Overview

1.0 Introduction

This is the fourth edition of the Panduan Teknik, originally published in 1976. It is meant as a reference manual for new JKR Electrical Engineers in HQ design office during the course of their daily duties. This manual outlines the JKR standard practices which have been sourced from experiences of Senior Practicing Engineers and with reference to the current Government circulars specifically pertaining to procurement.

This manual is not comprehensive nor exhaustive, thus other documents should be referred to, when embarking on the actual work at hand.

2.0 Design Procedure and Criteria

A good design is one that is safe, economical, maintainable and functional to the customer's satisfaction. The EE is also encouraged to seek the advice and expertise of his more experienced colleagues.

The design of the systems, all works performed, all materials and equipments supplied shall comply with the rules and regulations, circulars, laws and by-laws and be carried out in accordance to the following:

a. Suruhanjaya Tenaga, ST
b. Suruhanjaya Komunikasi & Multimedia, MCMC
c. Jabatan Alam Sekitar, DOE
d. Jabatan Bomba & Penyelamat, JBPM
e. Jabatan Keselamatan & Kesihatan Pekerjaan, DOSH
f. Ministry of International Trade & Industry, MITI
g. Treasury Circulars
h. Garis Panduan dan Peraturan bagi Perancangan Bangunan Oleh Jawatankuasa kecil Piawaian & Kos bagi Jawatankuasa Perancang Pembangunan Negara, Jabatan Perdana Menteri, EPU
i. The Electricity Supply Act 1990
j. The Electricity Regulation 1994
k. MS IEC 60364 – Electrical Installations Of Buildings
l. Uniform Building By-Laws, UBBL
m. Relevant parts of ANSI / EIA / TIA 568, ANSI/EIA/TIA 569-A, ANSI/EIA/TIA 606, and ANSI/EIA/TIA 607 standards
n. The relevant codes of practice issued by SIRIM and in the absence of which those issued by the British Standards Institution / IEC
o. JKR Technical Circulars and Specifications
p. Local Authorities
q. Utility companies
r. All other authorities having jurisdiction over the works

For more information, refer to ***Nota Tambahan Kepada Panduan Teknik Chapter 1.***

3.0 Planning Stage

Many factors need to be ascertained during the planning stage. Upon receiving the design brief from the client, the EE must first analyse the client's requirement and prepare a concept design based on the electrical, telecommunication and mechanical load requirement. The EE then prepares a preliminary cost estimate which must be forwarded to the Quantity Surveyor, to be included in the Preliminary Detail Abstract (PDA) costing for the entire project.

At this stage too, meetings, discussions and coordination need to be carried out within the project team. The builder's works in connection with electrical works have to be coordinated with the architect, civil and structural engineers. Preliminary electrical requirement for mechanical loads have to be obtained from the mechanical engineers.

The following are some of the points to be coordinated:

1. Architect

   a. The location of the main switchboard with respect to the location of the substation. Ideally it should be adjacent to the substation. However as a rule of thumb it should not be more than **20 meters** away. Otherwise additional sub switch room(s) may be required, thus adding to the cost of the project. **(Refer TNB Electricity Supply Application Handbook)**
   b. Ducting for incoming cables must also be incorporated.
   c. The numbers, sizes and locations of risers – the risers are needed to house the electrical boards, strategically located not only for aesthetic reasons but more importantly for safety, maintainability and serviceability.
   d. Openings in walls and floor slabs are required to allow for concealed conduits and trunking routes.
   e. The type of ceiling to be installed, the ceiling space required for luminaire installation and etc.

2. Structural Engineer

   a. To ensure ducting and trench details for substation and switch rooms are incorporated into structural drawings.
   b. To discuss on openings and / or haunches in beams - if there is insufficient space under the soffit of the beam to cater for services, and finalize the opening sizes.
   c. To coordinate possible bonding to the structure for lightning protection system.

3. Mechanical Engineer

   a. To ascertain the required electrical power for all mechanical equipment e.g. air conditioning system, water pumps, sewage pumps, fire fighting facilities, etc.
   b. To identify the proposed location of power points and isolators required.

Simultaneously, supply authority (Tenaga Nasional Berhad, Sesco, etc (TNB)) shall be informed of power supply requirements – Once the load estimate and location of intake have conceptually been agreed, TNB is approached for

confirmation of availability of supply. If a substation is required, then it becomes necessary to coordinate with the architect to provide the substation(s).

The EE shall request for estimated connection charges that would be involved.

Telecommunication Company, Telco (e.g. Telekom Malaysia, Time, etc.) also needs to be informed of communication line requirements early in order to ensure that communication lines and other requirements are ready upon completion of construction works.

Similarly, requirement of other authorities need to be liaised.

Once agreement has been reached with all relevant parties, detailed design and drawings can commence. For standard buildings such as schools or quarters etc. the standard drawing are already available and the works is much simplified.

During this stage too, the EE must prepare the design development plan (works schedule) and discuss with the project team on the method of procurement.

Appendix 1 shows the example on the Activity / Project Planning to assist the new EE.

4.0 Detail Design Stage

The information and feedbacks received from various parties and authorities during planning stage is used for the actual detailed design. The common electrical services designed in building works are:

a. Internal illumination
b. Power points (13A socket, isolator, etc)
c. Mechanical equipment loads e.g. air conditioning loads, pumps, lifts, etc.
d. Internal distribution system
e. Emergency / back up supply
f. External 11kV reticulation and substation requirements
g. Lightning protection, surge protection and earthing system
h. Information, telecommunication and PABX
i. Public address and sound reinforcement systems
j. Security and intruder system
k. External lighting

The first step of the design is to trace the floor layout plan from the architectural drawings, prepare the electrical layout plan and insert the location of luminaire (based on illumination calculation) and its switches, electrical socket outlets and all the other power points as required. This is the easiest but most time consuming exercise. CKE is in the midst of removing this step and replacing it. An automated Schedule of Accommodation (SoA) is in the pipe line.

The second step is the design of the final circuits and its associated distribution boards. The items to be considered comprise of the total load (both the total connected load, TCL and maximum demand, MD), cable sizes, circuit protective device and the safety isolation devices.

The third step is to design the electrical distribution system (schematic drawing, switch board systems) and the cabling involved.

In its simplest terms the design of electrical installation involves the laying out of electrical equipment such as light fitting, socket outlets, switches, fans, etc, and making up the associated circuitry of schematic wiring diagrams showing how they are connected to the incoming supply and also how they are interconnected. The design shall also follow the relevant **JKR Elektrik Standard Specification L-S1 to L-S20** (download from http://ict01.jkr.gov.my/e-especs)**, JKR Technical Circulars and current JKR practice.**

The EE must check and ensure that the design drawings prepared are correct and meets the client brief. Amendments will be carried out by the relevant subordinate or by the EE. After having satisfied that the drawings are correct, the drawings shall be cross checked by another designer before forwarding to the head of design team for review. The design shall then be presented to the Design Review Committee before verification.

Refer JKR SPK website http://spk.jkr.gov.my for details of this review and verification flow.

5.0 Preparation of Bill of Quantities

Before any procurement, a Bill of Quantities, BQ has to be prepared. The draft is prepared based on the drawings and EE has to ensure that the entire scope of works is included to minimise variations during construction.

6.0 Preparation of Tender Document (TD) and Table Tender Document (TTD)

TD prepared shall comprise of:

- Drawings
- Relevant specifications
- BQ
- Important Notes to Tenderers
- Supporting JKR 203N1 and N2 forms (for nominated sub contracts only)
- Technical schedule and manufacturer's name / brand of materials
- Information on the required heads and subheads for the works, location of the site, the name of the Main Contractor for the project, indication of the expected completion period and the closing date of the tender

All the above are bound together forming a TD for checking by the EE according to the checklist. Presently, CKE already practices on CD Tendering for selected projects.

Next, TTD must be prepared. The TTD shall comprise of all the above plus the Tender Notice, JKR 203N (Condition of Contract), JKR 203N3 to N7 series of form also known as the standard nominated sub contract document.

For main contract (known as direct contract in CKE), JKR 203 (based on Specification and Drawing – Lump sum contract) or 203A (based on BQ only) contract forms may be used.

This is a very simple yet very important step. This TTD shall be the reference document for tenderers who intend to purchase and participate in the tender.

Having completed and verified the TTD, the TTD and TD are sent to the Tender Secretariat at Kementerian Kerja Raya, before or on the date of the said advertisement where qualified tenderers may purchase the TD.

7.0 Preparation of Tender Evaluation Report

Once the tender is closed, the Tender Secretariat will return all the TD submitted by the tenderers to the Design Office for evaluation.

It has to be stressed that the tender evaluation process is **confidential**. Therefore the handling of this procedure must adhere to the confidentiality flow of work / information practice in the department.

Evaluations of the tenders are done in two stages.

Stage 1:

a) Statistical analysis of tender price (cut off analysis)
b) Completeness of Tender submission
c) Mandatory documents
d) Financial capabilities
e) Analysis on present performance of the tenderer
f) Technical analysis of equipment or methods compliance to specification

Stage 2 (only applicable to tenderers offering prices below cut off):

g) Analysis on past performance of the tenderer
h) Analysis on manpower/staff
i) Tender price
j) Sufficiency of minimum capital (Kecukupan modal minimum selepas mengambilkira Faktor Rendah Harga, FRH)

Those tenderers who pass the second stage evaluation, shall be further assessed based on Special Criteria for final recommendation.

The report will then be assessed by the Tender Evaluation Committee. PKCKE then recommends and submits the report to the Urusetia Lembaga Tender (Tender Board Secretariat).

8.0 Appointment of Nominated Subcontractor (NSC)

Upon approval by the Tender Board, the successful tenderer shall be informed of his success as the NSC for the works and the NSC shall obtain the necessary policies and bonds. The policies and bonds must be checked according to Treasury Circular and Instructions. Having done these, the EE will officially handover the entire supervision of the works and its associated contract administration and management up to and including the closing of the accounts, to the state JKR Electrical offices. Refer to the *Kit Selia Elektrik*.

Simultaneously, the EE shall:

- prepare the necessary JKR203 forms,
- submit them to the Superintending Officer, SO,

- assist the SO to obtain the signatures of the Main Contractor and his NSC i.e. the Letter of Acceptance, etc.,
- distribute copies of JKR203N1 to N7 to the relevant parties,
- get the JKR203N form stamped,
- prepare the Contract Document,
- distribute the Contract Document to the relevant parties.

9.0 Site Supervision

The site supervision shall be carried out by state JKR Electrical offices named by the SO as his specialist SO Representative, SOR.

Subsequently, the EE's involvement in the project will be on a periodical basis only i.e. the occasional site visit and or upon request for more details or clarification from the state offices. He shall carry out the design audit and design changes where necessary.

10.0 Towards a Quality Asset Development

To align to the JKR Strategic Framework achieving JKR's vision and mission to be the centre of excellence, a holistic approach towards asset facility management is imperative. Thus CKE has formed a flying squad to become the audit group during the development stage. The reported findings from these audits shall be shared as lessons learnt for continuous improvement within the CKE.

The members of this squad are representatives from the various units in CKE.

CKE's flying squad shall visit the site during the construction, pre-occupancy and post-occupancy stages, to audit the following:

- SPK compliance,
- Supervision works,
- Testing,
- Compliance to contract,
- Design audit,
- Hand-over procedures, etc.

Appendix 1

JADUAL PERANCANGAN AKTIVITI / PROJEK

Projek :_____

Kos PDA :_____

Jurutera Elektrik (JE) :_____

Penolong Jurutera (PJ) :_____

Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(O)	JKR	CE	Nama / Code Borang			
A	**Perancangan Projek**								
1.0	Penerimaan Projek		01						
1.1	Buka Fail	02			**o**	CE/ISO2000/1			
1.2	Rekod Pendaftaran Fail Projek	02			**o**	CE/ISO2000/2			
2.0	Design Team								
2.1	Lantikan HODT (Head of Design Team) & j/kuasa rekabentuk		01		**o**	CE/ISO2000/3			
2.2	Majukan lantikan HODT kepada HOPT (Head of Project Team)		01	**o**	**o**	CE/ISO2000/4 & JKR.PK(0).01-3			
3.0	Brief Projek								
3.1	Permohonan projek brief		01	**o**		CE/ISO2000/5			
3.2	Kajian / semakan projek brief			**o**		JKR.PK(0).01-3			
3.3	Lawatan tapak								
3.4	Perbincangan dengan pihak pelanggan								
3.5	Pindaan terhadap brief (jika perlu)		01	**o**		JKR.PK(0).01-1			
3.6	Pengesahan brief terkini dari pihak pelanggan		01	**o**		JKR.PK(0).01-2			
3.7	Verifikasi harta pelanggan		02	**o**		JKR.PK(0).01-2			
4.0	Q-Plan & D-Plan								
4.1	Sediakan D Plan		2	**o**		JKR.PK(0).02-1 pin. 1/2005	JE		
4.2	Majukan D Plan kepada HOPT				**o**	CE/ISO2000/6	JE		
4.3	Dapatkan salinan Q Plan		01	**o**	**o**	CE/ISO2000/5&6, JKR.PK(0).01-4	JE		
4.4	Lantikan pegawai mengurus tender (PMT)				**o**	CE/ISO2000/7	JE		
4.5	Pendaftaran projek: E_Pengurusan / SKALA						JE		

Appendix 1 (continue)

JADUAL PERANCANGAN AKTIVITI / PROJEK

Projek :_____

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Jurutera Elektrik (JE) :_____

Penolong Jurutera (PJ) :_____

Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(O)	JKR	CE	Nama / Code Borang			
B	**Rekabentuk Konsep**								
1.0	Open design file and book						PT		
1.1	Study architectural drawing						JE		
1.2	Discuss scope of work						All		
1.3	Plan design concept						JE		
1.4	Calculate floor area						PT		
1.5	Estimate price				**o**	CE/ISO2000/9A	JE		
1.6	Letter to QS for PDA cost estm.				**o**	CE/ISO2000/9A	JE		
1.7	PDA copy								
1.8	Estimate load				**o**	CE/ISO2000/9B	JE		
2.0	**Perbincangan Design Concept dgn KJE**		01		**o**	CE/ISO2000/8	JE		
2.1	Electrical design system								
2.2	Revise design concept								
C	**Rekabentuk Awalan**								
1	Plan for room requirements						JE PT		
	Liase with architect for space requirement: Electrical, Telephone, PA, Security, etc.						JE		
	Prepare sketches of the required room size and locations						JE PT		
	Write for information coordination to						JE PT		
	a) Mechanical (load requirement)						JE PT		
	b) Architect (room requirement & build-ins)						JE PT		
	c) Client (special equipments / requirement)						JE PT		

Appendix 1 (continue)

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Bil		(P)	(O)	JKR	CE	NAMA/CODE BORANG			
	d) Structural (beams depth / special installation)						JE PT		
5	Perbincangan dgn Design Group						JE		
	Pembahagian tugas & WBS				**o**	CE/ISO2000/11	JE		
	Electrical system (HT, LV Reticulation)								
	Pemilihan lampu, symbols to be used, drawing style, drawing no & targets & KPI								
6	Write to TNB to liase for location and size of Sub-ST		01		**o**	CE/ISO2000/10A	JE		
	Obtain approval from TNB								
7	Attend the required co-ordination meeting						all JE		
D	**Rekabentuk Terperinci**								
1	Telephone system								
1.1	Obtain Tel. U/floor trunking layout from architect						JE		
1.2	Locate Tel point & design telephone system						JE PT		
1.3	Draw Telephone system						JT		
1.4	Plot for checking and review 1		03		**o**	CE/ISO2000/10B	JT		
1.5	Amend and print 3 sets to send to local TELCO for approval				**o**	CE/ISO2000/8	JE		
1.6	Obtain approval from TELCO						JE		

Appendix 1 (continue)

JADUAL PERANCANGAN AKTIVITI / PROJEK

Projek :_____

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Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
2.0	**Lighting Design**								
2.1	Calculate lux level				**o**	CE/ISO2000/12	JT		
2.2	Trace architectural drawing according to the list of drawing prepared						JT		
2.3	Locate all luminaires						JT		
2.4	Locate all s/s/o						JT		
2.5	Locate all ICT / LAN point						JT		
2.6	Locate all PA point						JT		
2.7	Plot / print for checking						JT		
2.8	Drawing checked, discuss & amend			**o**		JKR.PK(0).02-2	JT		
3.0	**Design Schematic**								
3.1	Design the schematic including the DB						JT		
3.2	Insert schematic labeling in the layout						JT		
3.3	Draw the schematic diagram						JT		
3.4	Calculate load of each DB and balance it						PT		
3.5	Check the drawing so as the labeling tally with schematic and the load						PT		
3.6	Amend and recheck until satisfactorily done						JE		
3.7	If OK plot and pass to JEP for design review 1						JE		
3.8	Design review 1			**o**		JKR.PK(0).02-2	JEP JE		
3.9	Amend drawing and recheck			**o**		JKR.PK(0).02-2	JE JT		

Appendix 1 (continue)

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Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
4.0	**Distribution system**					JKR.PK(0).02-2			
4.1	Collect, list and calculate all loads		0.02		**o**	CE/ISO2000/12	PT JT		
4.2	Calculate volt drop & check cable size						PT JT		
4.3	Check switch gear rating						JE PT		
4.4	Locate and label mechanical switchboards						JE PT		
4.5	Design SSB schematic						JE PT		
4.6	Design riser diagram						JE PT		
4.7	Draw block diagram						JE PT		
4.8	Main Tel. schematic diagram & PABX						JE PT		
4.9	Main PA schematic diagram						JE PT		
4.10	Lightning protection system						PT JT		
4.11	Plot, check and amend						PT JT		
4.12	Plot, recheck and send for design review 2						JE		
5.0	**Design Review 2**						JEP JE		
5.1	Design LV boards & discuss with JEP			**o**		JKR.PK(0).02-2	JE		
5.2	Draw MSB and associated boards			**o**		JKR.PK(0).02-2	JE		
5.3	Check and send for design review 3						JE		
6.0	**Design review 3**						JEP JE		

Appendix 1 (continue)

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Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
6.1	Amend and plot for verification						JT		
E	**Verifikasi Rekabentuk**								
1.1	JEP: Review rekabentuk			**o**		JKR.PK(0).02			
1.2	JEP: Pengesahan rekabentuk			**o**		JKR.PK(0).02			
2.1	KJE: Review rekabentuk			**o**		JKR.PK(0).02			
2.2	KJE: Pembetulan lukisan / rekabentuk			**o**		JKR.PK(0).03			
2.3	KJE: Pengesahan rekabentuk			**o**		JKR.PK(0).02			
3.0	PCKE: Pengesahan rekabentuk			**o**		JKR.PK(0).02			
4.0	Validasi rekabentuk (jika perlu)								
F	**Penyediaan Dok. Tender & Perolehan**								
1.1	Sediakan senarai kuantiti, senarai jenama barangan		0.02				PT		
2.0	Mohon no. tender						PT		
2.1	Tentukan kelas pretender						PT		
2.2	Sediakan butiran pengiklanan						PT		
2.3	Sediakan LO untuk iklan						PT		
2.4	Sedia surat & hantar iklan						PT		
2.5	Iklan tender						PT		
3.0	Sediakan spesifikasi & lukisan		0.02				PT		
3.1	Sediakan borang-borang tender						PT		
3.2	Sediakan TD & TTD		0.03				JE PT		
3.3	Senarai semakan TD & TTD		0.03	**o**		JKR.PK(O).03-4a (NSC), 4b (DC)	JE PT		

Appendix 1 (continue)

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Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
3.4	KJE: check and approve the TTD								
4.0	Send to Urusetia Tender						JE PT		
5.0	Pengiklanan								
5.1	Lawatan tapak jika perlu						JE		
5.2	Jualan dokumen tender								
5.3	Sediakan anggaran jabatan						JE		
5.4	Lantikan semula pegawai penilai, jika perlu						JEP JE		
6.0	Penerimaan dokumen tender						JE		
6.1	JE: penilaian tender								
6.2	JEP: semakan penilaian tender								
6.3	JEP: semakan & pengesyoran penilaian tender								
6.4	KJE: semakan & pengesyoran penilaian tender								
6.5	PCKE: pengesahan & pengesyoran tender								
6.6	JE: sediakan 10 set laporan tender								
6.7	Hantar laporan tender ke Urusetia Lembaga Perolehan						JE		
7.0	Keputusan dari Lembaga Perolehan								
G	**Penyediaan Dok. Kontrak**								

Appendix 1 (continue)

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Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
1.0	PCKE serah kpd. KJE/JEP/JEK/JE								
2.0	Pemberitahu penerimaan tender s.k. KJEN						JE PT		
2.1	Penyediaan SST & borang-borang kontrak						PT		
2.2	Kick off meeting dan penyerahan pada KJEN						JEP JE		
2.3	Edaran SST & borang-borang kontrak kpd kontraktor & pihak-pihak terlibat						PT		
2.4	Matikan setem						PT		
2.5	Menyedia dokumen kontrak						PT		
2.6	Hantar kepada BINDERS untuk buat kontrak dok.						PT		
3.0	Pengesahan dokumen kontrak						KJE		
4.0	Edaran Dok. kontrak						PT		
H	**Pembinaan**								
1.0	Site meetings						ALL		
2.0	Site visits / supervisions						ALL		
2.1	Check and approve samples						ALL		
2.2	Approve shop drawings						JE		
3.0	Evaluation on progress for payment						PT JT		
3.1	Prepare claim recommendation letter						JE PT		
4.0	Factory visit for switchboards						JE PT		
5.0	Liaise with TENAGA for						JE		
	a) ACB settings						JE		

Appendix 1 (continue)

JADUAL PERANCANGAN AKTIVITI / PROJEK

Projek :_____

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Jurutera Elektrik (JE) :_____

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Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
	b) substation approval						JE		
	c) connection charges						JE		
	d)connection of supply						JE		
6.0	Liaise with TELCO for						JE		
	a)supervision of manholes fabrication						JE		
	b) TELCO inspection						JE		
	c) application for telephone lines						JE		
7.0	All supervision forms to be filled accordingly						PT JT		
8.0	Final measurement on site						PT JT		
9.0	V.O. forms						JE PT		
10.0	PPJHK						JE PT		
I	**Testing & Commissioning & Hanover**								
1	Testing on site						ALL		
2	Check as installed drawings						ALL		
2.1	Receive, records and distribute man & distribute as installed drawing						PT		
3	Pre Handling Over Inspection						ALL		
4	Final rectification								
5	Handling over								

Appendix 1 (continue)

JADUAL PERANCANGAN AKTIVITI / PROJEK

Projek :_____

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Juruteknik (JT) :_____

Bil	Projek / Aktiviti	PRO. Q: JKR.PK		Dokumen Sokongan, Borang			PIC	Status	File ref. No
		(P)	(0)	JKR	CE	NAMA/CODE BORANG			
J	**Defects Liability Period**								
1	Do final payment and close of account						JE		
2	Handle complaints and rectification works						PT		
3	Defects joint inspection every 3 months						ALL		
4	Final site checking or defects 3 months before DLP ends						ALL		
5	Making good – Final								
6	Release performance bond						JE		
7	Prepare letter and pass all files for closing						PT		
8	Close file						JE		