installation.	No.	170.00
4.16	**Building Settlement Marker (BSM)**		
4.16.1	Supply and install Building settlement marker at location as per drawing or as directed by the S.O., including necessary protection works and take initial reading after installation.	No.	570.00
4.17	**Report**		
4.17.1	To monitor and provide comprehensive report for GSM and/or BSM:		
4.17.1.1	Provide all necessary equipment, transportation and personnel for monitoring to obtain BSM and/or GSM data	Trip	2,300.00
4.17.1.2	Provide a comprehensive report for BSM and/or GSM for every month	No.	1,400.00
4.17.1.3	Provide two (2) softcopy and five (5) set hardcopy of final report : analyse, check and endorsed by Professional Engineer	LS	4,800.00
4.18	**Parallel Seismic Detection Works**		
4.18.1.	Parallel Seismic Logging		
4.18.1.1	Carry out parallel seismic logging for pile length detection in predrilled boreholes	No.	2,300.00
4.18.2	Preparation of Report		
4.18.2.1	Provide two (2) softcopy and five (5) set hardcopy of final report : analyse, check and endorsed by Professional Engineer	LS	4,800.00
4.19	**Geophysical Survey**		
4.19.1	Seismic Refraction Survey		
4.19.1.1	Carry out seismic survey within a 24 channel seismograph with geophone at maximum 5m interval measured along the slope and 7 sheets per spread, sledge hammer as energy source, per spread, sledge hammer as energy source, and analysis of data with seismic tomographic software and incorporating borehole data where available. (minimum length per line is 72m)	Line	3,200.00
4.19.2	Multi-Channel Analysis of Surface Wave (MASW)		
4.19.2.1	Carry out surface wave investigation with 3m interval with 24 geophone for investigation depth up to 20m depth,using Sledge Hammer As Seismic Source to obtain the S-Wave tomogram. (minimum length per line is 72m)	Line	2,600.00
4.19.3	2-D Resistivity Profilling		
4.19.3.1	Carry out 2D resistivity profiling using schlumberger - wenner configuration and roll-along technique within 40 electrodes at 5m Intervals, each Interval measured as the slope distance between adjacent electrodes, determine levels of each electrode, and process data to produce resistivity profiles (minimum length per line is 120m).	Line	1,900.00
4.20	**Report**		
4.20.1	Provide two (2) softcopy and five (5) set hardcopy of final report : analyse, check and endorsed by Professional Engineer		
4.20.1.1	i) 2D Seismic resistivity survey	LS	1,500.00
4.20.1.2	i) 2D/3D Electrical resistivity survey	LS	1,500.00

BILL 5 : COLLECTION OF SOIL AND WATER SAMPLES IN BULK

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
5.0	**Collection of soil and water samples in bulk**		
5.1	**Soil samples**		
5.1.1	Collect representative disturbed samples in bulk at one location on the Site, at depths not exceeding 1.5m from existing ground level:-		
5.1.1.1	Not exceeding 5kg	No.	80.00
5.1.1.2	Extra over Item 5.1.1 for bulk quantities exceeding 5kg measured as a unit of 25kg or part thereof, up to a maximum of 100kg	Unit	40.00
5.1.1.3	Similar to Item 5.1.1 but at a location within 10km from the Site accessible by car or jeep:-		
5.1.1.3.1	Not exceeding 5kg	No.	160.00
5.1.1.3.2	Extra over Item 5.1.1 for bulk quantities exceeding 5kg measured as a unit of 25kg or part thereof, up to a maximum of 100kg	Unit	50.00
5.2	**Soil sample for natural moisture content**		
5.2.1	Collect a set of 2 sealed sample for the determination of natural moisture content at the laboratory (testing measured separately) in the course of sampling in Item 5.1	Set	20.00
5.3	**Water Sample**		
5.3.1	Collect 1 litre of representative ground water sample from a water sample in a water tight clean container from a hand bore or deep bore	No.	19.00
5.4	**Block Sample**		
5.4.1	Collect block sample of any material of 0.3mm x 0.3mm for carrying out laboratory testing including transport to approved laboratory	No.	440.00

BILL 6: LABORATORY TESTS

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
6.0	**Classification Tests**		
6.1	Moisture Content	No.	4.90
6.2	Atterberg Limits		
6.2.1	Liquid Limit - Cone Penetrometer Method (definitive method) / Cone-four point method	No.	8.40
6.2.2	Liquid Limit - One-point Cone Penetrometer Method	No.	3.20
6.2.3	Liquid Limit - Casagrande Apparatus Method / Casagrande-four point method	No.	8.40
6.2.4	Liquid Limit - One-point Casagrande Method	No.	3.20
6.2.5	Plastic Limit	No.	10.00
6.2.6	Plasticity Index - derivation	No.	2.20
6.3	Linear Shrinkage	No.	10.00
6.4	Bulk Density		
6.4.1	Linear measurement	No.	12.00
6.4.2	Immersion in water	No.	46.00
6.4.3	Water displacement	No.	46.00
6.5	Particle Density (specific gravity)		
6.5.1	Gas Jar	No.	90.00
6.5.2	Small pyknometer	No.	19.00
6.6	Particle Size Distribution		
6.6.1	Particle size distribution for coarse-grained soils	No.	19.00
6.6.2	Particle size distribution for fine grained - pipette	No.	150.00
6.6.3	Particle size distribution for fine grained - hydrometer	No.	42.00
6.6.4	Dispersion Method (Double Hydrometer Test)	No.	58.00
6.6.5	Pinhole test	No.	200.00
6.7	Soil Classification Group Index	No.	12.00
6.8	Samples Logging and record		
6.8.1	Split UD, photograph and logging	No.	180.00
6.8.2	Provide small record samples	No.	15.00
6.9	Brightness Test	No.	76.00
6.10	Pilcon Hand Vane Tests	No.	11.00
6.11	Dry Density	No.	13.00

BILL 6: LABORATORY TESTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
6.12	**Soil Compaction Tests**		
6.12.1	Carry out compaction test on remoulded samples, following the testing procedure as mentioned in the test numbers, but with only one specimen at a given moisture content:-		
6.12.1.1	2.5 kg hammer	No.	70.00
6.12.1.2	4.5 kg hammer	No.	80.00
6.12.1.3	With a vibrating hammer for granular soils	No.	120.00
6.13	**Detailed compaction studies**		
6.13.1	Carry out compaction test with a 2.5kg hammer on remoulded samples:-		
6.13.1.1	At least 5 specimens at difference moisture shall be compacted to obtain the curve of "dry density against moisture content"	Series	400.00
6.13.1.2	Firstly, compaction tests same as Item 6.13.1.1 shall be carried out. Secondly for each of the specimen compacted, unsoaked California Bearing Ratio shall be carried out, on both the top and bottom of the specimen. The curve of "CBR against moisture content shall also be reported.	Series	500.00
6.13.1.3	Ditto the 4 day soaked CBR test shall be carried out instead of the unsoaked CBR	Series	500.00
6.13.1.4	Ditto unsoaked CBR test shall be carried out on the top of the specimen and soaked CBR test shall be carried out on the bottom of the specimen.	Series	580.00
6.13.2	Carry out compaction test with a 4.5kg hammer on remoulded samples:-		
6.13.2.1	At least 5 specimens at difference moisture shall be compacted to obtain the curve of "dry density against moisture content"	Series	420.00
6.13.2.2	Firstly, compaction tests same as Item 6.13.2.1 shall be carried out. Secondly for each of the specimen compacted, unsoaked California Bearing Ratio shall be carried out, on both the top and bottom of the specimen. The curve of "CBR against moisture content shall also be reported.	Series	550.00
6.13.2.3	Ditto the 4 day soaked CBR test shall be carried out instead of the unsoaked CBR	Series	550.00
6.13.2.4	Ditto unsoaked CBR test shall be carried out on the top of the specimen and soaked CBR test shall be carried out on the bottom of the specimen.	Series	630.00

BILL 6: LABORATORY TESTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
6.14	**Carry out compaction test with a vibrating hammer on remoulded samples:-**		
6.14.1	At least 5 specimens at difference moisture shall be compacted to obtain the curve of "dry density against moisture content"	Series	440.00
6.14.2	Firstly, compaction tests same as Item 6.14.1 shall be carried out. Secondly for each of the specimen compacted, unsoaked California Bearing Ratio shall be carried out, on both the top and bottom of the specimen. The curve of "CBR against moisture content shall also be reported.	Series	550.00
6.14.3	Ditto the 4 day soaked CBR test shall be carried out instead of the unsoaked CBR	Series	550.00
6.14.4	Ditto unsoaked CBR test shall be carried out on the top of the specimen and soaked CBR test shall be carried out on the bottom of the specimen.	Series	630.00
6.15	**Soils Strength Tests**		
6.15.1	Carry out strength tests on undisturbed samples:-		
6.15.1.1	Unconfined compression strength		
6.15.1.1.1	38mm diameter, 1 specimen	No.	25.00
6.15.1.1.2	50mm diameter, 1 specimen	No.	36.00
6.15.1.1.3	70/72mm diameter, 1 specimen	No.	51.00
6.15.1.1.4	38mm diameter, 3 specimens	Series	57.00
6.15.1.1.5	50mm diameter, 3 specimens	Series	100.00
6.15.1.1.6	70/72mm diameter, 3 specimens	Series	150.00
6.15.1.2	Unconsolidated undrained triaxial compression without pore water pressure measurement:-		
6.15.1.2.1	38mm diameter, 1 specimen	No.	37.00
6.15.1.2.2	50mm diameter, 1 specimen	No.	51.00
6.15.1.2.3	70/72mm diameter, 1 specimen	No.	62.00
6.15.1.2.4	38mm diameter, 3 specimens	Series	110.00
6.15.1.2.5	50mm diameter, 3 specimens	Series	150.00
6.15.1.2.6	70/72mm diameter, 3 specimens	Series	180.00
6.15.1.3	Unconsolidated undrained triaxial compression with pore water pressure measurement:-		
6.15.1.3.1	38mm diameter - 3 specimens	Series	440.00
6.15.1.3.2	50mm diameter - 3 specimens	Series	540.00
6.15.1.3.3	70/72mm diameter - 3 specimens	Series	620.00

BILL 6: LABORATORY TESTS (Cont'd)			
Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
6.15.1.4	Consolidated undrained triaxial compression test with pore water pressure		
6.15.1.4.1	38mm diameter - 3 specimens	Series	680.00
6.15.1.4.2	50mm diameter - 3 specimens	Series	980.00
6.15.1.4.3	70/72mm diameter - 3 specimens	Series	1,300.00
6.15.1.5	Consolidated drained triaxial compression test with pore water pressure		
6.15.1.5.1	38mm diameter - 3 specimens	Series	1,100.00
6.15.1.5.2	50mm diameter - 3 specimens	Series	1,400.00
6.15.1.5.3	70/72mm diameter - 3 specimens	Series	1,800.00
6.16	**Carry out California Bearing Ratio test on one specimen of remould sample after compacting (Compaction measurement together) the sample to the procedure stated in Item 6.12.1.1 (2.5 kg hammer)**		
6.16.1	Unsoaked CBR on the top and bottom of the specimens	No	76.00
6.16.2	Soaked CBR on the top and bottom of the specimen	No	83.00
6.16.3	Unsoaked CBR on the top of the specimen and soaked CBR on the specimen	No	88.00
6.16.4	Extra over Item 6.16 when the compaction as in accordance with the procedure stated in Item 6.12.1.2 (4.5 kg hammer)	No	11.00
6.17	**Shear Box Test**		
6.17.1	Determination of Shear Strength by direct Shear (Small Shearbox) - 60mm square (MS 1056:PART 7:2005)	Series	340.00
6.17.2	Determination of Shear Strength by direct Shear (Small Shearbox) - 100mm square (MS 1056:PART 7:2005)	Series	470.00
6.17.3	Determination of Shear Strength by direct Shear (Large Shearbox) - 305mm square (MS 1056:PART 7:2005)	Series	680.00
6.18	**Compressibility Tests**		
6.18.1	Oedometer Consolidation		
6.18.1.1	6 loadings and 3 unloadings	No.	250.00
6.18.1.2	Swelling pressure determination	No.	250.00
6.18.1.3	Measurement of swelling	No.	440.00
6.18.1.4	Settlement on saturation	No.	670.00
6.18.1.5	Additional loading to Item 6.18.1.1 (coefficient of secondary consolidation)	Day	35.00

BILL 6: LABORATORY TESTS (Cont'd)

Item	Description of Work	Unit	JKHSI 2015
	NOTES : All tests are referred to MS 1056:2005 and MS 2038:2006, unless otherwise stated		
6.19	Other Total Stress Test		
6.19.1	Pocket penetrometer	No.	23.00
6.20	**Permeability Tests**		
6.20.1	Carry out constant head permeability test for granular soils (MS 1056:PART 5:2005)	No.	240.00
6.20.2	Carry out falling head permeability test for granular soils (MS 1056:PART 5:2005)	No.	330.00
6.21	**Rock Core Tests**		
6.21.1	Core Compressive Strength	No	170.00
6.21.2	Ditto with Young Modulus	No	300.00
6.21.3	Ditto with Young Modulus & Poisson Ratio	No	450.00
6.21.4	Point Load Test	No	130.00
6.22	**Soils chemical tests**		
6.22.1	Carry out chemical tests on soil or water samples:		
6.22.1.1	Organic matter content	No	50.00
6.22.1.2	Total sulphate content	No	49.00
6.22.1.3	Sulphate content of ground water	No	54.00
6.22.1.4	pH value	No	18.00
6.22.1.5	Chloride Content	No	43.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory)			
Item	**Description of Work**	**Unit**	**Rate JKHSI 2015**
7.1	**UJIAN-UJIAN BATU BAUR**		
7.1.1	Sieve Analysis	no.	64.00
7.1.2	Ten precent Fines Value	no.	79.00
7.1.3	Aggregate Crushing Value	no.	79.00
7.1.4	Flakiness Index	no.	79.00
7.1.5	Elongation Index	no.	79.00
7.1.6	Angularity number	no.	79.00
7.1.7	Sp Gravity/Water Absoption	no.	79.00
7.1.8	Unconfined Compressive Strength of Rock Core	no.	79.00
7.1.9	Polished Stone Value	no.	79.00
7.1.10	Aggregate Stripping Test	no.	79.00
7.1.11	Soundness of Aggregate	no.	79.00
7.1.12	Los Angeles Abrasion value	no.	79.00
7.1.13	Silt/Clay Content	no.	79.00
7.2	**UJIAN-UJIAN BITUMIN**		
7.2.1	Engler Visosity	no.	79.00
7.2.2	Saybolt Furol viscosity	no.	79.00
7.2.3	Settlement	no.	79.00
7.2.4	sieve Test	no.	97.00
7.2.5	Residue on sieving	no.	79.00
7.2.6	Particle charge	no.	79.00
7.2.7	Residue & oil distillate by Distillation	no.	79.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**Description of Work**	**Unit**	**Rate JKHSI 2015**
7.2.8	Residue by Evaporation	no.	87.00
7.2.9	Penetration Test	no.	81.00
7.2.10	Flash point	no.	62.00
7.2.11	Kinematic Viscosity	no.	150.00
7.2.12	softening Point	no.	85.00
7.2.13	Ductility	no.	110.00
7.2.14	Water Content/Binder Content	no.	85.00
7.2.15	Loss on Heating of Oil and asphaltic Compounds	no.	110.00
7.2.16	Drop in Penetration	no.	87.00
7.2.17	Spacific Gravity	no.	78.00
7.2.18	pH of Aqueous Solution	no.	42.00
7.3	**UJIAN-UJIAN PREMIX**		
7.3.1	Marshall Test		
7.3.1.1	Making of test Speciment(permohonan hendaklah mengemukakan bahan-bahan seperti batu baur,filler dan binder)	no.	110.00
7.3.1.2	Density of test specimen	no.	44.00
7.3.1.3	Determination of voids	no.	340.00
7.3.1.4	Measuremnt of Flow & Stabilty	no.	51.00
7.3.2	Determination of binder content	no.	130.00
7.3.3	Grading of mineral Aggregate	no.	48.00
7.4	**FIBREGLASS WATER TANK (tank less then 2000 Liters)**		
7.4.1	Tensile Strength	no.	64.00
7.4.2	Glass content of glass-Reinforced Laminates		
7.4.2.1	Sample Containing no Filler & Colouring agent	no.	82.00
7.4.2.2	Sample Containing filler and coloring agent	no.	140.00
7.4.3	Barcol hardness	no.	44.00
7.4.4	Water Absorption	no.	62.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**Description of Work**	**Unit**	**Rate JKHSI 2015**
7.4.5	Lap Shear Stength of laminate	no.	74.00
7.4.6	Deflection	no.	120.00
7.4.7	Thickness, Sag and slope of Cover	no.	57.00
7.4.8	Hydrostatic Test	no.	42.00
7.5	**UJIAN-UJIAN KONKRIT**		
7.5.1	Slump Test (Permohonan dikehendaki mengemukakan bahan-bahan seperti simen, batu baur halus & kasar untuk ujian tersebut)	no.	59.00
7.5.2	Compacting Factor (Permohonan dikehendaki mengemukakan bahan-bahan seperti simen, batu baur halus & kasar untuk ujian tersebut)	no.	64.00
7.5.3	Concrete Cube Sampling (Permohonan dikehendaki mengemukakan bahan-bahan seperti simen, batu baur halus & kasar untuk penyediaan sampel tersebut)	no.	41.00
7.5.4	Concrete cube compressive strenght test	no.	11.00
7.5.5	As received density of cube	no.	6.30
7.5.6	Concrete coring using thin wall diamond bits up to 300mm depth		
7.5.6.1	Coring through Reinforced concrete (50mm dia)	no.	130.00
7.5.6.2	Coring through Reinforced concrete (100mm dia)	no.	170.00
7.5.6.3	Coring through Reinforced concrete (150mm dia)	no.	220.00
7.5.6.4	Coring through Reinforced concrete (200mm dia)	no.	280.00
7.5.7	Concrete Core Test		
7.5.7.1	Depth of Carbonation determination by spraying of phenolphthalein solution on concrete core.	no.	29.00
7.5.7.2	Concrete core density test	no.	56.00
7.5.7.3	Porosity Absorption	no.	89.00
7.5.7.4	Core Compressive Strength (include trimming & capping)	no.	110.00
7.5.7.5	Compressive Strength (tidak termasuk 'trimming & capping)	no.	63.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**TYPE OF TESTING**	**Unit**	**Rate JKHSI 2015**
7.5.8	Total Chloride Content Test		
7.5.8.1	Drilling for 3 depths (25mm each) to collect dust samples using 25mm diameter drill bit, include patching back with shrinkage compensated grout.	no.	110.00
7.5.8.2	Laboratory chloride content test using dust sample collected from site to obtain the chloride profile.	no.	110.00
7.6	**UJIAN-UJIAN TANPA MUSNAH**		
7.6.1	Surface Hardness By rebound Hammer (untuk satu set 12 bacaan)	no.	26.00
7.6.2	Location and cover to reinforcing bars in concrete/per bar using Electromagnetic Covermeter.	no.	30.00
7.6.3	Ultrasonic Pulse Velocity Test		
7.6.3.1	Direct method	no.	51.00
7.6.3.2	Indirect method (5 points at 100mm c/c)	no.	62.00
7.6.4	Corrosion Probability of Steel Reinforcement in Concrete		
7.6.4.1	Hacking of concrete for half-cell potential test, include patching back with shrinkage compensated grout.	no.	80.00
7.6.4.2	Measurement of corrosion probability of steel reinforcement bar in concrete using half-cell metre. (per bar connection per max. 4m long)	no.	100.00
7.6.5	Concrete carbonation test by drilling of 25mm diameter hole for depth not exceeding 75mm; include patching back hole with shrinkage compensated mortar.	no.	56.00
7.6.6	Verification of lap length and lap location using Ground Penetration Radar.	no.	560.00
7.6.7	Thermo Luminescene Test to determine the change to the microstructure of concrete.	no.	3,300.00
7.6.8	Petrographic Examination to assess the quality of concrete.	no.	3,300.00
7.7	**UJIAN- UJIAN SIMEN**		
7.7.1	Determination of Consistence of Standard Cement Paste	no.	44.00
7.7.2	Determination of Initial Land Final Setting Times	no.	41.00
7.7.3	Test for Compressive Strenght of Cement Using Mortar Cube	no.	45.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**TYPE OF TESTING**	**Unit**	**Rate JKHSI 2015**
7.7.4	Cement Content Determination		
7.7.4.1	Drilling for depth not exceeding 100mm to collect dust samples using 25mm diameter drill bit, include patching back with shrinkage compensated grout.	no.	170.00
7.7.4.2	Laboratory cement content test using dust sample collected from site.	no.	220.00
7.8	**UJIAN-UJIAN LOGAM** All rates for dimensions are for the first 10 dimensions for specimen weighing less than 50kg and measuring less than 1m. Additional charges will be added for subsequent 10 dimensions or part of it at the same rate.		
7.8.1	Dimensions (Metal)	no.	29.00
7.8.2	Dimensions (Steel Sections)	no.	30.00
7.8.3	Dimensions (Steel Fabric/Wire Mesh)	no.	30.00
7.8.4	Dimensions (Wire Strands)	no.	29.00
7.8.5	Mass Per Unit Length (per first 50kg/m)	no.	29.00
7.8.6	Mass Per Unit Area (per first 50kg/m2)	no.	30.00
7.8.7	Tensile Test/Bend Test (untuk contoh bergaris pusat nominal ketebalan kurang daripada 20mm)	no.	98.00
7.8.8	Tensile Test/Bend Test (untuk contoh bergaris pusat no.minal ketebalan 20mm - 25mm)	no.	100.00
7.8.9	Tensile Test/Bend Test (untuk contoh bergaris pusat no.minal ketebalan lebih daripada 25mm)	no.	100.00
7.8.10	Tensile Test/Bend Test (for welded plate) (untuk contoh kepingan disediakan (prepared flats)	no.	49.00
7.8.11	Tesile Test Using Extensometer (untuk contoh bergaris pusat no.minal 16mm dan kebawah)	no.	64.00
7.8.12	0.2% Proof Stress (untuk contoh bergaris pusat no.minal 16mm dan kebawah)	no.	71.00
7.8.13	"Breaking Load" (untuk 'wire strands' bergaris pusat no.minal 16mm & kebawah - Pemohon dikehendaki menyediakan contoh dengan 'grips' sekali untuk ujian tersebut.	no.	67.00
7.8.14	"Brinell Hardness"	no.	49.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**TYPE OF TESTING**	**Unit**	**Rate JKHSI 2015**
7.8.15	"Zine Coating"	no.	56.00
7.8.16	"Izod Impact Test"	no.	68.00
7.8.17	"Charpy U-no.tch Impact Test"	no.	68.00
7.9	**UJIAN-UJIAN BATA DAN BLOCK** All rates for dimensions are for the first 10 dimensions for specimen weighing less than 50kg and measuring less than 1m. Additional charges will be added for subsequent 10 dimensions or part of it at the same rate.		
7.9.1	"Dimensions (Bricks)"	no.	35.00
7.9.2	"Dimensions (Blocks)"	no.	34.00
7.9.3	"Compressive Strengh (without capping)"	no.	40.00
7.9.4	"Compressive Strengh (with capping)"	no.	60.00
7.9.5	"Water Absorption (5-hour boiling test)"(untuk 10 bil. Satu set)	no.	340.00
7.9.6	"Water Absorption (24-hour cold immersion test)"	no.	54.00
7.9.7	Ketumpatan	no.	45.00
7.10	**UJIAN-UJIAN PAIP**		
7.10.1	"Dimensions (Steel/Galv. Steel/Ductile Iron/UPVC/Polybutylenme)	no.	37.00
7.10.2	"Mass per unit length of pipe"	no.	45.00
7.10.3	"Dimensions" (Asbestos Cement/Cast Iron with Plain end)	no.	37.00
7.10.4	"Dimensions" (Cast Iron with Flanges)	no.	48.00
7.10.5	Hydrostatic Test	no.	130.00
7.11	**UJIAN-UJIAN "SPECIALS/PIPE FITTINGS"** All rates for dimensions are for the first 10 dimensions for specimen weighing less than 50kg and measuring less than 1m. Additional charges will be added for subsequent 10 dimensions or part of it at the same rate.		
7.11.1	"Dimensions"(Steel/Galp Steel/Ductile Iron/UPVC)	no.	56.00
7.11.2	"Mass per unit of wrapping"	no.	38.00
7.11.3	"Thickness of wrapping"	no.	41.00
7.11.4	"Thickness of conrete lining"	no.	57.00
7.11.5	"Dimension" (Polybutylene/HDPE)	no.	49.00
7.11.6	Hydrostatiac Test	no.	140.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**Description of Work**	**Unit**	**Rate JKHSI 2015**
7.12	**UJIAN-UJIAN BAHAN-BAHAN LAIN** All rates for dimensions are for the first 10 dimensions for specimen weighing less than 50kg and measuring less than 1m. Additional charges will be added for subsequent 10 dimensions or part of it at the same rate.		
7.12.1	"Dimensions" (Taps/Stop Valves/Plastic Boll Valves)	no.	67.00
7.12.2	"Dimensions" (Air Valves)	no.	48.00
7.12.3	"Dimensions" (Floats)	no.	37.00
7.12.4	"Dimensions" (Ferrules)	no.	57.00
7.13	**UJIAN-UJIAN BAHAN-BAHAN LAIN** All rates for dimensions are for the first 10 dimensions for specimen weighing less than 50kg and measuring less than 1m. Additional charges will be added for subsequent 10 dimensions or part of it at the same rate.		
7.13.1	"Dimensions" (Taps/Stop Valves/Plastic Boll Valves)	no.	67.00
7.13.2	"Dimensions" (Air Valves)	no.	48.00
7.13.3	"Dimensions" (Floats)	no.	37.00
7.13.4	"Dimensions" (Ferrules)	no.	57.00
7.13.5	"Dimensions" (manhole covers)	no.	38.00
7.13.6	"Dimensions" (Bolt/nuts/rivets)	no.	37.00
7.13.7	"Dimensions" (roofing Sheets)	no.	38.00
7.13.8	"Dimensions & Verification of Componet Parts"	no.	49.00
7.13.9	"Dimensions" (Steel Water Tank)	no.	45.00
7.13.10	"Dimensions" (Guardrail)	no.	48.00
7.13.11	"Dimensions" (Steel Column)	no.	48.00
7.13.12	"Dimensions" (Standard Piller/Underground Fire Hydrent)	no.	59.00
7.13.13	"Dimensions" (Adjustable Galvanized Louvre Windows)	no.	56.00
7.13.14	"Boiling Test" (Floats)	no.	49.00
7.13.15	"Performance Test" (Solar Water Heater)	no.	89.00
7.13.16	"Accelerated Wear Test" (Adjustable Galvanise Louvre windows) (Pemasangan Contoh Untuk ujian adalah dijalankan oleh pemohon)	no.	44.00
7.13.17	pH of Aqueous Solutions"	no.	42.00

Bill 7: MATERIAL TESTING (Based on testing in the Laboratory) (Cont'd)			
Item	**Description of Work**	**Unit**	**Rate JKHSI 2015**
7.13.18	Hyrdostatic Test	no.	60.00
7.13.19	marking	no.	26.00
7.13.20	Varification of thread	no.	29.00
7.14	**TENTUKAN ALAT-ALAT**		
7.14.1	"Calibrations by Dead Weight Tester"	no.	90.00
7.15	**WATER METER TESTING**		
7.15.1	Initial Verification	no.	17.00
7.15.2	Error Measurement	no.	14.00
	Note:		
	*Other tests no.t included above shall be determine on agreed basis.		