



MAJLIS AMANAH RAKYAT

PREAMBLES

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

1. PREAMBLE TO ALL TRADES

- 1.1 The requirements of all items contained in this section are to be taken into account when pricing these Bills of Quantities.
- 1.2 The term 'approved' shall mean approved by the Superintending Officer.
- 1.3 This is a firm price contract, no claims whatsoever shall be allowed for any variation to fluctuation in the cost wages, materials, constructional plant, fuel, contributions, duty, levy taxes, temporary works, transport or otherwise howsoever which may occur during the period of the contract.
- 1.4 All rates and sums contained in the Tender Document will be deemed to include for such provisions. The Contract Sum shall not adjusted if any type of contribution, duty, levy or Tax ceases to be payable by the Contractor or if any new type of contribution, duty, levy or Tax become payable by the Contractor.
- 1.5 If the Contractor found any error in the Bills of Quantities, he shall immediately notify the S.O. of such error in writing. The S.O. shall forthwith instruct to rectify such error in accordance with Clause 5 of the Conditions of Contract. Any error in the rates and calculations of the Contractor in the Bills of Quantities submitted by him shall, before the signing thereof, be so rectified and adjusted that, when correctly calculated, the total amount shall represent the same amount as that tendered by the Contractor.
- 1.6 The Contractor shall take note that whatever the term 'Provisional' appears in the measured items in the Bills, it shall mean that the quantities as provided against the measured items in the Bills are only approximate allowance and they shall be subjected to remeasurement on site prior to the covering up of the Works in order that the actual quantities for the

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

Works can be accurately determined for the valuation of monthly interim certificate of payment and the settlement of Final Account.

- 1.7 The Tenderer shall not make any alterations or additions to the text of these Bills of Quantities unless proper notification is made in writing to the S.O. before the closing date of the Tender.
- 1.8 All items in this Bills of Quantities shall be priced in detail and not grouped together as total rates for any trade or section.
- 1.9 The rate entered against each item in this Bills of Quantities shall be binding throughout the Contract and shall not be subject to revision on account of any discrepancies or inaccuracies in the estimated quantities and weights or any other cause. The Tenderer shall when tendering satisfy himself that the quantities are reasonably correct and fully covering the scope of the work.

Abbreviations

- 1.10 Throughout these Bills of Quantities, the following abbreviations have been used:-

(i) General

- | | | |
|-----|-------------|---|
| (a) | B.S | - The latest standard for a particular building material or component issued by the British Standards Institution |
| (b) | CP
(B.S) | - The latest British Code of Practice issued by Council of Codes of Practice the British Standard Institution |
| (c) | CP
(CE) | - The latest Civil Engineering Code of Practice, issued by the Institution of Civil Engineers, United Kingdom |
| (d) | Gauge | - Imperial standard wire gauge |
| (e) | S.W.G | - Ditto |

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

- (f) NO - Number
- (g) PRS - Pairs
- (h) S.O - Superintending Officer

(ii) Metric Units

- (a) MC/M3 - Metre cube
- (b) MS/M2 - Metre Superficial
- (c) MR - Metre Linear
- (d) M - Metre
- (e) CM - Centimetre
- (f) MM - Milimetre
- (g) KG - Kilogram
- (h) KN - Kilo Newton

Constructional Plant, Equipment, Vehicles And Machinery

1.11 The costs of providing piling equipment, constructional plant, equipment, vehicles and machinery for use directly in connection with the construction and completion of the Works are to be priced in the Preliminary Section of these Bills of Quantities. However, the costs of operating the same are to be included in the prices and rates of the relevant items in these Bills of Quantities.

Curved Of Circular Work

1.12 Work described in these Bills of Quantities as curved or circular shall be deemed to include all junctions between straight and curved or circular work.

New And Old Work

1.13 Unless otherwise specified, the cost of making good at junction between new and old works shall be included in the prices and rates of the new works.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

Items/Works Measured As Lump Sum Items

- 1.14 Prices and rates for items/works measured as Lump Sum shall be deemed to cover for providing everything necessary for the proper execution and completion of the items/works according to the true intent and meaning of the Contract Documents taken together whether the same may or may not be particularly shown or described provided the same is reasonably inferred therein.

Pricing Of Bills Of Quantities

- 1.15 All items in these Bills of Quantities shall be priced by the Contractor. Should the Contractor fail to price any item, the value thereof shall be deemed to be included in the prices and rates of other items therein.

2. PILING WORKS

General

- 2.1 Prices and rates for piling are to include for works in whatever nature of site, water levels and soil strata through which the piles are to be driven or bored and any excavation required for working space.

Supplying Of Pre-cast Concrete/Timber Piles

- 2.2 Supplying of initial and extension piles are billed separately in metre linear in these Bills of Quantities.
- 2.3 The prices for supply of initial or extension piles shall be deemed to cover for providing everything necessary as shown in the drawings and/or specified in these Bills of Quantities.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

Handling, Transporting, Pitching And Driving Of Pre-cast Concrete/Timber Piles

2.4 The prices for handling, transporting, pitching and driving are to include for:-

- (i) Moving of pile frame about the site
- (ii) Extra excavation, earth filling, and ramming entailed in the movement/positioning of the pile frames
- (iii) Handling, transporting, pitching and driving of initial or extension piles irrespective of lengths
- (iv) Shaping of one end of the initial pile (if required)
- (v) Preparing pile head and fitting the same with protective strap/helmet
- (vi) Providing protective straps/helmets
- (vii) Redriving of heaves piles
- (viii) Marking the piles
- (ix) Keeping and monitoring driving logs

2.5 Handling, transporting, pitching and driving of initial piles and extension piles are measured under an item. No distinction is made between initial and extension piles.

2.6 For the purposes of payment for handling, transporting, pitching and driving of piles, the payable lengths shall be deemed to be the lengths measured from the shoe pint when pitched (i.e. the point when the pile stops setting under its own weight) to the shoe point when driven.

Bored Cast-In-Situ Piles

General

2.7 Bored cast-in-situ concrete piles are measured generally in accordance with the British Standard Method of Measurement of Building Works published by the Royal Institution of Chartered Surveyors, 12 Great George Street, Parliament Square, London, United Kingdom. Other items

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

are measured in accordance with the latest Standard of Measurement of Building Works for use in Malaysia.

Measurement Of Boring

2.8 Boring is measured from the bottom level of the bore to formation level.

Measurement Of Piles

2.9 Bored cast-in-situ piles other than test piles are measured nett, i.e. from the bottom level of the bore to the cut-off level of the pile. Test piles are measured the full length as required for testing of the pile.

Prices For Piles And Boring

2.10 The items given under the various trades of Excavation and Earth Work, Concrete Works, etc, which are included in the prices of bored piles, shall apply accordingly.

2.11 Subject to paragraph 2.9 above, the Contractor shall allow in his prices and rates any extra length that may be required above the cut-off levels.

Steel Sheet Piling

Measurement

2.12 Only steel sheet piling which form a permanent part of the Works is allowed in these Bills of Quantities. The cost of providing steel sheet piling which do not form a permanent part of the Works is deemed to be included in the prices and rates of the permanent parts of the Works for which the use of sheet piling is necessary.

Supplying Of Steel Sheet Piling

2.13 Prices and rates for supplying of steel sheet piling are to include for extra material at laps, welding along interlocks and coating with approved anti-rust paint.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

3. EXCAVATIONS AND EARTHWORKS

- 3.1 Unless otherwise stated, depths of excavations are measured from the general formation levels to the bottom of the excavations.
- 3.2 The depths of trench excavations are given in 1.50m stages.
- 3.3 Quantities of each fill are measured nett (i.e. excluding volumes occupied by a permanent part of the Works to be executed under the Contract).
- 3.4 Price The rates for excavation shall include (where applicable):
- (a) Grubbing up roots
 - (b) Keeping all excavation free from water, mud, etc. by pumping or bailing if required and discharge to temporary earth drain
 - (c) Leveling or grading and ramming of bottoms and trimming sides
 - (d) Multiple handling
 - (e) Planking, strutting and staging
 - (f) Additional excavations for planking and strutting or formwork
 - (g) Excavation around driven piles
 - (h) Protection of all services encountered
 - (i) Forming embankment and slope
 - (j) All filling to make up levels and forming embankments within the site as directed by the S.O.
 - (k) Protection of all services encountered
 - (l) All tribute, charges etc., payable to the Local Authority or the Government Department for removal of surplus spoil
 - (m) Loading and carting away
 - (n) Royalties
 - (o) Retaining sides of excavation
 - (p) The Contractor is to ascertain for himself the water levels as no claims will be entertained on the grounds that they are not known.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

- (q) Backfilling of selected excavated materials into the excavations and compacting the same methods and in the manner as specified in the Specification

3.5 Prices for earth fill shall include for:-

- (i) Settlement or displacement of fill over soft areas
- (ii) Leveling surfaces of the platform and forming the necessary slopes
- (iii) Keeping the platforms and slopes free from water or damage
- (iv) Multiple handling and transporting about the site

3.6 Prices and rates for trench excavation shall include for surface and basement trenches. No distinction shall be made between surface and basement trenches.

3.7 Prices and rates for earth, sand, quarry dust and the like material in fillings, beds, and blinding, etc. shall include for leveling surfaces of the same on grading surfaces of the same to falls or cambers, trimming sides of the same to form vertical, battering or sloping surfaces, and any temporary retaining boards as may be required.

3.8 Prices and rates for hardcore, crusher run and the like material in fillings and beds etc. shall include for hand packing the same to form vertical, battering or sloping surface, and any temporary retaining boards as may be required.

3.9 Prices and rates for hardcore, crusher run and the like material in fillings and beds etc. to receive concrete or pavings shall include for blinding the same with sand or quarry dust and leveling surfaces of the same or grading surfaces of the same to falls or cambers and well watered.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

Hard Material/Rock Excavation

3.10 Hard material/rock excavation shall mean excavation in any material that cannot be loosened by an excavator with a minimum mass of 44 tons and a minimum rating of 321 BHP. The excavator shall be in good condition and operated by experienced personnel skilled in the use of excavator equipment. Hard material/rock excavation shall require one or a combination of the following method:

- (i) Excavating using track excavator exceeding a mass of 44 tons and 321 BHP rating
- (ii) Ripping using a tractor unit of minimum weight of 37 tons and 305 BHP rating and a ripper attached
- (iii) Excavation using hydraulic rock breaker
- (iv) Excavation using pneumatic tool
- (v) Open blasting
- (vi) Controlled blasting

Use of Explosive

3.11 The Contractor shall not use any explosive for the purpose of excavating or for any other purpose whatsoever in this work without the written approval of the S.O. in the event where approval cannot be given by the S.O. due to whatsoever reason, the Contractor shall carry out the works using other means.

3.12 Where the written approval is given by the S.O. for the use of explosive, the Contractor shall comply strictly with all rules and regulations laid out by the relevant authorities pertaining to the use of this explosives.

3.13 Notwithstanding any methods finally approved by the S.O and adopted by the Contractor no claim will be entertained

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

4. CONCRETE WORK

Concrete

4.1 Prices and rates for concrete are to include for:-

- (i) All hoisting and placing in required positions
- (ii) Working between and around reinforcement
- (iii) Tamping and/or vibrating to give thorough compaction
- (iv) Forming or cutting
 - (a) Grooves
 - (b) Chases
 - (c) Mortices
 - (d) Holes and other sundry like items, including all making good

Reinforcement

4.2 Prices and rates for reinforcement are to include for:-

- (i) Cutting to lengths
- (ii) Hooked ends
- (iii) Bends
- (iv) Placing in position prior to casting
- (v) Tying, tying wire, spacer bar and distance blocks
- (vi) Allowance for laps and framing notches around obstructions in case of fabric reinforcement

Notes : The weight of rod reinforcement given in the Bills excludes both the weight of tying wire and any allowance for rolling margin and prices and rates are to include for these items.

Formwork

4.3 Prices and rates for formwork are to include for:-

- (i) Splayed edges
- (ii) Notchings
- (iii) Allowance for overlaps and passing at angles

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

- (iv) Battens
- (v) Strutting any height when required
- (vi) Bolting and edging
- (vii) Basing, striking and removal

Left In Formwork

- 4.4 "Left in' formwork as specified in these Bills of Quantities shall mean formwork which will form a permanent part of the Works.

Precast Concrete

- 4.5 All work in precast concrete shall be deemed to be in concrete (1:2:4-20mm) as described later in these Bills of Quantities. Prices shall include for all casting, formwork, handling, hoisting, placing in position and setting, bedding, joining and pointing in cement mortar (1:3) unless otherwise particularly specified.

5. BRICKWORK

- 5.1 Price and rates for brickwork and blockwork are to include for:-

- (i) All rough and fair cutting
- (ii) Over sailing and receding courses
- (iii) Rough revealing and discharging arches
- (iv) Wedging and pinning
- (v) Raking out joints for and pointing flashing
- (vi) Bedding plates
- (vii) Bedding and pining frames
- (viii) Parging and coring flues
- (ix) Plumbing angles
- (x) Labour eaves filling
- (xi) Forming square and rebated reveals, cut squints or bird mouths and notches
- (xii) Cutting and pinning and/or building in
- (xiii) Making good

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

(xiv) Sundry like items

6. DRAIN

6.1 The items given under the various Trades of Excavation and Earth Works, Concrete Works, Brickwork, etc. which are deemed included in the prices and rates of drains, shall apply accordingly.

6.2 Prices and rates for cast iron and salt glazed ware pipes are to include for short lengths, sockets, jointing, fixing and the like.

7. SCREED, PAVINGS AND TILING WORKS

General

7.1 Prices and rates for screed, pavings and tiling are to include for:-

- (i) Narrow widths and small quantities
- (ii) Temporary rules
- (iii) Arrises and rounded angles
- (iv) Working into channels and for fittings and making good up to reveals, steps, around columns, balusters, pipes, gratings, fittings and the like.

7.2 Where the thickness of floor screed and pavings is stated as 'average', these are required to be laid to falls and currents and the Contractor shall be deemed to have included for this in his prices and rates.

Tiling

7.3 Prices and rates for tiling are to receive tiles

- (i) Preparation of surfaces to receive tiles
- (ii) Laying to falls and current as instructed
- (iii) Rounded edges of projecting tiles
- (iv) Protecting, cleaning off and polishing on completion

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

Skirting, Risers And Other Linear Items

- 7.4 Prices and rates for skirting, risers, channels, and the like are to include for all short lengths, formed cut and purpose-made angles, junctions, ends, etc. and making good any other sundry items of a like nature. In the case of mosaic tiling, the prices are also to include for cove tiles and tiles set in at 45 degrees to the horizontal.

8. CARPENTRY WORK

- 8.1 The timber species used for the works shall be as stated in the Specification. The strength grouping for timber shall be in accordance with Malaysian Standard.
- 8.2 Prices and rates for all carpentry timber are to include for pressure treating as described later and all labour in notchings, boring, halvings, morticing, tenoning and wedging, scarfing, devotailings, sinkings for heads of bolts and nuts, trimming for opening and properly spiking as required.

All Work Deemed To Be Sawn

- 8.3 All carpenter's work shall be deemed to be left with a sawn surface except where particularly described to be wrot and prices are to include for this.

Plugging And Fixing Woodwork Etc.

- 8.4 Where work is described as 'plugged', it shall include for shot fired fixings where approved or casting in or morticing for and inserting fibrous or other approved fixing materials and fixing with suitable nails screws to any wall or concrete surface.

9. JOINERY WORK

Joinery Timber

- 9.1 Prices and rates for all joinery timber are to include for:-
- (i) Pressure treated as later described
 - (ii) Wrought finish (unless an item is expressly stated to be sawn)

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

- (iii) All cutting, notching, holes, housed ends, mitres, ends, shaped ends, angles, junctions, heading joist and short lengths.
- (iv) Planting on with nails or brads etc. punched in
- (v) Any either items of a like nature

9.2 Concrete platforms, floor and wall finishes, and sanitary fittings related with joinery fittings are measured separately.

9.3 Subject to paragraph 9.2 above, prices for joinery fittings which are measured in numbers are deemed to include for providing everything necessary for the proper execution and completion of the items as shown in the drawings, specified in the Specification and/or in these Bills of Quantities.

10. SUSPENDED CEILING

10.1 Suspended ceilings are measured in metre superficial. Rates per metre superficial of suspended ceilings are deemed to include for providing everything necessary for the proper execution and completion of the items as shown in the drawings and/or specified in these Bills of Quantities.

10.2 Prices and rates for suspended ceilings are also to include for:-

- (i) Narrow widths and small quantities
- (ii) Temporary rules
- (iii) Mitres, edge trims and fair cutting to ceiling boards and tiles at margins and borders
- (iv) All making good and any sundry items of like nature

11. IRONMONGERY

11.1 Prices and rates for ironmongery are to include for fixing with screws of the same finish as fitting and for all cutting, sinking, boring and mortising as required, oiling, easing and adjusting all moving parts, taking off and refixing after painting where necessary and leaving in perfect working

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

order including handing the keys property labeled to the Superintending Officer satisfaction on completion.

- 11.2 Unless otherwise specified or shown in the drawings or Bills of Quantities, the ironmongeries to be fixed or used for the works should follow the Schedule of ironmongery as stated in the Specifications,

12. STEEL AND IRONWORK

Rolling Margin

- 12.1 No allowance has been made in the weight of steel for rolling margin.

- 12.2 Prices and rates for steel and ironwork are to include for:-

- (i) Allowance for rolling margin
- (ii) All labour in cutting to length, drilling holes
- (iii) Rivets, if necessary
- (iv) Additional costs involved in using members which are larger than the manufacturer's standard stock size if required
- (v) Working with members of various sizes and lengths

13. PLASTERING WORK

Plastering

- 13.1 Prices and rates for plastering, etc. shall be held to include for:-

- (i) Narrow widths and small quantities
- (ii) Temporary rules
- (iii) Joints between different types of plastering
- (iv) Internal angle, arrises and quirks
- (v) Rounded coves and external angles not exceeding 25" radius
- (vi) Mitres, stop, etc. on all the foregoing and to cornices, mouldings, enrichments, coves, grooves, skirting, gutters and strings
- (vii) Raking out joints or hacking any surfaces to form key
- (viii) All making good and any sundry items of a like nature

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

14. PLUMBING INSTALLATION

General

- 14.1 Prices and rates for pipeworks shall include for short lengths, and joints in the running length including fixing and the like, and for all perforations, chases, etc. in brickwork, blockwork, concrete, etc. and for all making good.
- 14.2 All items for Plumbing Works are NOT accordance with SMM. They have been described by lump sum which all the works involved is described in item description. The Tenderer shall refer to the drawings, specifications and etc. for the full view of the Works committed.

Galvanised Mild Steel Or Unplasticised Polyvinyl Chloride Tubings

- 14.3 All tubings have been measured the nett lengths as fixed, measured over bends, junction, etc.
- 14.4 Prices and rates for fittings to all tubings described as 'extra for' should be the cost of the fittings extra only over the length of tubings.
- 14.5 Prices and rates for mild steel or unplasticised polyvinyl chloride tubings are to include for:-
- (i) All short runnings length
 - (ii) Sockets
 - (iii) Connectors
 - (iv) Back nuts
 - (v) Elbows and bends
 - (vi) Fire-bends
 - (vii) Tees
 - (viii) Diminishing pieces
 - (ix) Plugs
 - (x) Other items of a like nature

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

Copper Tubing

14.6 Prices and rates for copper tubings are to include for:-

- (i) All short running lengths
- (ii) Made bends
- (iii) Running joints
- (iv) Other items of a like nature

15. GLAZING WORK

15.1 Price and rates for glass are to include for all necessary additional cost involved in using sheets which are large than the manufacturer's standard stock sizes if required.

16. PAINTING WORK

16.1 Prices and rates for all painting works are to include for preparation of surfaces for painting as described, painting in any colour or tint (including mixing of paints to derive any tint or colour required), all necessary scaffolding and temporary platform.

16.2 Prices and rates for painting on steel structures are to include for painting in brackets, cleats, rivets, bolts, etc.

16.3 Prices and rates for painting on pipes are to include for painting on fittings, clips, brackets, etc.

17. WATERPROOFING

17.1 Waterproofing rates shall include for cleaning surfaces of and forming key on screeded surfaces, laying to falls and/or currents, provisions of sample panels, temporary rules and battens, working in small quantities and to narrow widths, all cuttings and waste, working into channels, cutting, fitting and making good up to reveals, around columns, pipes, grating and the like, arises and rounded angles, formation of expansion joints and cleaning off on completion.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

17.2 The rates set against items of skirtings, etc. shall include for all short lengths, stops, angles, ends, junctions and the like.

18. WATER RETICULATION

18.1 Pipes shall be measured in linear meter and payment shall be made on the total effective length as laid and jointed. The total effective length shall be the length as measured along the crown of the pipes, excluding pipe specials, valves and fittings. The rates shall include the following:-

- (a) Supply, handling, delivery, storage and laying of pipes
- (b) Cutting of pipes to correct length
- (c) Jointing, welding of lengths of pipes including supply of all necessary jointing, welding and welding materials
- (d) Granular or concrete bedding, hunching or surround as measured separately in the Bills of Quantities.
- (e) Excavation, backfilling and trench support as provided in the Bills of Quantities
- (f) Testing of welded joints
- (g) Painting of exposed pipes

18.2 Pipe specials, valves and fittings shall be measured by the number installed in the works.

18.3 The rate for disinfection and flushing the pipeline shall be Lump Sum and included for the full cost of supplying, transporting to and storing on site, hauling, handling and mixing chemicals, the cost of supervision and labour and any other work, materials, injection pumps and equipment.

19. ROAD PAVEMENT

19.1 The rates for road pavement shall include full compaction for preparation of pavement, priming, tack coating and manufacture, transport, placing and compacting the asphaltic concrete, and for furnishing all equipment, plant, tools, labour and any expense necessary for the satisfactory

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

completion of asphaltic concrete pavement in place in the Works as specified.

19.2 The various layers of the road pavement structure are separately measured for:-

- (a) sand sub-base
- (b) crusher run road base
- (c) bituminous prime coat
- (d) premix bituminous pavement

20. SEWER MANHOLES

20.1 Where precast concrete manhole units are provided, the contract rates for construction of manhole shall include:-

- (a) provision and cutting of precast units to suitable length, where necessary
- (b) excavation, backfill and side support to excavation
- (c) concrete screeding
- (d) concrete encasement at base slab
- (e) concrete base slab, steel reinforcement and formwork
- (f) concrete benching
- (g) heavy duty cast iron manhole
- (h) building in sewer pipe

21. TURFING

21.1 Prices for turfing shall include for carrying out such section of the work as the S.O. may direct, immediately after completion of excavation, so as to prevent erosion. Rates for turfing shall include for tending, dressing with fertilizer, mowing and such preparatory work as described.

MEASUREMENT AMPLIFICATION AND PRICING FACTORS

22. DESIGN AND BUILT ITEM

22.1 The lump sum price entered into the bills of quantities in respect of a design and built item shall be deemed to include all charges for transport, handling, custom duties, sales tax and other taxes, where applicable, and other costs and expenses, overheads and profit for the design and construction of the item complete. No tax exemption will be allowed by the Government.

(End of Preamble to Bills of Quantities)