

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENGAJIAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR

SESI I 2022/2023

**BCT50153: CONTRACT PROCEDURE AND
QUANTITY MEASUREMENT**

TARIKH: 11 JANUARI 2023

MASA: 8.30 AM – 11.30 AM (3 JAM)

Kertas peperiksaan ini mengandungi **TIGA BELAS (13)** halaman bercetak.

ARAHAN: Kertas ini mengandungi **EMPAT (4)** soalan berstruktur.
Jawab **SEMUA** soalan.

Dokumen sokongan yang disertakan :Kertas *Direct Billing*

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN
(CLO yang tertera hanya sebagai rujukan)

SULIT



SECTION A: 100 MARKS**BAHAGIAN A: 100 MARKAH****INSTRUCTION:**

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi EMPAT (4) soalan berstruktur. Jawab SEMUA soalan.

QUESTION 1**SOALAN 1**CLO1
C2

- (a) By referring Clause 10.0 from P.W.D. Form 203A (Rev. 1/2010), answer the questions below:

Berdasarkan kepada Fasal 10.0 dari Borang Kontrak J.K.R. 203A (Sem. 1/2010), jawab soalan berikut:

- i. Explain **FIVE (5)** obligations of Contractor to construct and complete the works during the contract period.

Jelaskan LIMA (5) tanggungjawab Kontraktor untuk membina dan menyiapkan segala kerja dalam tempoh kontrak.

[5 marks]

[5 markah]

CLO1
C2

- ii. All instructions issued by the Superintending Officer (S.O) or Architect shall be in writing and the Contractor shall forthwith comply with all instructions issued by the S.O or Architect. By referring to P.W.D. Form 203A (Rev. 1/2010) or PAM Contract Form 2006, describe **FIVE (5)** actions that can be taken by the Contractor and S.O or Contractor and Architect related to this oral and written instructions issued.

Semua arahan yang dikeluarkan oleh Pengawai Penguasa (P.P) atau Arkitek hendaklah secara bertulis. Berdasarkan kepada Borang Kontrak J.K.R. 203A (Sem. 1/2010) atau Borang Kontrak PAM 2006, huraikan LIMA (5) tindakan yang boleh diambil oleh pihak Kontraktor dan pihak P.P atau pihak

Kontraktor dan pihak Akitek berkaitan dengan pengeluaran arahan secara lisan dan secara bertulis ini.

[5 marks]

[5 markah]

CLO1
C3

- (b) i. The Contractor shall in joint names of the Government and the Contractor insure against loss and damage by any Insurance of works under the contract. Based on either P.W.D Form 203A (Rev. 1/2010) or PAM Contract Form 2006, identify suitable actions to be taken regarding failure of Contractor to renew insurance.

Kontraktor hendaklah dengan nama bersama Kerajaan dan Kontraktor menginsuranskan terhadap kerugian dan kerosakan oleh mana-mana insurans kerja di bawah kontrak. Berdasarkan kepada Borang Kontrak J.K.R 203A (Sem. 1/2010) atau Borang Kontrak PAM 2006, kenalpasti tindakan yang sesuai untuk diambil berhubung dengan kegagalan Kontraktor memperbaharui insuran.

PWD
clause 24.0
Variation
- The s.o may

issues instructions requiring a variation in a form of a variation order

PAM 11.2 No variation shall be ordered by the Architect ^{requires shall} [7 marks] [7 markah]

CLO1
C3

- ii. Variation means the alterations or modification of the design, quality or quantity of the works, as referred to P.W.D. Form 203A (Rev. 1/2010) or PAM Contract Form 2006, choose and relate with arguments **FOUR (4)** aspects of the variations that can be ordered by Superintendent Officer or Architect.

The A1
A may issues in
No variation required by the S.O shall violate this contract upon issues of such variation order. The contractor shall forthwith comply with the variation order issued by the S.O

Perubahan kerja bermaksud ubahsuai atau modifikasi dari sesi rekabentuk, kualiti atau kuantiti kerja seperti dinyatakan pada Borang Kontrak J.K.R. 203A (Sem. 1/2010) atau Borang Kontrak PAM 2006. Pilih dan kaitkan beserta hujah **EMPAT (4)** aspek dalam perubahan kerja yang boleh diarah oleh Pengawai Penguasa atau Arkitek.

[8 marks]

[8 markah]

QUESTION 2
SOALAN 2

In the event that any dispute or difference arises between the employer and contractor, either during the progress or after

CLO1
C2

- (a) i. By referring to P.W.D Form 203A (Rev. 1/2010) and PAM Contract Form 2006, compare and contrast the procedures for appointment of Arbitrator.

Berdasarkan kepada Borang Kontrak J.K.R 203A (Sem. 1/2010) dan Borang Kontrak PAM 2006, bandingkan dan bezakan antara prosedur berhubung dengan perlantikan Timbangtara.

[5 marks]

[5 markah]

CLO1
C2

- ii. By referring to P.W.D Form 203A (Rev. 1/2010), explain how the contractor must comply with the Employment Act 1955 and any other laws related to the workmen recruitment on the matters below:

Berdasarkan kepada Borang Kontrak J.K.R 203A (Sem. 1/2010), jelaskan bagaimana kontraktor perlu mematuhi Akta Kerja 1955 bagi pengambilan pekerja oleh kontraktor termasuk mana-mana undang-undang lain yang berhubung dengan pengambilan pekerja dalam hal-hal berikut:

- a. Days and hours of working.
Hari dan waktu bekerja.
- b. Wages books and time sheets.
Buku gaji dan lembaran catatan masa.
- c. Default in payment of wages.
Kegagalan dalam pembayaran gaji.

[5 marks]

[5 markah]

CLO1
C3

- (b) i. By referring to P.W.D Form 203A (Rev. 1/2010) and PAM Contract Form 2006, choose and explain the action to be taken by Superintending Officer, Architect and Contractor for defects after completion.

Berdasarkan kepada Borang Kontrak J.K.R 203A (Sem. 1/2010) dan Borang Kontrak PAM 2006, pilih dan terangkan tindakan yang perlu diambil oleh Pengawai Penguasa, Arkitek dan Kontraktor berkaitan dengan Kecacatan selepas Siap.

[7 marks]

[7 markah]

CLO1
C3

- ii. The Government is entitled to terminate the contract by written notice if the Contractor is convicted by a court of law for corruption. This is stated in Clause 53.0 P.W.D. Form of Contract 203A (Rev. 1/2010). By referring to P.W.D. Form 203A (Rev. 1/2010), select and explain **FOUR (4)** facts of the termination and consequences of termination on corruption that has to be undertaken by the Government and compare with the PAM Contract Form 2006.

Kerajaan berhak untuk menamatkan kontrak dengan notis bertulis jika Kontraktor disabitkan oleh mahkamah di bawah undang-undang rasuah. Ini dinyatakan dalam Fasal 53.0 dalam Borang Kontrak J.K.R. 203A (Sem. 1/2010). Merujuk kepada Borang Kontrak J.K.R. 203A (Sem.1/ 2010), pilih dan jelaskan EMPAT (4) fakta bagi penamatan dan akibat dari penamatan kerana rasuah yang perlu di beri perhatian oleh Kerajaan dan bandingkan dengan Borang Kontrak PAM 2006.

[8 marks]

[8 markah]

QUESTION 3**SOALAN 3**

Based on drawing No. BCT50153/S1/3/Sept22/1 & 2 as shown in Figure 1, Figure 2 and Table 1, measure the quantity for superstructure work (column element at F2 only). [Make your own assumption if needed.]

Berdasarkan Lukisan No. BCT50153/S1//3/Sept22/1 & 2 seperti Rajah 1, Rajah 2, dan Jadual 1, ukur kuantiti untuk kerja struktur (elemen tiang pada F2 sahaja). [Buat andaian jika perlu.]

CLO2
C3

- (a) Write the taking off list for Column work.

Tulis senarai cabutan item-item untuk kerja tiang.

[2 marks]

[2 markah]

CLO2
C4

- (b) i. List the unit of measurement for Column work in the correct space in the Direct Billing form. Produce a description for Column work.

Senaraikan unit pengukuran untuk kerja Tiang ke dalam ruang yang betul di dalam borang "Direct Billing". Hasilkan keterangan kerja untuk kerja Tiang.

[6 marks]

[6 markah]

CLO2
C4

- ii. Calculate in detail in the side cast for column work. Transfer the figure from side cast into the dimension space and also make a squaring in the correct dimension column in the Direct Billing form.

Kirakan secara terperinci ukuran di bahagian pengiraan Tiang. Pindahkan ukuran dari bahagian pengiraan dan pindahkan ke ruangan dimensi dan buat penjumlahan kuantiti di dalam ruang dimensi yang betul dalam borang "Direct Billing".

[14 marks]

[14 markah]

CLO2
C5

(c) Justify the quantity figure for Column work into the quantity column in the Direct Billing form. **AND** rate the price for reinforcement in Column work for the year 2022 in rate column based on the rate given in Table 2 below. The fluctuation rate is 1.2% per annum.

Sempurnakan kiraan penjumlahan untuk kerja Tiang di dalam ruang kuantiti di dalam borang "Direct Billing" DAN hargakan untuk Kerja besi tetulang untuk tahun 2022 di ruang harga berdasarkan harga yang diberikan dalam Jadual 2 di bawah. Kenaikan harga adalah sebanyak 1.2% setahun.

[3 marks]

[3 markah]

Table 2: Price for reinforcement per kg/Jadual 2: Harga besi tetulang se kg

Size/Saiz	Price for year 2021/Harga untuk tahun 2021	
Y12	RM3.10	3.14
Y16	RM 3.15	
R10	RM3.30	3.34

Concrete	RC 12mm	10mm	formwork
- size column	- size column	- size column	- size column
- size roof beam	- Length	- Length	- Girth
- less thickness	- Add lapping 400	- less concrete cover 8/25	width Girth
- Length	- bend 50	- Add binder 240	Length Girth
	Bar	Bit of links	

~~RC~~

RC (1:2:4 + 20mm agg) as desc in column.

12mm ϕ high tensile bar reinf to BS 4483 as desc in column.

10mm ϕ mild steel bar reinf as links ~~to B~~ as desc in column

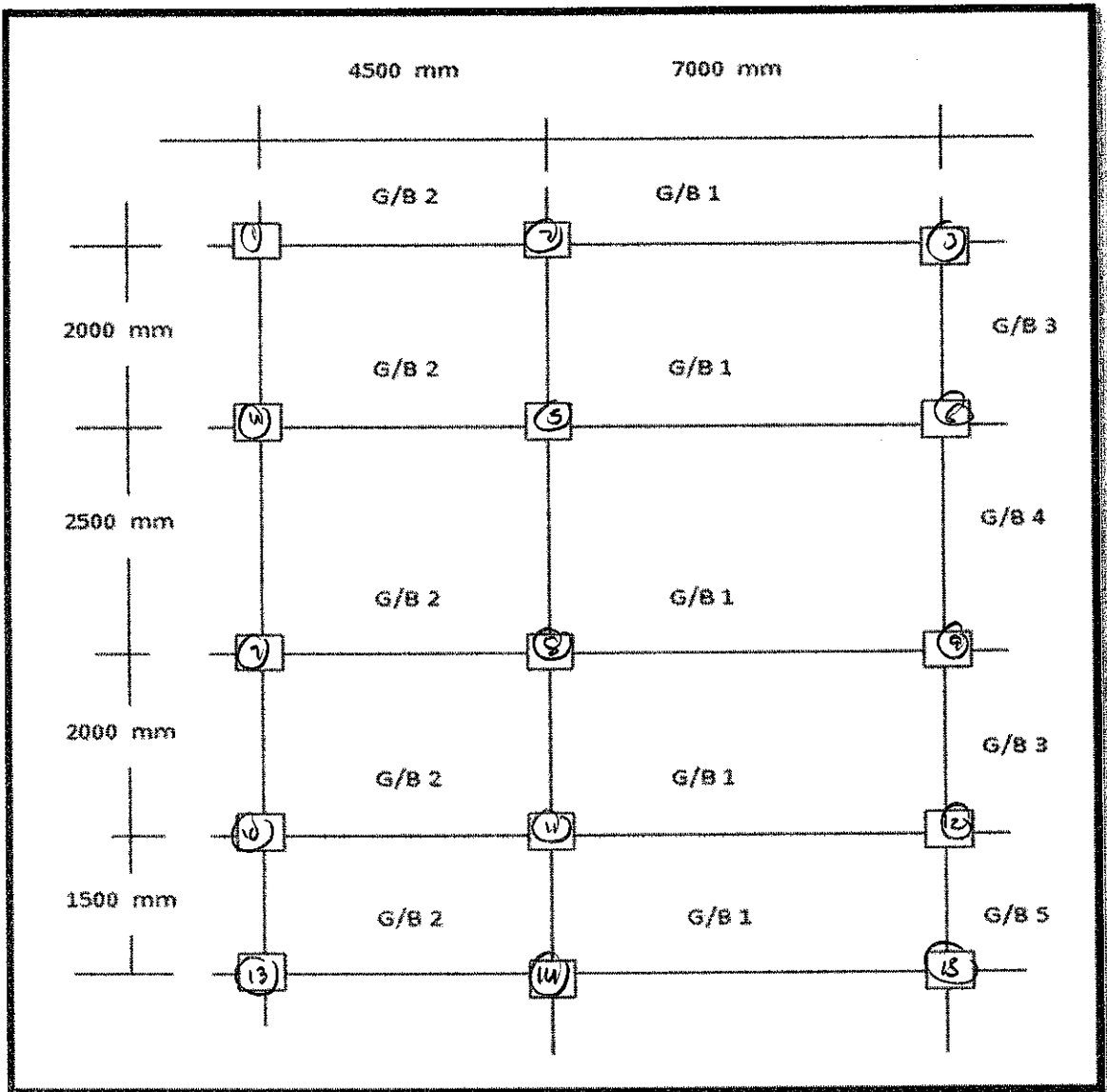


Figure 1: Ground Floor Plan:F2 location/
Rajah 1: Lukisan Lantai Bawah: Lokasi F2

Drawing No. BCT 50153//S1/3/Sept22/1

Lukisan No: BCT 50153/S1/3/Sept22/1

Table 1: Sizes of structure element/Saiz element struktur

Element Structure	Size (mm)	Thick (mm)
Upper Floor	4500 x 4050	200
Upper Beam	250 x 200	
Column	210 x 200	
Column Stump	200 x 200	

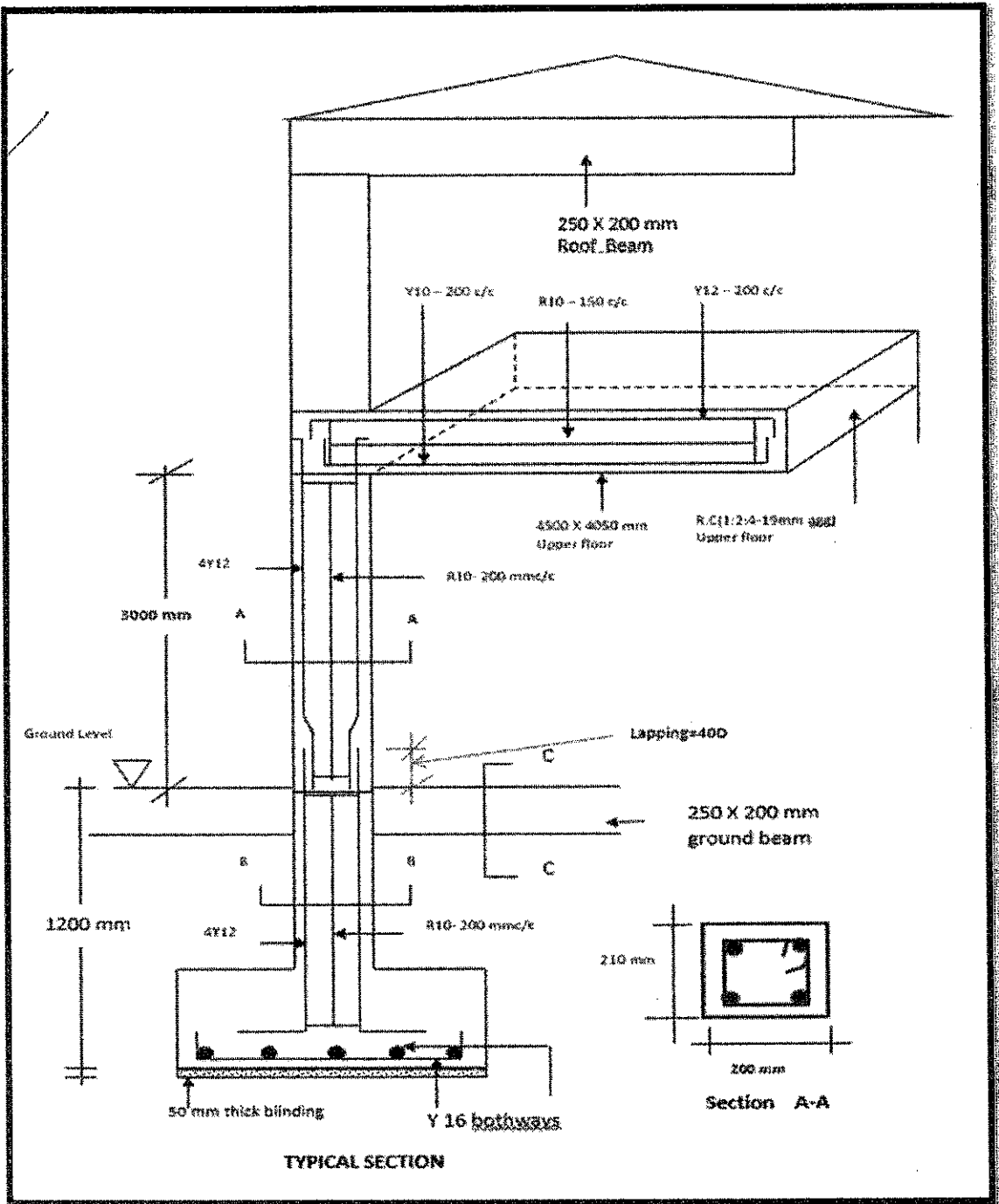


Figure 2: Typical Section
Rajah 2: Keratan Rentas

Drawing No. BCT 50153/S1/3/Sept 22/2

Lukisan No: BCT 50153/S1/3/Sept 22/2

QUESTION 4**SOALAN 4**

Based on drawing No. BCT 50153/S1/4/Sept22/X, Y & Z as shown in Figure 3, Figure 4, and Figure 5, measure the quantity for External work (Roadwork element). [Make your own assumption if needed.]

Berdasarkan Lukisan No. BCT50153/S1/4/Sept22/X, Y & Z, seperti Rajah 3, Rajah 4 dan Rajah 5, ukur kuantiti untuk kerja Luar (elemen kerja Jalan). .[Buat andaian jika perlu.]

CLO2
C3

- (a) Write the taking off list for Road work.

Tulis senarai cabutan item-item untuk kerja Jalan.

- excavation
- binding
- concrete
- reinforcement

[2 marks]

[2 markah]

CLO2
C4

- (b) i. List the unit of measurement for Road work in the correct space in the Direct Billing form. Produce a description for Road work.

Senaraikan unit pengukuran untuk kerja Jalan ke dalam ruang yang betul di dalam borang "Direct Billing". Hasilkan keterangan kerja untuk kerja Jalan.

[6 marks]

[6 markah]

CLO2
C4

- ii. Calculate in detail in the side cast for Road work. Transfer the figure from side cast into the dimension space. Make a squaring in the correct dimension column in the Direct Billing form.

Kirakan secara terperinci ukuran di bahagian pengiraan Jalan..Pindahkan ukuran dari bahagian pengiraan dan pindahkan ke ruangan dimensi..Buat penjumlahan kuantiti di dalam ruang dimensi yang betul dalam borang "Direct Billing".

[14 marks]

[14 markah]

CLO2
C5

- (c) Justify the quantity figure for Road work into the quantity column in the Direct Billing form. **AND** rate the price for sub-element in Road work in rate column based on the rate given in Table 3 below. The profit should be added by 12% to the rate given. [Students should be pricing the sub-element as stated in Table 3 **ONLY**.]

Sempurnakan kiraan penjumlahan untuk kerja Jalan di dalam ruang kuantiti di dalam borang "Direct Billing" DAN hargakan untuk sub-elemen dalam kerja Jalan di ruang harga berdasarkan harga yang diberikan dalam Jadual 3 di bawah.. Keuntungan perlu ditambah dengan kadar 12% kepada harga yang diberi.. [Pelajar hanya perlu hargakan sub-element seperti dinyatakan dalam Jadual 3 SAHAJA.]

[3 marks]

[3 markah]

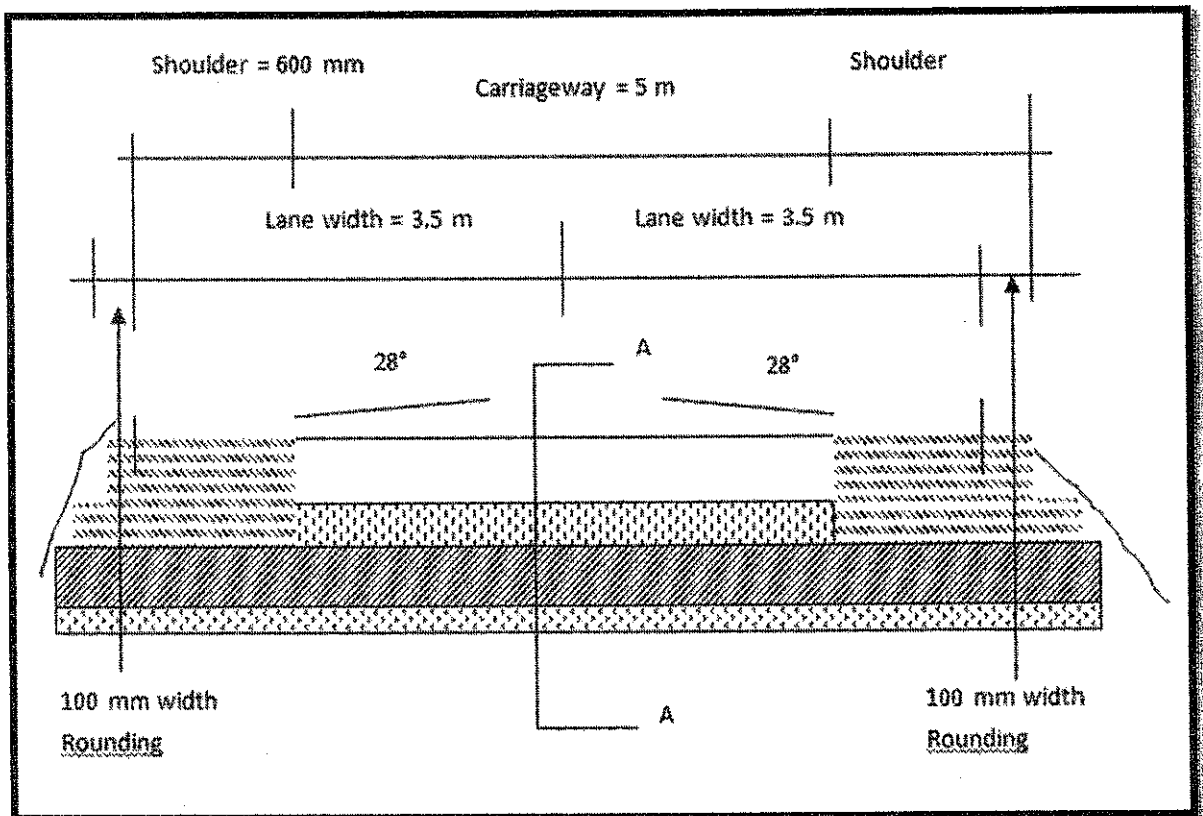


Figure 3: Cross section Roadway/
Rajah 3: Keratan Rentas Jalan

7.2

Drawing No. BCT 50153/S1/4/Sept22/X
Lukisan No: BCT 50153/S1/4/Sept22/X

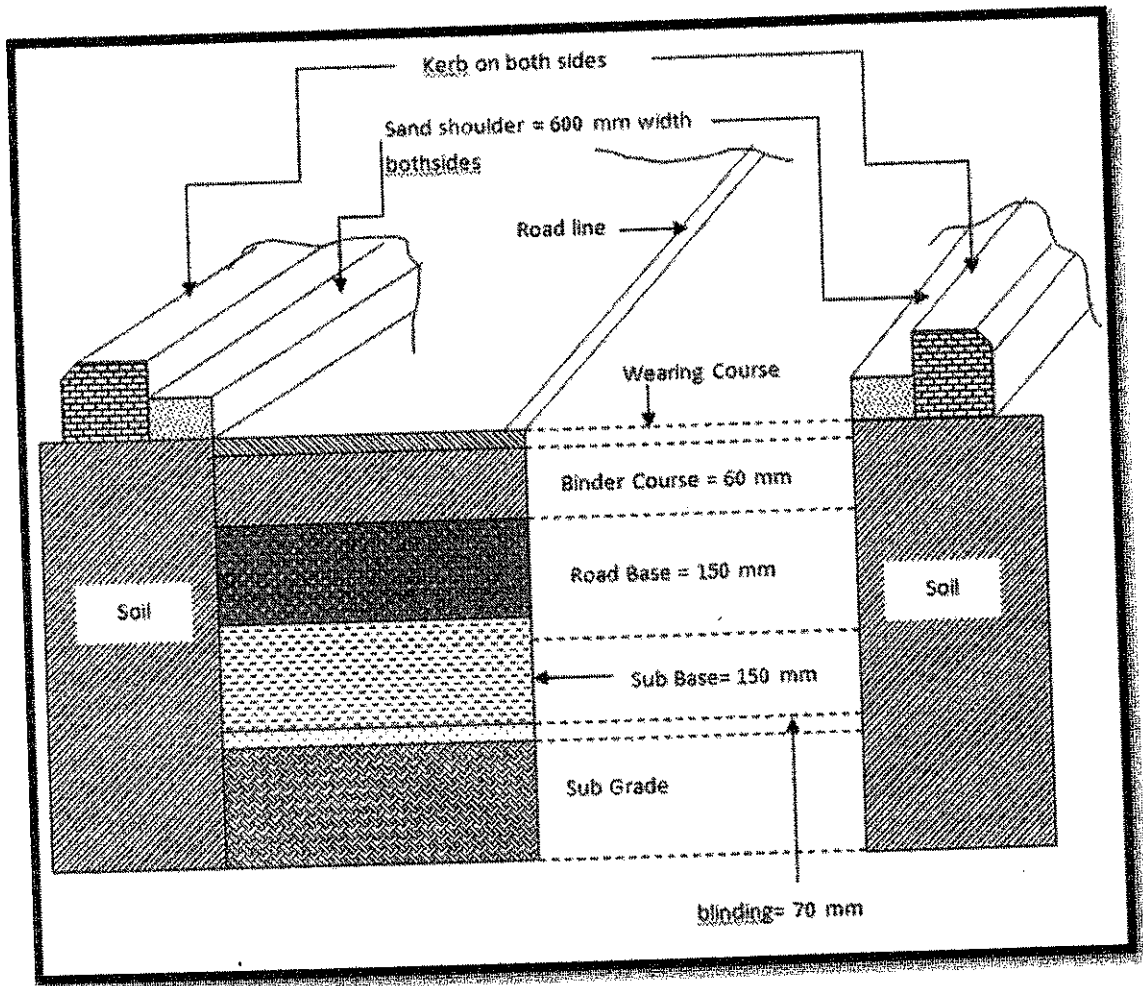


Figure 4: Section A-A Roadway/
Rajah 4: Keratan Rentas A-A Jalan

Drawing No. BCT50153/S1/4/Sept22/Y
Lukisan No: BCT50153/S1/4/Sept22/Y

Note:

1. Length of the Road = 6.5 Km
2. Rounding = 200 m length
3. Wearing course = 38 mm thick

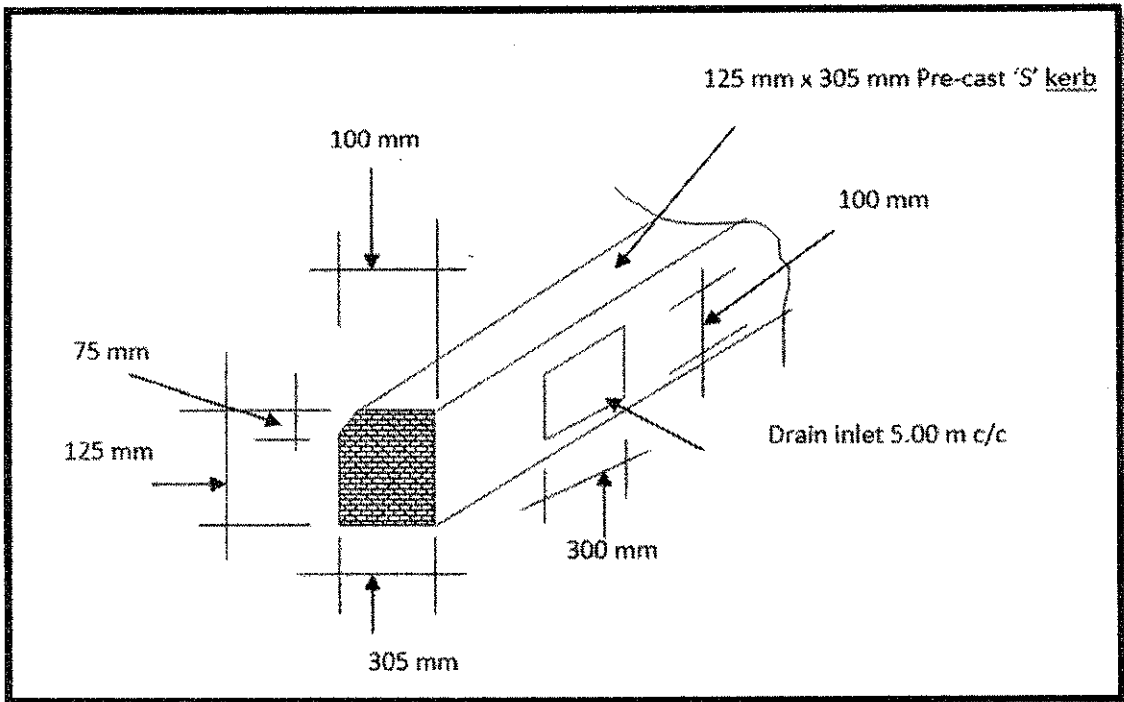


Figure 5: Kerb Detail/
Figure 5: Perincian kerb

Drawing No. BCT50153/S1/4/Sept22/Z
Lukisan No: BCT50153S1/4/Sept22/Z

Table 3: Price for reinforcement/Jadual 3: Harga besi tetulang

Sub-element price/ Harga sub-elemen	Price/Harga (RM/m ²)	Add pofit
Wearing Course	RM 23.10 25.87	12%
Binder Course	RM 23.50 26.32	12%
Road Base	RM 56.80 63.62	12%
Sub-base	RM 42.06 47.11	12%

SOALAN TAMAT