

BAHAGIAN 3.12 : DRAINAGE WORK

Kawasan Utara - Perlis, Kedah, Pulau Pinang dan Perak
 Kawasan Tengah - Wilayah Persekutuan Kuala Lumpur, Melaka, Negeri Sembilan,
 Selangor dan Johor
 Kawasan Timur - Pahang, Terengganu dan Kelantan

BIL	KETERANGAN KERJA	UNIT	KAWASAN UTARA		KAWASAN TENGAH		KAWASAN TIMUR		KESELURUHAN	
			PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)
1	Drain Excavation Excavate trench for placing 300mm width Precast concrete Drain maximum depth not exceeding 1.00m deep get out part return, fill in and ram deposit and spread in making up levels where directed within the site and remainder load and cart away.	m	9.50	2.00 - 15.00					9.50	
2	Excavation of new trapezoidal shaped collector earth drain of depth not exceeding 1000 mm to the required level and profile and including all necessary trimming and compaction.	-			6.25	3.00 - 12.00			6.25	3.00 - 12.00
3	Surface Drains Construction and completion of 150 mm U-Shape concrete drain Grade 20 complete with wire mesh A142 to the level and profile.	m			32.25	25.00 - 42.00.			32.25	25.00 - 42.00.
4	Construction and completion V-Shape cast in-situ collection drain 900 mm wide x 300 mm high including formworks and BRC A 8 to the level and profile.	m			76.06	60.00 - 85.00			76.06	60.00 - 85.00

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5	Supply and lay 12 m long horizontal drain (75 mm diameter UPVC pipe class 'B') at 3 m spacing inclusive of 75 mm x 600 mm slots at 200 mm centers (staggered), 100 mm drill hole, spacers and two (2) layers of non- woven geotextile fabric spiral wound with MS wire (S.W.G.16) at 100 mm pitch to the level and profile.	m			38.53	18.00 - 55.00			38.53	18.00 - 55.00
6	Supply and lay 225mm diameter half round precast concrete surface water drain discharge to outside drain including 100mm thick mixed concrete (1:3:6) as specified bed and haunching, all as specified including all necessary work's.	m	31.30	18.00 - 48.00					31.30	18.00 - 48.00
7	Allow for connection to discharge outside drain.	no.	495.60	50.00 - 1,500.00					495.60	50.00 - 1,500.00
8	Supply and fix 150mm dia. PVC scupper drains at 5 m c/c both sides of both sides of bridge.	no.					34.10	31.00 - 38.00	34.10	31.00 - 38.00
9	Roadside Drain Construct 450mm dia. block roadside drain with plastered brickwall width 500mm and depth not exceeding 1500mm.	m			441.43	309.00 - 648.90			441.43	309.00 - 648.90

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10	<u>Embankment Shoulder Drain</u> 175mm Invert width, 150mm deep Insitu reinforced concrete Grade 25 in embankment shoulder drains at any inclination including joints, excavation, reinforcement, formwork where necessary, backfilling and disposal of surplus material.	m			44.22	28.00 - 61.80			44.22	28.00 - 61.80
11	175mm Invert width, 175mm deep Insitu reinforced concrete Grade 25 in embankment shoulder drains at any inclination including joints, excavation, reinforcement, formwork where necessary, backfilling and disposal of surplus material.	m			49.59	35.00 - 67.00			49.59	35.00 - 67.00
12	<u>Toe/Interceptor Drain</u> 300mm Invert width, 450mm deep Insitu reinforced concrete Grade 25 in toe/interceptor drains at any inclination including joints, excavation, reinforcement, formwork where necessary, backfilling and disposal of surplus material.	m			51.55	45.00 - 65.00			51.55	45.00 - 65.00
13	750mm Invert width, 600mm deep Insitu reinforced concrete Grade 25 in toe/interceptor drains at any inclination including joints, excavation, reinforcement, formwork where necessary, backfilling and disposal of surplus material.	m			61.65	56.00 - 75.00			61.65	56.00 - 75.00

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14	Culverts Supply and place 525mm diameter precast concrete pipe culvert x 3.0 m long class 'X' inclusive of accessories at 150 m interval to the level and profile.	m			174.20	143.00 - 196.00			174.20	143.00 - 196.00
15	1175mm x 600mm reinforced concrete slab culvert complete with mild steel grating 375mm x 600mm as specified.	no.	446.70	200.00 - 850.00					446.70	200.00 - 850.00
16	Supply and lay precast R.C pipe culvert 1500mm DN with concrete collar joint.	m			565.50	400.00 - 855.00			565.50	400.00 - 855.00
17	Supply and lay precast box culvert size 1.8 m x 1.5 m.	m					820.60	665.00 - 1040.00	820.60	665.00 - 1040.00
18	Supply and lay precast box culvert size 1.8 m x 1.8 m.	m					860.40	700.00 - 1080.00	860.40	700.00 - 1080.00
19	Supply and lay precast box culvert size 2.4 m x 1.8 m.	m					1,280.00	1080.00 - 1720.00	1,280.00	1080.00 - 1720.00
20	Supply and lay precast box culvert size 3.0 m x 1.8 m.	m					1,629.20	1400.00 - 2080.00	1,629.20	1400.00 - 2080.00

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21	Supply and lay precast L-shape units (3200 mm height x 3100 mm width).	m					1,413.30	1,199 - 1,700	1,413.30	1,199 - 1,700
22	Supply and lay 1.5 m x 1.5 m precast box culvert including all masonry works to connect.	m			909.16	800.00 - 1,250.00			909.16	800.00 - 1,250.00
23	Supply and lay 1.2 m dia precast pipe culvert including all masonry works to connect.	m			336.73	200.00 - 400.00			336.73	200.00 - 400.00
24	Supply and lay precast box culvert 1 x 1.8 x 1.8.	m					888.58	770.00 - 1,569.60	888.58	770.00 - 1,569.60
25	Supply and lay precast box culvert 2 x 1.8 x 1.5.	m					1,116.00	660.00 - 1,920.00	1,116.00	660.00 - 1,920.00
26	Supply and lay precast box culvert 2 x 3.0 x 1.8.	m					2,544.21	1,825.00 - 3,827.00	2,544.21	1,825.00 - 3,827.00
27	Supply and lay precast box culvert 3 x 3.65 x 1.8.	m					3,099.17	1,955.00 - 5,840.00	3,099.17	1,955.00 - 5,840.00

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			PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)
28	Supply and lay 1.2m x 1.2m precast Culvert including, 300mm thick sand bedding and including all necessary excavation, backfilling and disposal of surplus excavated earth.	m			1,410.00	1,000.00 - 2,500.00			1,410.00	1,000.00 - 2,500.00
29	Supply and lay 2.4m x 1.2m precast Culvert including, 300mm thick sand bedding and including all necessary excavation, backfilling and disposal of surplus excavated earth.	m			1,895.00	1,000.00 - 3,000.00			1,895.00	1,000.00 - 3,000.00
30	Supply and install 3.3m x 2.1m Precast Concrete Box Culvert including inlet/oulet, reinforcement, formwork, jointing and sand bedding, excavation, backfilling and disposal of surplus excavated materials from site.	m			2,506.22	1,620.00 - 3,090.00			2,506.22	1,620.00 - 3,090.00
31	Drain Cover Supply and lay 300mm width Precast Concrete Drain with and including 100mm x 100mm R.C. struts at every 3000mm centres	m	49.70	30.00 - 80.00					49.70	30.00 - 80.00
32	Supply and construct 2.0 m x 2.0 m MS Grating	m			2442.27	1,200.00 - 3,000.00			2442.27	1,200.00 - 3,000.00

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			PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)
33	Pipe Culverts Supply and install 900mm diameter (Class Y) Precast Reinforced Concrete Pipe Culvert including spigot and socket jointing with rubble ring and sand bedding, excavation, backfilling and disposal of surplus excavated materials from site.	m			282.81	163.00 - 393.00			282.81	163.00 - 393.00
34	Supply and install 1200mm diameter (Class Y) Precast Reinforced Concrete Pipe Culvert including spigot and socket jointing with rubble ring and sand bedding, excavation, backfilling and disposal of surplus excavated materials from site.	m			425.54	247.00 - 597.40			425.54	247.00 - 597.40
35	Supply and install 1500mm diameter (Class Y) Precast Reinforced Concrete Pipe Culvert including spigot and socket jointing with rubble ring and sand bedding, excavation, backfilling and disposal of surplus excavated materials from site.	m			566.71	352.00 - 782.00			566.71	352.00 - 782.00
36	Supply and install 1800mm diameter (Class Y) Precast Reinforced Concrete Pipe Culvert including spigot and socket jointing with rubble ring and sand bedding, excavation, backfilling and disposal of surplus excavated materials from site.	m			700.44	420.00 - 957.90			700.44	420.00 - 957.90

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			PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)
37	<p>Sumps</p> <p>Construction and completion of brick sump overall size 600mm x 600mm x 600mm depth (max) (internal size) to invert level constructed of 50mm thick lean concrete Grade 10, 150mm thick concrete Grade 20 base, one layer BRC No. 65, 225mm thick claybrickwall and plaster on exposed surface with 20mm thick (1:3) cement including Heavy Duty Mild Steel Grating consisting 50mmx 50mm x 6mm thick Mild Steel Angle External Frame, 38mm x 38mm x 6mm thick Mild Steel Angle Internal Frame, 16-38mm x 6mm thick Mild Steel flats welded to internal frames @ 38mm centres, 2 nos of welded hinges and 2 nos of openable hinged with 2 nos of hinges on outer frame 50mm x 50mm x 6mm thick angle iron complete with fish tail bolted and to be partly embedded into brickwork vertically.</p>	no.	823.30	500.00 - 960.00					823.30	500.00 - 960.00

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			PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)	PURATA (RM)	JULAT (RM)
38	Construction and completion of brick sump overall size 1200mm x 1200mm x 1200mm depth (max) (internal size) to invert level constructed of 50mm thick lean concrete Grade 10, 150mm thick concrete Grade 20 base, one layer BRC No. 65, 225mm thick claybrickwall and plaster on exposed surface with 20mm thick (1:3) cement including Heavy Duty Mild Steel Grating consisting 50mmx 50mm x 6mm thick Mild Steel Angle External Frame, 38mm x 38mm x 6mm thick Mild Steel Angle Internal Frame, 16-38mm x 6mm thick Mild Steel flats welded to internal frames @ 38mm centres, 2 nos of welded hinges and 2 nos of openable hinged with 2 nos of hinges on outer frame 50mm x 50mm x 6mm thick angle iron complete with fish tail bolted and to be partly embedded into brickwork vertically.	no.	1,349.00	600.00 - 1,800.00					1,349.00	600.00 - 1,800.00
39	Construction and completion 2.0m x 2.0m x 2.5m depth (approx.) concrete sump with grade 25 concrete in slab, wall and etc. as per drawings. The rate shall be including of formwork, reinforcement and etc.	no.			3,677.98	3,241.90 - 3,600.00			3,677.98	3,241.90 - 3,600.00