

RULES OF MEASUREMENT
FOR
WORKS OF CONSTRUCTION
(FIRST EDITION: MAY 2004)

THE TECHNICAL CHAMBER OF CYPRUS

772

Rules of Measurement for Works of Construction (First Edition: May 2004)

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SECTION GR - GENERAL RULES

GR1 INTRODUCTION

GR1.1 These Rules of Measurement provide a uniform basis for the preparation of Bills of Quantities and for the measurement of works of construction in general: these Rules embody the essentials of good construction practice.

GR1.2 Any departures or amendments to these Rules of Measurement for use in exceptional cases, shall expressly be stated in the Bills of Quantities.

GR1.3 These Rules of Measurement may be applied equally to the measurement of proposed works and of completed works.

GR2 BILLS OF QUANTITIES

GR2.1 Bills of Quantities shall describe and represent the quality and quantity of the Works to be carried out in the Contract as shown on the Contract Drawings and in accordance with the Technical Specifications: any quantity of work which cannot be measured accurately shall be approximately estimated and identified as "provisional": the tendering Contractor shall be deemed to have made due allowances for such provisional work in his programming, planning and pricing Preliminaries: unless otherwise justified under the Conditions of Contract, such allowances will not be subject to any later adjustment

GR2.2 Unless otherwise stated, Bills of Quantities shall be divided into the following priced Bills Sections:

GR2.2.1 Bills of Preliminaries and General Conditions

GR2.2.2 Bills of Measured Quantities

GR2.2.3 Bills of Dayworks

GR2.2.4 Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates

GR2.2.5 General Pricing Summary

GR2.3 Unless otherwise stated, the Bills of Measured Quantities shall be divided into Work Sections and Sub-Sections in accordance with these Rules of Measurement

GR2.4 Notwithstanding these Rules of Measurement, in cases where the nature or the location of the principal elements of the Works, or the number of buildings therein, render necessary or more practical the separate billing of the works of each individual building or of the external works or of any other works contained in a specific Work Section or Sub-Section, such works shall be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement and shall be given in a separate Bill in the Bills of Measured Quantities: for the purposes of identification, "external works" shall be deemed to mean works which are executed externally to the building and which do not form an attached integral part thereof.

GR3 MEASUREMENT

GR3.1 Work shall be measured net as fixed and finished in position and, unless otherwise stated, with no allowance made for waste: save for dimensions stated in item descriptions, each measurement shall be taken to the nearest 10 mm (i.e. 5mm and over shall be regarded as 10 mm; less than 5 mm shall be disregarded).

GR3.2 Quantities measured in tons shall be given to two places of decimals: other quantities shall be given to the nearest whole unit except that any quantity less than one unit shall be given as one unit

- GR3.3 Where minimum deductions of voids are dealt with in these Rules of Measurement, they shall refer only to voids within the edges of measured areas: voids which are at the edges of measured areas shall always be deducted, irrespective of size.
- GR3.4 These Rules of Measurement may be applied using alternative units of measurement, however, the particular amendments shall be stated in accordance with Rule GR1.2.
- GR3.5 Notwithstanding these Rules of Measurement, in exceptional cases, particular complicated works of construction may be jointly described and combined into one composite item.
- GR3.6 Notwithstanding these Rules of Measurement, in exceptional cases, a separate minor structure may be enumerated.
- GR3.7 Notwithstanding these Rules of Measurement, in exceptional cases, more detailed information than is required by these Rules may be given in the description of the items in order to define the precise nature and extent of the required work or the circumstances under which such work is to be carried out.

GR4 ITEMS TO BE FULLY INCLUSIVE

- GR4.1 Unless otherwise stated, all items in the Bills of Quantities shall be fully inclusive of everything that is necessary to meet all restrictions, liabilities and obligations in connection with or arising from the said items subject to the requirements of the Contract and shall be deemed to include, wherever applicable:
- GR4.1.1 Labour, light plant, tools and all costs in connection therewith.
 - GR4.1.2 Materials, goods and all costs in connection therewith.
 - GR4.1.3 Assembling, fitting and fixing materials and goods in position.
 - GR4.1.4 Construction plant and all costs in connection therewith.
 - GR4.1.5 Waste of materials and goods.
 - GR4.1.6 Unless otherwise stated, all forms of labours (i.e. all forms of cuttings, forming rounded edges, angles and corners, forming holes in all types of materials, etc).
 - GR4.1.7 Financing charges.
 - GR4.1.8 General establishment/overhead charges and profit.
- GR4.2 In addition to the costs, charges and profit referred to in Rule GR4.1, the tendering Contractor shall in his general pricing include for similar costs, charges and profit in connection with any additional work items for which although no respective measurement provision is included in these Rules of Measurement, nevertheless such items are necessary for the due execution and completion of the Works in accordance with or by reasonable inference from the Drawings and the Technical Specifications.

GR5 DESCRIPTION OF ITEMS AND GENERAL DEFINITIONS

- GR5.1 Unless otherwise stated, dimensions in item descriptions shall be deemed to be in the sequence **length, width, height**: where the said sequence is not appropriate or where ambiguity could arise, the dimensions shall be specifically identified.
- GR5.2 Items, which are required to be enumerated, or to remain and be given as "Items", shall be fully described.
- GR5.3 Items which are to be measured by length or depth shall state the cross-sectional size and shape, girth or ranges of girths or such other information as may be appropriate.
- GR5.4 Items which are to be measured by area shall state the thickness or such other information as may be appropriate.
- GR5.5 Items which are to be measured by weight shall state the material thickness and unit weight, if appropriate.

- GR5.6 Unless otherwise stated, junctions between straight and curved work shall in all cases be deemed to be included in the work in which they occur.
- GR5.7 Notwithstanding these Rules of Measurement, in exceptional cases, proprietary items may be measured in a manner appropriate to the manufacturer's tariff or customary practice.
- GR5.8 Notwithstanding these Rules of Measurement, where labours are required to be given as linear items or be enumerated, such labours may be given in the description of any linear items or enumerated items of work on which they occur respectively.
- GR5.9 Notwithstanding these Rules of Measurement, in exceptional cases, item descriptions may refer to Drawings and/or Technical Specifications in which event any reference to such documents shall be deemed to fulfill any requirement of these Rules of Measurement; similarly, a precise and unique cross reference may be made to published information such as standard catalogues or standard technical specifications: always provided that, insofar as the quality and extent of the work involved is concerned, this shall be deemed to be that which is shown on, described by, referred to in or may reasonably be inferred from such item descriptions and/or Drawings and/or Technical Specifications and/or published information, taken together, furthermore, in case of any contradiction between such item descriptions and documents, the order of precedence in the effect of their contents shall be, item descriptions, Particular Technical Specifications, Drawings, published information and General Technical Specifications.
- GR5.10 Unless otherwise stated, for pipes, tubes, bars, cables, conduits, standards and the like, the diameter stated shall be deemed to be the nominal diameter (measured internally for pipes and tubes and measured externally for bars, cables, conduits, standards and the like): where these Rules of Measurement require the grouping of such items according to their size, then, these they shall be grouped and classified as follows:
- GR5.10.1 Small (i.e. n.e. 55 mm diam.)
 GR5.10.2 Large (i.e. 55 - 110 mm diam.)
 GR5.10.3 Extra large (i.e. over 110 mm diam.)
- GR5.11 Unless otherwise stated, the word "hole" as used in these Rules of Measurement or in the Bills of Quantities, shall be deemed to mean an opening or a void in or through any material, n.e. 0.25 m² on face: holes over 0.25 m² shall be classified as openings or voids as may be appropriate.
- GR5.12 Extra for forming "short lengths" (i.e. lengths n.e. 0.30 m) shall be deemed to be included with the work in which they occur, except where particular reference is made in these Rules of Measurement to the immediately following Rule.
- GR5.13 Where these Rules of Measurement require short lengths (i.e. lengths n.e. 0.30 m) to be given in accordance with this Rule, they shall be enumerated as extra over the work in which they occur irrespective of the actual length.
- GR5.14 Where these Rules of Measurement require work to be described as curved with the radius stated, details shall be given of the curved work including if concave or convex, if conical or spherical, or if to more than one radius, and shall state the radius or radii: unless otherwise stated, the said radius shall be the mean measured to the centre line of the material.
- GR5.15 Headings and sub-headings to items set out in a particular page in the Bills of Quantities, shall be read as part of the description of the said items and shall be deemed to qualify also the items set out in the immediately following page or pages to the extent of a new heading or sub-heading being inserted.
- GR5.16 Unless otherwise stated, the use of a hyphen (-) between two dimensions in these Rules of Measurement or in the Bills of Quantities, shall be deemed to mean a range of dimensions exceeding but not including the first dimension stated and not exceeding but including the second.

- GR5.17 The colon (:) in the synthesis of a heading, sub-heading, Rule or an item description in these Rules of Measurement or in the Bills of Quantities, shall be deemed to join two or more sentences forming part of the whole heading, sub-heading, Rule or item description.
- GR5.18 The use of the word "ditto" in an item description in the Bills of Quantities, shall be deemed to repeat as a whole the immediately preceding item description subject to and to the extent of any stated deviations therefrom.
- GR5.19 The use of the term "extra over" in an item description in the Bills of Quantities, shall be deemed to mean that the corresponding work is additional to and in connection with the immediately preceding item: no allowances in respect of any deductions in the quantity of the preceding item shall be made (i.e. alternative measurement of excavation in rock to be given as "extra over" the item of excavation whereby the volume of rock shall be measured and given as aforesaid but no deduction shall be made in this respect from the volume of excavation in which the rock occurs).
- GR5.20 The use of the expression "shall be deemed to be included" in these Rules of Measurement, in respect of work, charges etc in connection with particular items or a Work Section or Sub-Section as a whole, shall be understood to mean that the cost of the said work, charges etc shall be deemed to be included with the particular items or generally with all relative items in a Work Section or Sub-Section, irrespective to whether the said work, charges etc shall be given in the description of the items or not.
- GR5.21 The use of the expression "shall be given in the description of the items" in these Rules of Measurement, shall be read as to include also the expression "and shall be deemed to be included with the items".
- GR5.22 The use of the expression "unless otherwise stated" in these Rules of Measurement, shall be read to mean "unless it is otherwise defined or required in these Rules of Measurement (save where the expression specifically refers to another document)".
- GR5.23 Unless otherwise stated, the use of the expression "without addition for" in these Rules of Measurement, shall be read as to include also the expression "which shall be deemed to be included with the items" (i.e. bar reinforcement for in-situ concrete shall be measured as executed by weight, where the weight shall be net without addition for rolling margin, overlaps, tying wire, chairs, spacers etc).
- GR5.24 The use of the abbreviation "etc" or the term "and the like" or "or the like" at the end of an item in these Rules of Measurement or in the Bills of Quantities, shall be read to mean "other items of the same general kind".
- GR5.25 The use of the abbreviation "i.e." in front of an item in these Rules of Measurement or in the Bills of Quantities, shall be read to mean "that is to say".
- GR5.26 The use of the abbreviation "av." after a dimension in these Rules of Measurement or in the Bills of Quantities, shall denote that this dimension is the mean between two or more dimensions.

GR6 DRAWINGS AND TECHNICAL SPECIFICATIONS

Unless otherwise stated, the Drawings and Technical Specifications which shall accompany the Bills of Quantities as tender documents, shall be the Drawings and Technical Specifications purposed for use as Contract Documents.

GR7 WORK OF SPECIAL TYPES

Work of each of the following special types shall be separately identified:

- GR7.1 Work on or in existing buildings: handling materials and getting them in or out of such buildings, shall be deemed to be included with the items.

- GR7.2 Work to be carried out and subsequently removed (other than temporary works).
- GR7.3 Work outside the curtilage of the Site.
- GR7.4 Work actually carried out under water stating whether canal, river, lake or sea water and (where applicable) the mean spring levels of high and low water.
- GR7.5 Work carried out in compressed air environment stating the pressure and the method of entry and exit.

GR8 FIXING, BASE AND BACKGROUND

- GR8.1 The method of fixing shall only be measured and described where required by the Rules in any Work Section: where fixing through vulnerable materials is required to be identified, such materials are deemed to include those listed in Rule GR8.3.4.
- GR8.2 Where the nature of the base is required to be identified, each type of base shall be identified separately.
- GR8.3 Where the nature of the background is required to be identified, the item description shall state one of the following:
 - GR8.3.1 Timber, which shall be deemed to include manufactured building boards.
 - GR8.3.2 Masonry, which shall be deemed to include concrete, brick, block and stone.
 - GR8.3.3 Metal, which shall be deemed to include metal faced materials.
 - GR8.3.4 Vulnerable materials, which shall be deemed to include glass, marble, mosaic, tiled finishes and the like.

GR9 PROVISIONAL SUMS, PRIME COST SUMS AND PRIME COST RATES

Where these Rules of Measurement require Provisional Sums, Prime Cost Sums and Prime Cost Rates to be given in accordance with this Rule, the choice of terms shall be made in conformity with the following definitions:

- GR9.1 The term "**Provisional Sum**" shall be deemed to mean a sum provided for work or for costs which cannot be entirely foreseen, defined or detailed at the time the tendering documents are issued.
- GR9.2 The term "**Prime Cost Sum**" shall be deemed to mean a sum provided for work or services to be carried out by a Nominated Sub-Contractor or for materials and goods to be obtained from a Nominated Supplier: such sum shall be deemed to be exclusive of any financing charges, main office establishment/overhead charges and profit required by the tendering Contractor and provision shall be made for the addition therefor.
- GR9.3 The term "**Prime Cost Rate**" shall be deemed to mean a unit rate provided for materials and goods, to be obtained from a Nominated Supplier or for work or services to be carried out by a Nominated Sub-Contractor, the cost of which cannot be accurately foreseen or defined at the time the tendering documents are issued: such rate shall be deemed to be exclusive of any financing charges, main office establishment/overhead charges and profit required by the tendering Contractor who shall himself make due allowance in this respect when pricing for fixing, laying or erecting the relevant item either by him or, depending on the case, by a Nominated Sub-Contractor.
- GR9.4 The term "**Contingency Sum**" or "**Sum for Contingent Expenses**" shall be deemed to mean a Provisional Sum provided for expenses or charges which are likely to occur in the Contract and which expenses or charges cannot at all be foreseen, defined or detailed at the time the tendering documents are issued.

- GR9.5 Where the Bills of Quantities refer to Provisional Sums, Prime Cost Sums or Prime Cost Rates to be incorporated in the Contract (or to work to be executed and/or to materials to be supplied, on or adjacent to the Site, either by Statutory Authorities or by persons employed direct by the Employer), a brief definition of the respective costs, work, services, materials, goods etc shall be given with the items and the tendering Contractor shall be deemed to have made due allowances for these defined items in his programming, planning and pricing Preliminaries: unless otherwise justified under the Conditions of Contract, such allowances will not be subject to any later adjustment.
- GR9.6 With respect to any Contingency Sum or any other Provisional Sum or any Prime Cost Sum or any Prime Cost Rate to be incorporated in the Contract (or to any work to be executed and/or to any materials to be supplied, on or adjacent to the Site, either by Statutory Authorities or by persons employed direct by the Employer), referred to in the Bills of Quantities for which a definition of the respective costs, work, services, materials, goods etc is not given with the items, the Contractor shall be deemed to have made no allowances for these undefined items in his programming, planning and pricing Preliminaries.

GR10 DAYWORKS

The following provisions shall apply where, under the Conditions of Contract, Daywork rates are used for pricing work (such work shall be deemed to mean variations required by the Engineer and all work executed by the Contractor for which the Bills of Quantities include Provisional Sums, provisional quantities and Prime Cost Rates) which cannot otherwise be properly measured and valued: unless otherwise provided in the Conditions of Contract, the basis for charging Daywork in the Bills of Quantities shall be **labour, materials and construction plant** in accordance with the following Rules:

- GR10.1 The cost of **labour** in the Bills of Dayworks shall be given in a schedule which is to include the different categories of labour with a provisional number of hours for each category: the tendering Contractor shall insert against this provisional number of hours the applicable hourly rates which shall be deemed to include:
- GR10.1.1 Time rate of wages and such extra payments or differentials paid in respect of skill, responsibility, discomfort, inconvenience and risk.
 - GR10.1.2 Site supervision and Site staff including the supervising time of principals, Site engineers, foremen, gangers and leading hands.
 - GR10.1.3 Normal overtime, other than that allowed under Rule GR10.4.
 - GR10.1.4 Idle time and time lost due to inclement weather.
 - GR10.1.5 Bonuses and any other incentive payments.
 - GR10.1.6 Apprentices' study time.
 - GR10.1.7 Employer's contributions in general (social insurance, defence fund, industrial training fund, annual holidays fund, providence funds, redundancy funds, trade union contributions, annual and public holidays contributions etc).
 - GR10.1.8 Fares and other travel costs and time allowances for travelling.
 - GR10.1.9 Subsistence and periodic leave allowances.
 - GR10.1.10 Safety and welfare facilities including messing.
 - GR10.1.11 Third party and employer's liability insurances.
 - GR10.1.12 Sick pay and medical attention or insurance in respect thereof.
 - GR10.1.13 Light plant and tools including all costs for operating, repairing and, where necessary, sharpening thereof.
 - GR10.1.14 Protective clothing of simple type.
 - GR10.1.15 Erected scaffolding, staging and trestles, water, artificial lighting, storage facilities and the like that may be in general use on the Site.
 - GR10.1.16 All other reasonable restrictions, liabilities and obligations.
 - GR10.1.17 Financing charges.
 - GR10.1.18 All other general establishment/overhead charges.
 - GR10.1.19 Profit.

- GR10.2 The cost of **materials** in the Bills of Dayworks shall be given as a Provisional Sum which shall be deemed to be the net invoiced price for the materials: prices for imported materials will be f.o.b. at country of origin and shall include all costs in respect of all carriage, insurance and freight charges, all dock, wharfage, stevedoring, storage during transit and lighterage charges, harbour dues and any costs or charges of a like nature properly incurred, furthermore, they shall include all import duties, customs and excise taxes: prices for all materials will also include the cost of delivery to Site whether by the suppliers' or agents' or the tendering Contractor's own transport and the cost of loading at port or depot but excluding the cost for unloading at Site.
- GR10.3 The cost of **construction plant** in the Bills of Dayworks shall be given in a schedule which is to include the different categories of plant with a provisional number of hours, or such other period of time as may be appropriate, for each category: the tendering Contractor shall insert against this provisional number of hours or such other period of time as aforesaid, the applicable rates which shall exclude the cost for plant operators, but shall be deemed to include costs for:
- GR10.3.1 Actual working time during which the plant is engaged on Daywork.
 - GR10.3.2 Idle time during which the plant remains on Site not engaged productively on Daywork.
 - GR10.3.3 Fuel and lubricating oil, batteries and the like.
 - GR10.3.4 Conveyance of plant to and from Site.
 - GR10.3.5 Consumable stores.
 - GR10.3.6 Repairs and maintenance.
 - GR10.3.7 Insurances and licenses.
- GR10.4 In the event of Daywork overtime working being ordered or sanctioned by the Engineer, the Contractor shall be allowed only the extra cost for the non-productive element of the authorized overtime applicable to each category of labour employed: in this regard the Contractor shall be paid the net addition to wages and allowances as paid by him to his workpeople at the relevant rates recorded on their wages sheets.
- GR10.5 Provision shall be made to enable the tendering Contractor to include a percentage addition on the cost of Daywork materials in respect of financing charges, general establishment/overhead charges and profit in connection therewith: such percentage shall be deemed to include costs for:
- GR10.5.1 Unloading on Site.
 - GR10.5.2 Moving to, from, in or between stores on Site and the cost of Site storage, including protection and insurances.
 - GR10.5.3 Financing charges.
 - GR10.5.4 General establishment/overhead charges and profit.
- GR10.6 Provision shall be made to enable the tendering Contractor to include a percentage addition on the cost of Daywork construction plant in respect of financing charges, general establishment/overhead charges and profit in connection therewith: such percentage shall be deemed to include costs for:
- GR10.6.1 Unloading, assembling and dismantling on Site.
 - GR10.6.2 Setting to position, move and re-set to other positions on Site.
 - GR10.6.3 General establishment/overhead charges and profit.
- GR10.7 The total value of the Bills of Dayworks shall be regarded as a Provisional Sum: for the purposes of Rule GR 9.6, such Provisional Sum shall be regarded as undefined.

GR11 DEFINITION OF SYMBOLS, ABBREVIATIONS AND TERMS USED

GR11.1 The following definitions apply to symbols and abbreviations which may be found in these Rules of Measurement or in the Bills of Quantities:

µm	=	micron
mm	=	millimetre
cm	=	centimetre
m	=	metre
km	=	kilometre
m ² or m ²	=	square metre
m ³ or m ³	=	cubic metre
mlt	=	millilitre
lt	=	litre
gr	=	gramme
kg	=	kilogramme
t	=	metric ton (1.000 kg)
N	=	Newton
sec	=	seconds
hr	=	hour
X deg or X°	=	X angle degrees
X deg C or X° C	=	X degrees Celsius
nr	=	number
diam. or Ø	=	diameter
Prov. Sum	=	Provisional Sum (see Rule GR9.1)
PC Sum	=	Prime Cost Sum (see Rule GR9.2)
PC Rate	=	Prime Cost Rate (see Rule GR9.3)
= X	=	equal to X
over X or > X	=	exceeding but not including X
less than X or < X	=	less than and not including X
n.e. X	=	not exceeding but including X
equal to or over X or ≥ X	=	equal to or exceeding but including X
equal to or less than X or ≤ X	=	equal to or not exceeding but including X
%	=	percentage
-	=	hyphen (see Rule GR5.16)
:	=	colon (see Rule GR5.17)
etc	=	the same (see Rule GR5.24)
ie	=	that is to say (see Rule GR5.25)
av.	=	average (see Rule GR5.26)
b.w.i.c.	=	builder's work in connection (see Rule A11.5)
extr.	=	extreme size
max.	=	maximum
min.	=	minimum
E.L. or EGL	=	existing ground level
R.L. or RGL	=	reduced ground level
BoQ	=	Bills of Quantities
ROM	=	Rules of Measurement (as defined in the BoQ)
EN	=	European Norm
E.U. or E.E.	=	European Union
BS	=	British Standard
CYS	=	Cyprus Standard
CP	=	Code of Practice (British)
CPC	=	Code of Practice (Cyprus)

GR11.2 Unless otherwise stated, the following definitions apply to terms and expressions which may be found in these Rules of Measurement or in the Bills of Quantities:

"ditto"	=	repetition of the preceding description (see Rule GR5.18).
"extra over"	=	extra over work (see Rule GR5.19).
"and the like" "or the like"	=	the same (see Rule GR5.24).
"shall be deemed to be included"	=	coverage qualification (see Rule GR5.20).
"in exceptional cases"	=	exceptional measurement cases in the sole opinion of the Quantity Surveyor
"falls", "slopes", "weathered"	=	inclination out of the horizontal in one plane.
"cross falls", "cross slopes", "cross weathered" "plugs", "plugging" "clips", "nails" "tacks"	=	inclination out of the horizontal in two or more planes.
	=	shall refer to and include work in all materials (other than vulnerable materials as defined under Rule GR8.3.4) without distinction: plugging shall be deemed to include the use of gun pinning, shot firing and patent plugs at the Contractor's discretion unless otherwise stated in the description of the item.
"Work Section"		
"Work Sub-Section"	=	any defined section or Sub-Section of the Works as classified in accordance with these Rules of Measurement.
"existing"	=	existing before the current Contract: the term does not refer to earlier processes in the same Contract.
"roadways"	=	carriageways in the normal sense whether public or private: the term does not apply to temporary roadways provided by the Contractor at his own discretion for his own use, nor to Site roadways under his control: a pedestrian footpath alongside the carriageway is part of the roadway for this purpose.
"temporary support"	=	temporary shoring or scaffolding including providing, erecting, maintaining, clearing away and making good all work disturbed by such shoring or scaffolding.
"off Site removal of materials" "off Site disposal of materials"	=	rid Site of unwanted materials including loading, transporting from Site and dumping unwanted materials at the nearest to the Site, Government controlled tipping ground.
"earthwork support"	=	everything requisite to uphold the sides of excavations by whatever necessary means at the Contractor's discretion, unless otherwise stated.

"rock"	=	igneous, sedimentary or metamorphic rock material, met within excavation, of such compressive strength, size or position that it can only be removed by means of wedges, special plant (i.e. power operated hammers, drills, chisels, or special attachments to earth moving plant such as rock rippers, hammers or chisels) or explosives.
"unstable ground"	=	running silt, running sand or loose gravel.
"underground water"	=	any type of underground water including sea or lake water but excluding spring or running water.
"hard materials"	=	rock, plain concrete, reinforced concrete, brick, block, stonework and the like.
"existing live services"	=	existing live services' lines and points in general such as cables, conduits, pipework, ductwork, manholes, soakways, cesspits and the like.
"artificial findings"	=	any unnatural or man made materials encountered on or under the ground including hard materials other than rock and excluding, unless otherwise stated, existing live services.
"plant", "construction plant", "heavy plant"	=	mechanically operated, fuel or fuel and compressed air powered plant, such as hoisting plant, transportation plant, earthmoving plant, concrete mixing plant, piling plant, paving and surfacing plant etc as required in every Work Section for the due execution of the Works.
"small plant", "light plant", "tools"	=	electricity powered hand plant such as hammers, grinders, sanders, saws, drills, planers, concrete vibrators etc and all craftsmen's personal hand tools as required in every Work Section for the due execution of the Works.
"permanent plant"	=	machinery pieces and mechanical devices to be incorporated permanently in the Works.
"materials", "materials and goods"	=	shall be deemed to mean materials or goods including permanent plant.
"Site establishment/ overhead charges"	=	Site only, establishment and overhead costs and expenses.
"main office establishment/ overhead charges"	=	main office only, establishment and overhead costs and expenses.
"general establishment/ overhead charges"	=	establishment and overhead costs and expenses in general, including Site and main office establishment/ overhead charges.

"approved", "instructed",
"authorized" and other like
expressions

= shall refer to Engineer's authorities.

"Engineer's consent",
"Engineer's permission",
"Engineer's acceptance"
and other like expressions
(other than the expression
"Engineer's approval")

= unless otherwise stated or implied in the Conditions of Contract, the expression shall refer to the Engineer's contractual authority to grant or refuse permission or consent to the Contractor, or to accept or reject proposals made by the Contractor, regarding particular direct or indirect contractual obligations of the Contractor in the Contract: always provided that notwithstanding any such permissions, consents or acceptances granted by the Engineer, the Contractor shall remain (either before or after the issue of the Final Payment Certificate) liable to the Employer in respect of such contractual obligations, furthermore, the liability arising from these obligations under no circumstances and at no time, will pass from the Contractor to the Engineer.

"Engineer's approval"

= unless otherwise stated or implied in the Conditions of Contract, the expression shall refer to the Engineer's contractual authority and obligation to approve the quality of particular materials and standards of workmanship used by the Contractor in the Works: always provided that notwithstanding any such approvals made by the Engineer, the Contractor shall remain (either before or after the issue of the Final Payment Certificate) liable to the Employer and shall make good by replacement or otherwise any defects (regarding or associated with the said materials and workmanship) in the Works which appear therein (either before or after the issue of the Final Payment Certificate) and shall bear any expenses reasonably incurred by the Employer as a direct consequence of such defects, save where, under the Conditions of Contract, following the issue of the Final Payment Certificate (and the lapse thereafter of any particular time limit set in the Conditions of Contract), the aforementioned liability of the Contractor shall be limited to such defects which are found to be solely due to:

- (i) fraud by the Contractor, or
- (ii) improper storage or handling of the said materials and/or improper application of the said workmanship, by the Contractor, provided that, the aforementioned defects were not such that a detailed examination and/or an appropriate test by the Engineer ought to have revealed them either before or after the use of the said materials and/or after the application of the said workmanship.

GR11.3 Any undefined terms and expressions met in these Rules of Measurement shall have the meaning assigned to them in the Conditions of Contract or in the Bills of Quantities.

SECTION A - PRELIMINARIES AND GENERAL CONDITIONS

A1 PRELIMINARY PARTICULARS

A1.1 Particulars of the project shall be given, which shall include:

- A1.1.1 Name, nature, location and brief description of the Works.
- A1.1.2 Names and addresses of the Employer and the Consultants.

A1.2 A list of the Drawings and other documents on the basis of which the Bills of Quantities were prepared, shall be given.

A1.3 Particulars of the Site and any related existing buildings and live services shall be given, which shall include:

- A1.3.1 Boundaries and inspection of the Site.
- A1.3.2 Existing structures on the Site.
- A1.3.3 Existing public and private live services on, under or over the Site.
- A1.3.4 Items of a like nature.

A2 THE CONTRACT

A2.1 Particulars of the Articles of Agreement and the Conditions of Contract shall be given, which shall include a schedule of clause headings of standard conditions, incorporating any special conditions or amendments to the standard conditions.

A2.2 The insertions to the Appendix of the Conditions of Contract shall be given.

A2.3 The definition of any further particular terms used in the Contract Documents shall be given.

A3 RESTRICTIONS AND LIMITATIONS

Particulars of restrictions and limitations shall be given, which shall include:

A3.1 Tendering, import duties and like charges, sub-letting and supply of labour and materials.

A3.2 Provision and content of documents.

A3.3 Design constraints.

A3.4 Access to, possession and use of the Site.

A3.5 Phasing of Works.

A3.6 Commencement of Works.

A3.7 Protection and maintenance of existing structures on the Site.

A3.8 Protection and maintenance of existing public and private live services on, under or over the Site.

A3.9 Working space.

A3.10 Working days and hours.

A3.11 Advertisements.

A3.12 Items of a like nature.

A4 CONTRACTOR'S ADMINISTRATIVE ARRANGEMENTS

Particulars of the Contractor's administrative arrangements shall be given, which shall include:

A4.1 Site administration and supervision of executed works, comprising:

- A4.1.1 General management and co-ordination of the Works.
- A4.1.2 Programming and production of work.
- A4.1.3 Site progress meetings.
- A4.1.4 Familiarization meetings.
- A4.1.5 Engineering.
- A4.1.6 Quantity Surveying.
- A4.1.7 Trades supervision.
- A4.1.8 Confirmation of verbal instructions.
- A4.1.9 Items of a like nature.

A4.2 Security of Works.

A4.3 Safety, health and welfare of workpeople.

A4.4 Fire precautions.

A4.5 Explosives.

A4.6 Disbursements arising from the employment of workpeople.

A4.7 Transport of workpeople.

A4.8 Items of a like nature.

A5 CONSTRUCTION PLANT

Particulars of the construction plant shall be given, which shall include:

A5.1 Cranes, hoists and other lifting plant.

A5.2 Site transport plant.

A5.3 Earthmoving plant.

A5.4 Concrete mixing plant.

A5.5 Other construction plant required in all Work Sections.

A5.6 Note: Pricing shall be deemed to include for all costs and expenses for bringing to, maintaining on and removing from Site, construction plant.

A6 EMPLOYER'S FACILITIES

Particulars of facilities required by the Employer or his representatives shall be given, which shall include:

A6.1 Temporary accommodation and buildings, comprising:

- A6.1.1 Offices.
- A6.1.2 Laboratories.
- A6.1.3 Living accommodation.
- A6.1.4 Sanitary facilities.

- A6.1.5 Heating, cooling, lighting and furnishing.
- A6.1.6 Attendance or related facilities.
- A6.1.7 Items of a like nature.

A6.2 Temporary provision of vehicles.

A6.3 Temporary staff attendance such as drivers and laboratory assistants.

A6.4 Temporary provision of equipment such as surveying and laboratory apparatus.

A6.5 Temporary signboards.

A6.6 Temporary communication installation such as telephone and facsimile installations, rental and maintenance including call charges: alternatively call charges may be given as Prov. Sum.

A6.7 Items of a like nature.

A7 CONTRACTOR'S FACILITIES

Particulars of facilities required by the Contractor shall be given, which shall include:

A7.1. Temporary accommodation and buildings, comprising:

- A7.1.1 Offices.
- A7.1.2 Laboratories.
- A7.1.3 Compounds.
- A7.1.4 Stores.
- A7.1.5 Messrooms.
- A7.1.6 Living accommodation.
- A7.1.7 Sanitary facilities.
- A7.1.8 Heating, cooling and furnishing.
- A7.1.9 Attendance or related facilities.
- A7.1.10 Items of a like nature.

A7.2 Temporary protective measures, comprising:

- A7.2.1 Fencing.
- A7.2.2 Hoardings.
- A7.2.3 Screens.
- A7.2.4 Roofs.
- A7.2.5 Guardrails.
- A7.2.6 Fans.
- A7.2.7 Items of a like nature.

A7.3 Temporary scaffolding, comprising:

- A7.3.1 Access scaffolding.
- A7.3.2 Support scaffolding, propping and shoring.
- A7.3.3 Items of a like nature.

A7.4 Light plant and tools required for work in all Work Sections.

A7.5 Water for the Works.

A7.6 Lighting and power for the Works.

A7.7 Temporary communication installation such as telephone and facsimile installations, rental and maintenance including call charges.

A7.8 Items of a like nature.

A8 TEMPORARY WORKS

Particulars of temporary works shall be given, which shall include:

A8.1 On Site ways and paths comprising

A8.1.1 Roads

A8.1.2 Walkways

A8.1.3 Crossings

A8.1.4 Hard standings

A8.1.5 Items of a like nature

A8.2 Off Site access roads and traffic diversions

A8.3 De-watering

A8.4 Bridges

A8.5 Compressed air for tunnelling.

A8.6 Items of a like nature.

A9 SUNDRY ITEMS

Particulars of sundry items shall be given, which shall include:

A9.1 Quality standards and control.

A9.2 Quality of materials and standards of workmanship.

A9.3 Ordering of materials.

A9.4 Delivery and handling of materials on Site.

A9.5 Proprietary materials and workmanship.

A9.6 Specialist materials.

A9.7 Samples of materials and workmanship.

A9.8 Testing of the Works.

A9.9 Protection of people on adjoining properties.

A9.10 Protection and maintenance of adjoining properties and live services.

A9.11 Protection and maintenance of public and private roads.

A9.12 Protection and maintenance of trees and plants.

A9.13 Protection and maintenance of work in all Work Sections

A9.14 Protection of light plant, tools, materials and permanent plant.

A9.15 Handling of materials found.

A9.16 Removal of rubbish.

A9.17 Police regulations.

A9.18 Vehicles parking on and leaving the Site.

A9.19 Control of noise and pollution.

A9.20 Control of temperature and humidity.

A9.21 Temporary use of installations.

A9.22 Cleaning of Works.

A9.23 Operation and maintenance of the finished building.

A9.24 Statutory requirements.

A9.25 Inter-trades attendance.

A9.26 General attendance provided by the Contractor on Nominated Sub-Contractors comprising:

A9.26.1 Use of the Contractor's temporary ways and paths including maintenance and altering of temporary ways and paths and reinstatement of all ground and work disturbed.

A9.26.2 Use of the Contractor's standing temporary scaffolding which is not required to be altered or retained.

A9.26.3 Use of the Contractor's standing power operated cranes, hoists and other lifting plant.

A9.26.4 Use of the Contractor's standing laboratories, compounds, messrooms, living accommodation, sanitary facilities and other welfare facilities.

A9.26.5 Provision of space for own offices and for storage of materials and goods.

A9.26.6 Provision of temporary water and lighting supplies.

A9.26.7 Provision of full-size setting out templates.

A9.26.8 Provision of dimensions and accepting responsibility for their accuracy.

A9.26.9 Provision of working space.

A9.26.10 Rubbish disposal.

A9.26.11 Other necessary and usual facilities, documentation, inter-trades attendance and assistance.

A10 PROVISIONAL WORK, MATERIALS AND COSTS

Where work or costs cannot be entirely foreseen, defined or detailed they shall be described in accordance with Rule GR 9.5 and given as Prov. Sum in the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates.

A11 NOMINATED SUB-CONTRACTORS

A11.1 Particulars of works to be carried out by Nominated Sub-Contractors shall be given in (unless otherwise stated) the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates, and shall include:

A11.1.1 Sub-Contractor's work described in accordance with Rule GR 9.5 and given as PC Sum.

A11.1.2 Contractor's financing charges, main office establishment/overhead charges and profit given as %.

A11.1.3 General attendance provided by the Contractor, given as an item, in accordance with Rule A9.26.

A11.1.4 Where required, special attendance provided by the Contractor, given as an item, comprising:

- A11.1.4.1 Provision of special ways and paths, in addition to those of Rule A9.26.1
- A11.1.4.2 Provision of special scaffolding, in addition to that of Rule A9.26.2
- A11.1.4.3 Storing, which is to include taking delivery at the Site, unloading and storing materials and goods.
- A11.1.4.4 Positioning, which is to include removing from store, handling, lifting by means of cranes, hoists etc or lowering, distributing, placing in and maintaining until permanent fixing at exact final position, materials and goods.
- A11.1.4.5 Maintaining stored materials and goods, as well as completed parts of the work, at required temperature and humidity levels.
- A11.1.4.6 Provision of power, which is to include electric current for tools and light plant and electric current, fuel or any other necessary means for testing completed parts of the work.
- A11.1.4.7 Protecting materials and goods during installation and protecting and maintaining completed parts of the work including clearing away protection measures upon completion.
- A11.1.4.8 Other necessary special facilities, documentation, inter-trades attendance and assistance.

A11.1.5 Where required, builder's work in connection or incidental with the Sub-Contractor's work, provided by the Contractor shall be given as an item and shall comprise the following:

- A11.1.5.1 Forming or cutting away through any material, holes, notches, mortices, sinkings, pockets, chases or the like and making good finishings on completion.
- A11.1.5.2 Casting in, building in or fixing only supports such as lugs, brackets, hangers, sleeves, plates, anchors, insulating blocks, antivibration devices, pin racks, saddles, cleats, clips, suspenders, D-irons, insulators and the like.
- A11.1.5.3 Cutting and pinning ends of supports as above and making good finishings on completion.
- A11.1.5.4 Lifting and replacing existing floorboards, suspended ceiling panels and the like.
- A11.1.5.5 Grouting to position and providing protective concrete or other protective coverings to pipework, cables, conduits and the like.
- A11.1.5.6 Bedding and pointing around components or units of accessories, equipment and the like.
- A11.1.5.7 Special protective coverings including removal thereof.
- A11.1.5.8 Any other builder's work in connection or incidental with the Sub-Contractor's work which is not required to be measured or given separately under these Rules of Measurement.

A11.2 Alternatively, works which are to be carried out by Nominated Sub-Contractors, shall be given as PC Rates as follows:

- A11.2.1 Sub-Contractor's work described in accordance with Rule GR9.5 given as a unit PC Rate either in the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates or in the Bills of Measured Quantities.
- A11.2.2 Contractor's related work, attendances, charges and profit shall be given in the appropriate Work Section in the Bills of Measured Quantities and shall be deemed to include costs for:
 - A11.2.2.1 General attendance provided by the Contractor in accordance with Rule A9.26.
 - A11.2.2.2 Special attendance provided by the Contractor in accordance with Rule A11.1.4.
 - A11.2.2.3 Builder's work in connection or incidental with the Sub-Contractor's work provided by the Contractor in accordance with Rule A11.1.5.
 - A11.2.2.4 Contractor's financing charges, main office establishment/overhead charges and profit.

A12 NOMINATED SUPPLIERS

A12.1 Details of materials and goods which are to be fixed, erected or laid only by the Contractor and which are to be obtained from Nominated Suppliers shall be given in (unless otherwise stated) the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates, and shall include:

A12.1.1 Supplier's materials and goods described in accordance with Rule GR9.5 given as PC Sum.

A12.1.2 Contractor's financing charges, main office establishment/overhead charges and profit given as %

A12.1.3 Fix-only, erect only, or lay only of materials and goods shall be given in the appropriate Work Section in the Bills of Measured Quantities and shall be deemed to include the following allowances, and attendances and facilities provided by the Contractor on Nominated Suppliers:

A12.1.3.1 Storing and positioning, which is to include taking delivery at the Site, unloading, storing, removing from store, handling, lifting by means of cranes, hoists etc or lowering, distributing, placing in and maintaining until permanent fixing at exact final position, materials and goods and returning packing of same to the Supplier carriage paid and obtaining credits thereof.

A12.1.3.2 Provision of full-size templates.

A12.1.3.3 Provision of dimensions and accepting responsibility for their accuracy.

A12.1.3.4 Assembling materials and goods as required.

A12.1.3.5 Fixing, erecting or laying materials and goods in the Works as required.

A12.1.3.6 Maintaining stored materials and goods, as well as completed parts of the work, at required temperature and humidity levels.

A12.1.3.7 Protecting materials and goods during fixing, erecting or laying, covering-up and casing-up and protecting and maintaining completed parts of the work including clearing away protection measures upon completion.

A12.1.3.8 Other necessary and usual facilities, documentation, inter-trades attendance and assistance.

A12.1.3.9 Note: Particulars shall be given where and to the extent the cost of packing, carriage and delivery of materials and goods to the Site is required to be paid by the Contractor.

A12.2 Alternatively, materials and goods which are to be obtained from Nominated Suppliers and which are to be fixed, erected or laid only by the Contractor shall be given as PC Rates as follows:

A12.2.1 Supplier's materials and goods described in accordance with Rule GR9.5 given as unit PC Rate.

A12.2.2 Fix only, erect only or lay only of materials and goods shall be given in the appropriate Work Section in the Bills of Measured Quantities and shall be deemed to include the following allowances, and attendances and facilities provided by the Contractor on Nominated Suppliers:

A12.2.2.1 Allowances, attendances and facilities in accordance with Rule A12.1.3.

A12.2.2.2 Waste of materials and goods.

A12.2.2.3 Financing charges, main office establishment/overhead charges and profit.

A12.2.2.4 Note: Particulars shall be given where and to the extent the cost of packing, carriage and delivery of materials and goods to the Site is required to be paid by the Contractor.

A12.3 Details of materials and goods which are to be obtained from Nominated Suppliers and which are to be fixed by Nominated Sub-Contractors shall be given in the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates and shall include:

A12.3.1 Supplier's materials or goods described in accordance with Rule GR 9.5 given as PC Sum.

A12.3.2 Contractor's financing charges, main office establishment/overhead charges and profit given as %.

- A12.3.3 Attendances and facilities provided by the Contractor on Nominated Suppliers, given as an item, in accordance with Rule A12.1.3 excluding fixing, erecting or laying materials and goods in the Works.

A13 WORK AND/OR MATERIALS BY STATUTORY AUTHORITIES

Particulars of works to be carried out and/or materials to be supplied on or adjacent to the Site by Statutory Authorities shall be given in the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates, and shall include:

- A13.1 Work and/or materials by Statutory Authorities described in accordance with Rule GR9.5.
- A13.2 Where required, general attendance provided by the Contractor, given as an item, in accordance with Rule A9.26.
- A13.3 Where required, special attendance provided by the Contractor, given as an item, in accordance with Rule A11.1.4.
- A13.4 Where required, builder's work in connection or incidental with the work by Statutory Authorities, provided by the Contractor, given as an item in accordance with Rule A11.1.5.
- A13.5 Where required, attendances and facilities provided by the Contractor, given as an item, in accordance with Rule A12.1.3 excluding fixing, erecting or laying materials and goods in the Works.
- A13.6 Note:
- A13.6.1 The Contractor shall be deemed not to be entitled to any profit on any work to be executed and/or on any materials to be supplied on or adjacent to the Site by Statutory Authorities.
- A13.6.2 Any financing charges and/or any other general establishment/overhead charges by the Contractor, shall be deemed to be included with his pricing of all previously mentioned items as required.

A14 WORK AND/OR MATERIALS BY PERSONS EMPLOYED DIRECT BY THE EMPLOYER

Particulars of works to be carried out and/or materials to be supplied on or adjacent to the Site by persons employed direct by the Employer shall be given in the Bills of Provisional Sums, Prime Cost Sums and Prime Cost Rates, and shall include:

- A14.1 Work and/or materials by persons employed direct by the Employer described in accordance with Rule GR9.5.
- A14.2 Where required, general attendance provided by the Contractor, given as an item, in accordance with Rule A9.26.
- A14.3 Where required, special attendance provided by the Contractor, given as an item, in accordance with Rule A11.1.4.
- A14.4 Where required, builder's work in connection or incidental with the work by persons employed direct by the Employer, provided by the Contractor, given as an item, in accordance with Rule A11.1.5.
- A14.5 Where required, attendances and facilities provided by the Contractor, given as an item, in accordance with Rule A12.1.3 excluding fixing, erecting or laying materials and goods in the Works.
- 14.6 Note:
- A14.6.1 The Contractor shall be deemed not to be entitled to any profit on any work to be executed and/or on any materials to be supplied on or adjacent to the Site by persons employed direct by the Employer.
- A14.6.2 Any financing charges and/or any other general establishment/overhead charges by the Contractor, shall be deemed to be included with his pricing of all previously mentioned items as required.

SECTION B - DEMOLITIONS AND ALTERATIONS

B1 GENERAL PRINCIPLES

- B1.1 The location of each demolitions and alterations item shall be given.
- B1.2 Shoring and scaffolding incidental to demolitions and alterations together with clearing away and making good all work disturbed shall be deemed to be included with the items.
- B1.3 Unless otherwise stated, old materials arising from demolitions and alterations shall become the property of the Contractor and where appropriate, a credits' bill shall be given in this respect: cleaning away of such materials shall be deemed to be included with the items.
- B1.4 Old materials required to remain the property of the Employer shall be so described: setting aside and storing such materials shall be given in the description of the items.
- B1.5 Old materials purposed for re-use in the Works shall be so described: setting aside and storing such materials shall be given in the description of the items.

B2 DEMOLITIONS

Demolishing individual structures or parts thereof, shall be given as an item: alternatively, demolishing all structures on a Site may be given as an item.

B3 ALTERATIONS

- B3.1 Cutting openings in existing structures shall each be given as an item stating the size of the opening and the thickness of the existing structure: extending finishings and making good all work disturbed shall be given in the description of the items.
- B3.2 Blocking-up openings in existing structures shall each be given as an item stating the size of the opening and the nature and thickness of the new work: bonding and securing the new work to the existing structure, extending finishings and making good all work disturbed shall be given in the description of the items.
- B3.3 Pulling down walls, partitions, floors, roofs, staircases and other parts of existing structures shall each be given as an item: making good all work disturbed shall be given in the description of the items.
- B3.4 Removing individual fittings and fixtures (i.e. doors, windows, sanitary appliances, counters, cupboards etc) from existing structures shall be given as an item: making good all work disturbed shall be given in the description of the items.
- B3.5 Repairing, adapting and refixing old materials shall each be given as an item.

B4 SUNDRIES

- B4.1 Temporary screens and roofs shall be given as an item: clearing away of temporary screens and roofs shall be deemed to be included with the items.
- B4.2 Shoring which is required by the Technical Specifications to be left in position shall be so described and given as an item.
- B4.3 Shoring, the design of which is not at the discretion of the Contractor, shall be so described and given as an item.

SECTION C - GROUNDWORK

C1 GENERAL PRINCIPLES

C1.1 Any information available concerning ground conditions shall be given with the Drawings and/or Technical Specifications, which shall include:

C1.1.1 Nature of ground and strata.

C1.1.2 Trial bores or holes on Site and their location.

C1.1.3 Ground water level and the date when it was established: where this information is not available, the water level shall be ascertained before pumping operations commence on Site and the level so established by either method shall be deemed to be the normal water level in the ground throughout the course of the Works notwithstanding any subsequent changes.

C1.1.4 Existing live services on, under or over the Site indicating their location.

C1.2 In the absence of any information regarding ground conditions referred to in Rule C1.1, the Contractor shall be deemed to have ascertained for himself the true and exact nature and extent of the ground and sub-strata conditions (other than rock, artificial findings and existing live services) and the ground water level and to have made all due assumptions and allowances in this regard.

C1.3 Notwithstanding any information made available to the Contractor concerning ground and sub-strata conditions and the ground water level (which under all circumstances shall be regarded as a guide only) or any assumptions and allowances made by the Contractor in this regard in accordance with Rule C1.2, it is to be at the entire risk and financial burden of the Contractor if the ground and sub-strata conditions (other than rock, artificial findings and existing live services) and the ground water level which were actually encountered by the Contractor anywhere on or under the Site during the carrying out of the Works, were different than those he had originally assumed and allowed for.

C2 GROUND EXPLORATION

C2.1 Excavating trial holes shall be measured by depth, taken along the centre line, stating the number and maximum depth below commencing level: earthwork support shall be deemed to be included with the items.

C2.2 Earthwork support for trial holes which is not at the discretion of the Contractor shall be measured by depth.

C2.3 Driving boreholes, which shall include pumping test wells, shall be measured by depth, taken along the centre line, stating the number and the maximum depth below commencing level: raking work shall be so described: lining shall be deemed to be included with the items.

C2.4 Lining for boreholes which is not at the discretion of the Contractor shall be measured by depth.

C2.5 Cappings for boreholes shall be enumerated.

C3 SITE PREPARATION

C3.1 Removing isolated trees, which shall be deemed to include grubbing up roots, disposal of materials and filling voids, shall be enumerated grouped according to the girth of the trees' trunk measured at 1.00 m above ground: classification shall be as follows:

C3.1.1 Small (i.e. 0.60 - 1.50 m)

C3.1.2 Medium (i.e. 1.50 - 3.00 m)

C3.1.3 Large (i.e. 3.00 - 4.50 m)

C3.1.4 Extra large with girth stated (i.e. over 4.50 m)

C3.2 Clearing Site vegetation, which shall be deemed to include bushes, scrub, undergrowth, hedges and trees with trunk girth n.e. 0.60 m and grubbing up roots, disposal of materials and filling voids shall be measured by area.

C3.3 Lifting turf which is to be preserved shall be measured by area stating the method of preservation.

C4 EXCAVATION

C4.1 The quantities for excavation shall be deemed to be the bulk before excavating and no allowance shall be made in respect of any subsequent variations in bulk or for any extra space required as working space or to accommodate earthwork support.

C4.2 No distinction shall be made between mechanical and hand excavation.

C4.3 Unless otherwise stated, no distinction shall be made for excavating,

C4.3.1 below the normal water level established in accordance with Rule C1.1.3, or

C4.3.2 in running silt or running sand or loose gravel.

C4.4 Unless otherwise stated, excavating in rock shall be so described: alternatively it may be measured as extra over all kinds of excavation.

C4.5 Excavation around and alongside existing live services or next to existing structures shall be so described: alternatively it may be measured as extra over all types of excavation: excavation shall be measured to a distance of 1.00 m (as and to the extent of the volume of the actual excavation) over, under or at any side of the service line or point (without addition for any excavation overruns in cases where the distance between two or more service lines or points is less than 1.00 m) or of the existing structure.

C4.6 Where the depths of excavations are required to be stated in accordance with this Rule, they shall be grouped and given as follows:

C4.6.1 Maximum depth n.e. 0.25 m

C4.6.2 Maximum depth n.e. 1.00 m

C4.6.3 Maximum depth n.e. 2.00 m

C4.6.4 Maximum depth thereafter in 2.00 m stages

C4.7 Where the excavation commences over 0.25 m below the existing ground level then the commencing level shall be stated.

C4.8 Unless otherwise stated, excavation shall be measured by volume in accordance with Rules C4.6 and C4.7 as the void which is to be occupied by the permanent construction or vertically above any part of the permanent construction: classification shall be as follows:

C4.8.1 Oversite excavation to remove topsoil for preservation, stating the average depth.

C4.8.2 Excavation to reduce levels.

C4.8.3 Excavation in cuttings.

C4.8.4 Basement excavation.

C4.8.5 Pit excavation to receive foundation bases, stating the number.

C4.8.6 Trench excavation to receive foundations, which shall include ground beams and pile caps: curved work shall be so described: classification shall be as follows:

C4.8.6.1 Width n.e. 0.30 m

C4.8.6.2 Width over 0.30 m

C4.9 Trench excavation for kerbs or the like shall be measured by length: trimming bottoms, backfilling, compacting and disposal shall be deemed to be included with the items: curved work shall be so described.

- C4.10 Trench excavation for service pipes (other than for drain pipes measured under Section U – Drainage) cables or the like shall be measured by length stating the av. depth of the trench and the internal diam. of the pipe and diam. of cables or the like: trimming bottoms, backfilling, compacting and disposal shall be deemed to be included with the items: curved work shall be so described.

C5 BREAKING UP ARTIFICIAL FINDINGS

- C5.1 Breaking up concrete, reinforced concrete, brickwork, blockwork, stonework and the like met within excavation shall each be measured by volume: alternatively, it may be measured as extra over all kinds of excavation.
- C5.2 Breaking up surface concrete, reinforced surface concrete, stone paving, coated macadam and the like shall each be measured by area: alternatively, it may be measured as extra over all kinds of excavation.

C6 EARTHWORK SUPPORT

- C6.1 Earthwork support, the use of which shall be at the discretion of the Contractor, shall be deemed to be included with the items of excavation.
- C6.2 Earthwork support, the use of which shall be compulsory on the Contractor, shall be so described and given as follows:
- C6.2.1 Earthwork support shall be measured to the full depth and to all faces of the excavation, exempting the following:
- C6.2.1.1 Faces of excavation n.e. 0.25 m high.
- C6.2.1.2 Faces of excavation to slopes n.e. 45 deg. from horizontal.
- C6.2.1.3 Faces of excavation which abut existing walls, piers or other structures.
- C6.2.2 Earthwork support which is curved or required to be left in shall be so described.
- C6.2.3 Unless otherwise stated, no distinction shall be made for earthwork support,
- C6.2.3.1 below the normal water level established in accordance with Rule C1.1.3, or
- C6.2.3.2 in running silt or running sand or loose gravel.
- C6.2.4 Where the depths of earthwork support are required to be stated in accordance with this Rule, they shall be grouped and given as follows:
- C6.2.4.1 Maximum depth n.e. 1.00 m
- C6.2.4.2 Maximum depth n.e. 2.00 m
- C6.2.4.3 Maximum depth thereafter in 2.00 m stages
- C6.2.5 Where the distance between opposing faces of earthwork support are required to be stated in accordance with this Rule, they shall be grouped and given as follows:
- C6.2.5.1 Maximum distance n.e. 2.00 m
- C6.2.5.2 Maximum distance 2.00 - 4.00 m
- C6.2.5.3 Maximum distance over 4.00 m
- C6.2.6 Earthwork support shall be measured by area stating the depth and distance between opposing faces in accordance with Rules C6.2.4 and C6.2.5.

C7 DISPOSAL

- C7.1 The quantities for disposal shall be deemed to be the bulk before excavating and no allowance shall be made in respect of any subsequent variations in bulk: unless otherwise stated, no distinction shall be made between the various types of excavated materials.

- C7.2 Multiple handling of excavated materials and transporting about the Site as necessary shall be deemed to be included with the items of final disposal; particular multiple handling which is required by the Technical Specifications shall be so described.
- C7.3 Backfilling shall be measured as equal to the void to be filled.
- C7.4 Backfilling required to be deposited and compacted in layers shall be so described stating the maximum thickness of the layers after compaction.
- C7.5 Disposal of excavated materials shall be measured by volume; classification shall be as follows:
- C7.5.1 Backfilling into excavations.
 - C7.5.2 Filling to make up levels.
 - C7.5.3 Filling oversite to make up levels; details of any special contouring, embankments or the like shall be stated.
 - C7.5.4 Filling to planters and the like.
 - C7.5.5 Depositing on Site in permanent spoil heaps.
 - C7.5.6 Removing, which shall be deemed to include the provision of a suitable shoot, dump or tip; removing excavated rock or any artificial findings referred to in Sub-Section C5 shall be so described.
- C7.6 Keeping excavations free from surface and underground water (including sea or lake water but excluding spring or running water) shall be deemed to be included with the relevant provision in Section A - Preliminaries and General Conditions.
- C7.7 Keeping excavations free from spring or running water shall be given as Prov. Sum.

C8 IMPORTED FILLING

- C8.1 Imported filling shall be measured as equal to the void to be filled.
- C8.2 Imported filling required to be deposited and compacted in layers shall be so described stating the maximum thickness of the layers after compaction.
- C8.3 Imported filling shall be measured by volume classified in accordance with Rule C7.5.
- C8.4 Surface packing to imported filling to form battering (to slopes over 15 deg. from horizontal) or vertical faces shall be measured by area.
- C8.5 Surface packing to imported filling to form sinkings shall be measured by length; no deduction of filling shall be made.

C9 SURFACE TREATMENTS

- C9.1 Compacting the surfaces of ground, bottoms of excavation, backfilling or imported filling shall be measured by area; levelling and grading to falls and slopes shall be deemed to be included with the items; compacting surfaces to slopes over 15 deg. from horizontal shall be so described.
- C9.2 Compacting which is required to be carried out by specific method shall be appropriately described.
- C9.3 Trimming sides of cuttings and sides of embankments to slopes shall each be given separately measured by area; curved work shall be so described.
- C9.4 Trimming sides of excavations in rock to produce fair exposed faces shall be measured by area; curved work shall be so described.

C10 LANDSCAPING

C10.1 Unless otherwise stated, landscaping shall be given in the separate Bill for External Works.

C10.2 Cultivating and fertilising ground shall be measured by area.

C10.3 Soiling, seeding and turfing shall be measured by area.

C10.4 Hedges shall be measured by length.

C10.5 Trees and shrubs shall be enumerated.

SECTION D - PILING

D1 GENERAL PRINCIPLES

- D1.1 Applicable principles Rules C1.1 - C1.3
- D1.2 Providing and assembling, handling, pitching, strutting, waling of the piling equipment on the Site, moving piling frames about the Site, raising and lowering them and providing any necessary staging or barges to support them and subsequently removing the piling equipment from the Site, shall be deemed to be included with the items.
- D1.3 Handling, pitching, strutting, waling and withdrawing of piling, shall be deemed to be included with the items.
- D1.4 Any extra excavation where necessary in order to place the hammer over any pile situated in any angle or similar position, together with any necessary filling and ramming afterwards, shall be deemed to be included with the items.

D2 WOOD PILING

- D2.1 Supplying wood piles shall be measured by length stating the cross-section and number: piles over 9.00 m long shall be so described stating the length thereafter in 3.00 m stages.
- D2.2 Pointed ends and fitted shoes on piles shall each be enumerated as extra over the piles on which they occur.
- D2.3 Driving piles shall be measured by length, taken from the shoe point in contact with the ground when pitched to the pile point when driven, stating the number: driving piles on rake shall be so described.
- D2.4 Cutting off tops of piles to required levels and ringing with steel bands shall be enumerated as extra over the piles concerned.

D3 PREFORMED CONCRETE PILING

- D3.1 Supplying preformed concrete piles shall be measured by length stating the cross-section and number: reinforcement shall be given in accordance with the provisions of Sub-Section E3: formwork shall be deemed to be included with the items.
- D3.2 Heads and shoes on piles shall each be enumerated as extra over the piles on which they occur.
- D3.3 Driving piles shall be given in accordance with Rule D2.3.
- D3.4 Cutting off tops of piles to required levels and preparing the reinforcement shall be enumerated as extra over the piles concerned.
- D3.5 Lengthening piles in position shall be given in detail: connections shall be enumerated: re-driving lengthened piles shall be measured by length stating the number.

D4 CAST IN PLACE CONCRETE PILING

- D4.1 Boring pile holes shall be measured by length, taken from the formation level of the ground to the bottom of the pile hole, stating the size and number: the measurement shall include for blind boring when the pile top is to be below the formation level of the ground.
- D4.2 Boring through rock shall be measured by length as extra over boring pile holes.
- D4.3 Disposal of material arising from boring shall be measured in accordance with Rule C7.5.

D4.4 Linings for piles shall be measured by length.

D4.5 Concrete filling shall be measured by volume; reinforcement shall be given in accordance with the provisions of Sub-Section E3.

D4.6 Cutting off tops of piles to required levels and forming enlarged bases shall be enumerated as extra over the piles concerned.

D5 STEEL SHEET PILING

D5.1 Supplying steel sheet piling shall be measured by area, taken along the centre line of the piling when in final position, stating the cross-section of each unit and the thickness or substance of the metal: piling over 12.00 m long shall be so described stating the length thereafter in 3.00 m stages.

D5.2 Corner piles and junction piles shall each be measured by length as extra over the piling in which they occur.

D5.3 Driving steel sheet piling shall be measured by area, taken from the formation level of the ground to the bottom edge of the piling when driven: driving piling over 6.00 m deep shall be so described stating the depth thereafter in 3.00 m stages.

D5.4 Cutting or burning through steel sheet piling shall be measured by length as extra over the piling concerned.

D6 PERFORMANCE DESIGNED PILING

Performance designed piles shall be enumerated: reinforcement and material arising from boring shall be deemed to be included with the items: details shall be given when the pile top is to be below the formation level of the ground.

D7 TESTING PILING

Independently from the general provision for Testing of the Works in Section A - Preliminaries and General Conditions, testing piling, which shall include trial piles and testing working piles, shall be enumerated stating the location, length and cross-section of the pile, the length of driving and the method of testing: any pointed ends, shoes, heads and reinforcement shall be given in the description of the items.

SECTION E - CONCRETE WORK

E1 GENERAL PRINCIPLES

- E1.1 Plain or reinforced in-situ concrete shall be so described.
- E1.2 Composition and mix or strength requirements of the concrete shall be given.
- E1.3 Concrete required to be placed, compacted, cured or otherwise treated in a particular manner shall be so described.
- E1.4 Concrete quantities shall be measured net as executed but no deduction shall be made for the following:
 - E1.4.1 Voids n.e. 0.05 m³ (save for voids in coffered and troughed suspended slabs)
 - E1.4.2 Volume of any reinforcement or structural metal enclosed in the concrete (save for voids caused by boxed or tubular structural metalwork)
- E1.5 Unless otherwise stated, reinforced concrete shall be deemed to be vibrated.
- E1.6 Unless otherwise stated, horizontal surfaces of concrete shall be deemed to be tamped and graded.

E2 PLAIN AND REINFORCED IN-SITU CONCRETE

- E2.1 Unless otherwise stated, plain or reinforced in-situ concrete shall be measured by volume: classification shall be as follows:
 - E2.1.1 Isolated foundations, which shall include isolated column bases and isolated pile caps.
 - E2.1.2 Foundations, which shall include attached column bases and attached pile caps.
 - E2.1.3 Ground beams.
 - E2.1.4 Beds, which shall include roads, footpaths, pavings and thickenings of beds: beds laid in bays shall be so described stating the av. size of bays and formwork requirements: work laid to slopes over 15 deg. from horizontal shall be so described.
 - E2.1.5 Blinding beds: work laid to slopes over 15 deg. from horizontal shall be so described.
 - E2.1.6 Machine bases, stating the size and number.
 - E2.1.7 Suspended slabs, which shall include floors, roofs and the like: work laid to slopes over 15 deg. from horizontal shall be so described: curved, conical, spherical and elliptical slabs shall be so described irrespective of radius.
 - E2.1.8 Coffered and troughed suspended slabs, giving details of solid margins and the like, stating the av. thickness: work laid to slopes over 15 deg. from horizontal shall be so described.
 - E2.1.9 Walls, which shall include attached columns, column casings and piers: parapet walls (ie. walls to parapets n.e. 1.50 m high) or retaining walls shall be so described.
 - E2.1.10 Filling to hollow walls.
 - E2.1.11 Isolated beams, which shall include lintels and isolated beam casings: deep isolated beams (i.e. depth of beams over three times their width) shall be so described: work sloping over 15 deg. from horizontal shall be so described.
 - E2.1.12 Attached beams (measured below the slab where attached), which shall include attached beam casings: deep attached beams (ie. depth of beams over three times their width) shall be so described: work sloping over 15 deg. from horizontal shall be so described.
 - E2.1.13 Upstands (measured above the slab where attached) which shall be classified as such when their height is not less than three times their thickness, otherwise they shall be classified as walls: work sloping over 15 deg. from horizontal shall be so described.
 - E2.1.14 ~~Isolated columns, which shall include isolated column casings and which shall be classified as such when their length on plan is n.e. four times their thickness, otherwise they shall be classified as walls.~~
 - E2.1.15 Staircases, which shall include strings, landings and steps.
 - E2.1.16 Other classifications as may be appropriate.

- E2.2 Projections on slabs, walls, beams, upstands, columns or staircases to form bands, fins, cornices or the like shall be measured by area or length or shall be enumerated as may be appropriate.
- E2.3 Kerbs shall be measured by length.
- E2.4 ^{APPROPRIATE} Grouting (other than that included elsewhere in accordance with these Rules of Measurement) shall be enumerated.

E3 REINFORCEMENT

- E3.1 Bar reinforcement for in-situ concrete shall be measured as executed by weight (the weight shall be net without addition for rolling margin, overlaps, tying wire, chairs or spacers) stating the bar diam.
- E3.2 Fabric reinforcement for in-situ concrete shall be measured as executed by area (the area shall be net without addition for overlaps, tying wire, chairs or spacers) stating the weight/m² and the extent of laps.

E4 FORMWORK

- E4.1 Formwork for in-situ concrete (grouped in accordance with Rule E2.1) shall be taken as the net area of the finished concrete surfaces which require temporary support during casting.

- E4.2 Formwork referred to in this Rule shall be measured by area classification shall be as follows:

- E4.2.1 Vertical or battering sides of foundations, which shall include isolated foundations.
- E4.2.2 Vertical or battering sides of ground beams.
- E4.2.3 Vertical or battering sides of machine bases.
- E4.2.4 Horizontal or sloping soffits of suspended slabs: formwork to soffits of solid suspended slabs over 225 mm thick shall be so described.
- E4.2.5 Horizontal or sloping soffits of coffered or troughed suspended slabs measured on plan stating the size of mould and profile, centres of mould and the overall slab thickness.
- E4.2.6 Vertical or battering sides of walls which shall include sides and soffits of ends, openings, recesses and the like occurring in walls: formwork to sides of parapet or retaining walls shall be so described.
- E4.2.7 Sides and soffits of horizontal or sloping isolated beams: formwork to sides and soffits of deep beams shall be so described.
- E4.2.8 Sides and soffits of horizontal or sloping attached beams: formwork to sides and soffits of deep beams shall be so described.
- E4.2.9 Sides of horizontal or sloping upstands.
- E4.2.10 Vertical or battering sides of columns.
- E4.2.11 Horizontal or sloping soffits of staircases.
- E4.2.12 Sloping upper surfaces, which shall include surfaces of concrete (grouped in accordance with Rule E2.1) sloping over 15 deg. from horizontal.
- E4.2.13 Other classifications as may be appropriate.

- E4.3 Work to soffits of suspended slabs, to soffits of staircases or to sides and soffits of beams of any classification in accordance with Rule E4.2 at a height over 3.50 m from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages:

3.50-5.00 8.00-9.50
5.00-6.50 9.50-11.00
6.50-8.00

- E4.4 Formwork to edges referred to in this Rule shall be measured by length: classification shall be as follows:

- E4.4.1 Horizontal or sloping edges of beds.
- E4.4.2 Horizontal or sloping edges of suspended slabs which shall include coffered and troughed suspended slabs.
- E4.4.3 Horizontal edges of staircases.
- E4.4.4 Sloping edges of staircase-strings stating the size.
- E4.4.5 Vertical or battering sides of staircase-risers.
- E4.4.6 Other classifications as may be appropriate.

- E4.5 Formwork to projecting bands, fins, cornices or the like shall be measured by area or length or shall be enumerated as may be appropriate.
- E4.6 Formwork to horizontal or sloping sides of kerbs shall be measured by length.
- E4.7 Formwork to form grooves, which shall include sinkings, throats, rebates and the like, shall be measured by length.
- E4.8 Formwork to curved, conical, spherical and elliptical surfaces or soffits of concrete shall be so described stating the radius or radii.
- E4.9 Formwork required to provide fair face or other special finish to concrete surfaces shall be so described.
- E4.10 Formwork which is required by the Technical Specifications to be left in position or which it shall be impossible to remove after casting shall be so described.

E5 PRECAST CONCRETE UNITS

- E5.1 Formwork or moulds for precast concrete units shall be given in the description of the items.
- E5.2 Reinforcement for precast concrete units shall be measured in accordance with the provisions of Sub-Section E3: alternatively, work may be given in the description of the items.
- E5.3 Precast concrete units shall be measured as follows:
 - E5.3.1 Structural units (ie. beams, stanchions, purlins, trusses etc) shall each be enumerated.
 - E5.3.2 Floor slabs, partition slabs or the like shall be measured by area: alternatively, work may be enumerated.
 - E5.3.3 Posts and heads to partitions shall each be measured by length stating the extreme size: alternatively, work may be enumerated.
 - E5.3.4 Steps, winders, landings, solid balustrade panels and the like shall each be enumerated stating the extreme size.
 - E5.3.5 Helices, divisions, duct covers and the like shall each be measured by area: alternatively, work may be enumerated stating the extreme size.
 - E5.3.6 Kerbs, edgings, sills, lintels, copings and the like shall each be measured by length stating the extreme size.
 - E5.3.7 Pedestals, pier-caps, chimney-caps and the like shall each be enumerated stating the extreme size.
 - E5.3.8 Glazing lights, roof-lights and the like shall each be enumerated: glass shall be given in the description of the items.
- E5.4 Curved, conical, spherical and elliptical shaped precast concrete units shall be so described stating the radius or radii.
- E5.5 Precast concrete units with fair face or other special surface finish shall be so described.
- E5.6 Formwork to precast concrete units which is required by the Technical Specifications to be left in position or which it shall be impossible to remove after casting shall be so described.

E6 PRESTRESSED CONCRETE

- E6.1 A general description of the prestressed work and the system and method of tensioning shall be given.
- E6.2 Prestressed in-situ concrete (ie. concrete work where reinforcement is tensioned before or as the load is applied) shall be measured in accordance with the provisions of Sub-Section E2.
- E6.3 Reinforcement to prestressed in-situ concrete shall be measured in accordance with the provisions of Sub-Section E3: supporting steel wires or cables shall be measured by weight.

- E6.4 Formwork to prestressed in-situ concrete shall be measured in accordance with the provisions of Sub-Section E4 stating whether to pre-tensioned or post-tensioned members.
- E6.5 Precast prestressed concrete units shall be measured in accordance with the provisions of Sub-Section E5: reinforcement shall be measured in accordance with Rule E6.3: formwork shall be measured in accordance with Rule E6.4.

E7 SUNDRIES

- E7.1 Treating the surfaces of unset concrete (i.e. steel trowelling, wood floating etc) shall each be measured by area stating whether to falls, cross-falls, slopes, cambers and the like, irrespective whether any formwork shall be measured to such surfaces in accordance with Rule E4.2.12: work to curved surfaces shall be so described: work to surfaces n.e. 0.30 m wide shall be so described.
- E7.2 Hacking, grinding, sand-blasting or like treatments to concrete surfaces shall be measured by area: work to soffits of suspended slabs, to soffits of staircases or to sides and soffits of beams of any classification in accordance with Rule E4.2 at a height over 3.50 m from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages.
- E7.3 Forming sinkings, channels, chases or the like in the surfaces of unset concrete shall be measured by length: work to falls shall be so described: any additional excavation, hardcore, formwork or concrete which may be required shall be given in the description of the items.
- E7.4 Expansion joints in concrete shall be measured by length: details of expansion material, formwork, sealants, waterstops, dowels and the like shall be given in the description of the items.
- E7.5 Fixings, ties, inserts or the like (other than work measured elsewhere in accordance with these Rules of Measurement) cast in concrete shall be enumerated: alternatively, work may be measured by area.
- E7.6 Forming holes, mortices and the like in concrete for any purpose (other than work measured elsewhere in accordance with these Rules of Measurement) shall be deemed to be included with the items.
- E7.7 Making good concrete surfaces in connection with forming holes, mortices and the like shall be deemed to be included with the items.
- E7.8 Making good exposed faces of concrete after removal of formwork (i.e. cutting off projecting fins, filling small voids etc) shall be deemed to be included with the items.

SECTION F - UNDERPINNING

F1 GENERAL PRINCIPLES

- F1.1 A description of the existing structure (i.e. wall, column, etc) to be underpinned shall be given stating its location, its length or size on plan, the depth of the new work below the base of the existing foundation and the limit of length to be carried out in one operation.
- F1.2 Underpinning which is curved on plan shall be so described.

F2 WORK IN ALL TRADES

- F2.1 Unless otherwise stated, underpinning work shall be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement.
- F2.2 Temporary support shall be given as an item: particulars shall be given where the design of temporary support is not at the discretion of the Contractor.
- F2.3 Excavation shall be measured by volume, taken to the outside line of the projecting foundations or to the outside line of the new foundations (whichever is the greater): classification shall be as follows:
- F2.3.1 Excavation in preliminary trenches down to the level of the base of the existing foundation.
 - F2.3.2 Excavation below the level of the base of the existing foundation.
- F2.4 Cutting away projecting foundations shall be measured by length stating the size of the concrete to be removed.

SECTION G - MASONRY

G1 GENERAL PRINCIPLES

G1.1 Masonry work shall be classified and given under the following headings:

- G1.1.1 Brick walling.
- G1.1.2 Concrete block walling.
- G1.1.3 Glass block walling.
- G1.1.4 Natural stone walling and dressings.
- G1.1.5 Natural stone rubble walling and dressings.
- G1.1.6 Cast stone walling and dressings.

G1.2 Particulars of the following shall be given:

- G1.2.1 Kind, type and size of materials where applicable.
- G1.2.2 Type of bond where applicable.
- G1.2.3 Composition and mix of mortar for bedding and jointing.

G1.3 Walling shall be measured net as executed but no deduction shall be made for the following:

- G1.3.1 Voids n.e. 0.10 m².
- G1.3.2 Flues, lined flues and flue-blocks where the voids and the work displaced are not together over 0.25 m² in sectional area.

G1.4 Walling curved on plan shall be so described stating the mean radius, grouped and given as follows:

- G1.4.1 Mean radius n.e. 0.50 m
- G1.4.2 Mean radius 0.50 - 1.00 m
- G1.4.3 Mean radius 1.00 - 2.00 m
- G1.4.4 Mean radius over 2.00 m

G1.5 Battering walling (i.e. sloping walls with parallel sides) and tapering walling (ie. walls of diminishing thickness) shall be so described: in tapering walling the mean thickness and whether tapering one or both sides shall be stated.

G1.6 Reinforced masonry shall be so described.

G1.7 Walling built against other construction shall be so described.

G1.8 Unless otherwise stated, walling shall be measured on the centre line of the material.

G2 WALLS AND PIERS

G2.1 Walls and piers referred to in this Rule shall be measured by area: classification shall be as follows:

- G2.1.1 Walls, which shall include wide attached piers (i.e. attached wall projections with length on plan over four times the combined wall and projection thickness).
- G2.1.2 Cavity walls, measured as a composite item, stating the thickness of skins, width of cavity and type and spacing of wall-ties; alternatively, skins and cavity may each be measured separately by area (wall-ties shall be given in the description of the cavity): closing cavity walls at ends or around openings shall be deemed to be included with the items.
- G2.1.3 Attached piers (i.e. attached wall projections with length on plan n.e. four times the combined wall and projection thickness, except where caused by openings in which case they shall be classified as walls).

- G2.1.4 Isolated piers (i.e. isolated walls with length on plan n.e four times their thickness, except where caused by openings in which case they shall be classified as walls).
- G2.1.5 Isolated casing walls.
- G2.1.6 Attached or isolated chimney shaft walls stating the number.
- G2.1.7 Flue wall linings.
- G2.1.8 Other classifications as may be appropriate.
- G2.2 Fair face work shall be measured by area as extra over the wall face in which it occurs: type of pointing shall be given in the description of the items.
- G2.3 Ornamental facework and the like shall be measured by area as extra over the wall face in which it occurs giving details of the required features.
- G2.4 Facework ornamental bands shall be measured by length as extra over the wall face in which they occur: vertical, raking or horizontal work shall be so described.
- G2.5 Metal framing for glass block walling shall be measured by length stating the size: metal cramps, dowels and like fixing items shall be deemed to be included with the items.
- G2.6 Oversailing or receding courses in walling shall be measured by length: vertical, raking or horizontal work shall be so described.
- G2.7 Air-bricks shall be enumerated.

G3 SILLS, COPINGS AND THE LIKE

- G3.1 Sills, thresholds, lintels, transoms, mullions, jambs or the like shall be measured by length.
- G3.2 Copings, bands, corbel courses, handrails, cappings, kerbs, cover stones or the like shall be measured by length: vertical, raking or horizontal work shall be so described.
- G3.3 Steps shall be measured by length: alternatively, they may be enumerated.
- G3.4 Arches shall be measured by length stating the radius: alternatively, they may be enumerated.
- G3.5 Special purpose stones and sculptures shall be enumerated stating the character and function of the work.
- G3.6 Carving or cutting decorative grooves, chases or the like in masonry shall be measured by length: alternatively, they may be enumerated.

G4 REINFORCEMENT

- G4.1 Reinforcement in masonry shall be measured in accordance with the provisions of Sub-Section E3: alternatively, it may be given in the description of the work in which it occurs.
- G4.2 Alternatively to the provisions of Rule E3.2, fabric reinforcement in masonry may be measured by length.

G5 SUNDRIES

- G5.1 Expansion joints in masonry shall be measured by length: details of expansion material, sealants, waterstops, dowels and the like shall be given in the description of the items.
- G5.2 Cutting holes, mortices and the like in masonry for any purpose (other than work measured elsewhere in accordance with these Rules of Measurement) shall be deemed to be included with the items.

- G5.3 Cutting grooves, chases and the like in masonry (other than decorative work) shall be deemed to be included with the items.
- G5.4 Bonding or jointing masonry together or tying masonry with other work shall be deemed to be included with the items.
- G5.5 Making good masonry surfaces in connection with cutting holes, mortices, grooves, chases and the like shall be deemed to be included with the items.

SECTION H - MOISTURE, THERMAL AND NOISE PROTECTION

H1 GENERAL PRINCIPLES

- H1.1 Particulars of the kind and quality of materials shall be given.
- H1.2 Work shall be measured flat, taken as the net area in contact with the base without addition for laps or seams.
- H1.3 Curved, conical, spherical and elliptical work shall be so described.

H2 WATERPROOFING

- H2.1 Waterproof coverings to floors, roofs, walls or the like shall be measured by area stating the nature of the base: no deduction shall be made for voids n.e. 0.50 m²: work to surfaces n.e. 0.30 m wide shall be so described: work to isolated surfaces n.e. 1.00 m² shall be so described: classification shall be as follows:
- H2.1.1 Flat coverings.
 - H2.1.2 Coverings to falls, cross-falls and slopes n.e. 15 deg. from horizontal.
 - H2.1.3 Coverings to slopes 15-45 deg. from horizontal.
 - H2.1.4 Coverings to slopes over 45 deg. from horizontal.
 - H2.1.5 Vertical coverings.
- H2.2 Eaves, ridges, skirtings, fascias, flashings, aprons or the like shall be measured by length: raking work shall be so described.
- H2.3 Coverings to gutters, valleys, channels or the like shall be measured by length: sloping or vertical work shall be so described.
- H2.4 Angle fillets, tilting fillets, turning nibs into grooves or the like shall be given in the description of the linear items.
- H2.5 Damp-proof courses (other than work measured elsewhere in accordance with these Rules of Measurement) shall be measured by length stating the mix of the bedding material: alternatively, they may be measured by area: raking work shall be so described.

H3 THERMAL INSULATION

Thermal insulation to floors, roofs, walls or the like shall be measured by area in accordance with the provisions of Rule H2.1.

H4 SOUND INSULATION

Sound insulation to floors, roofs, walls or the like shall be measured by area in accordance with the provisions of Rule H2.1.

H5 BEDS AND BACKINGS

Beds and backings for waterproofing, thermal and sound insulation to floors, roofs, walls or the like shall be measured by area stating the type of surface treatment (ie. steel trowelled, wood floated etc): expansion joints together with details of expansion material, sealants, water stops and the like, shall be given in the description of the items: classification shall be as follows:

- H5.1 Surfaces finished flat.
- H5.2 Surfaces finished to falls, cross-falls and slopes n.e. 15 deg. from horizontal.

H5.3 Surfaces finished to slopes 15-45 deg. from horizontal.

H5.4 Surfaces finished to slopes over 45 deg. from horizontal.

H5.5 Surfaces finished vertical.

H6 SUNDRIES

H6.1 Surface treatments to waterproof coverings (ie. chippings, gravel, reflective paintwork etc) shall be measured by area.

H6.2 Cutting to line and jointing new to old waterproof coverings shall be measured by length.

H6.3 Working waterproof coverings to form fair and rounded edges, angles and corners, drips and the like shall be deemed to be included with the items.

H6.4 Working waterproof coverings into outlet pipes, dishings to gullies, grooves, recesses and the like shall be deemed to be included with the items.

SECTION J - ROOFING

J1 GENERAL PRINCIPLES

- J1.1 Particulars of the kind, quality and method of fixing of materials shall be given.
- J1.2 Work shall be measured flat, taken as the net area of the finished surface without addition for laps.
- J1.3 Curved, conical, spherical and elliptical work shall be so described.

J2 SLATE OR TILE ROOFING

- J2.1 Unless otherwise stated, slate or tile roof coverings shall be measured by area: non-structural supports (ie. battens, counter battens, laths etc) shall be given in the description of the items: no deduction shall be made for voids n.e. 0.50 m2: classification shall be as follows:

- J2.1.1 Flat coverings.
- J2.1.2 Coverings to falls, cross-falls and slopes n.e. 15 deg. from horizontal.
- J2.1.3 Coverings to slopes 15 - 45 deg. from horizontal.
- J2.1.4 Coverings to slopes over 45 deg. from horizontal.
- J2.1.5 Vertical coverings.

- J2.2 Double course or extra undercourse at eaves shall be measured by length: raking work shall be so described.

- J2.3 Verges shall be measured by length: raking work shall be so described. — *Αγκυρά κρύψιμης κρεμασμένης*

- J2.4 Ridge or hip cappings shall be measured by length. *Προξώμας ή κρύψιμης κοπριάς (καβαρνί)*

- J2.5 Valley tiles shall be measured by length. *Κοπριάς (Γαλαρία)*

J3 CORRUGATED OR TROUGHED SHEET ROOFING

- J3.1 Unless otherwise stated, corrugated or troughed sheet roof coverings (i.e. iron, steel, protected metal, aluminium etc) shall be measured by area: no deduction shall be made for voids n.e. 0.50 m2: work to isolated surfaces n.e. 1.00 m2 shall be so described: classification shall be in accordance with the provisions of Rule J2.1.

- J3.2 Fillers at eaves or the like shall be measured by length.

- J3.3 Barge-boards or the like shall be measured by length.

- J3.4 Ridge, hip or vertical angle cappings shall be measured by length.

- J3.5 Flashings, valley gutters or the like shall be measured by length.

- J3.6 Roof lights (inclusive of glass) and roof ventilators shall each be enumerated.

J4 SHEET METAL ROOFING

- J4.1 Unless otherwise stated, sheet metal roof coverings (i.e. sheet zinc, aluminium, copper etc) shall be measured by area, without addition for drips, melts and the like: no deduction shall be made for voids n.e. 0.50 m2: work to isolated surfaces n.e. 1.00 m2 shall be so described: classification shall be in accordance with the provisions of Rule J2.1.

- J4.2 Eaves, ridges, skirtings, fascias, flashings, aprons or the like shall be measured by length: raking work shall be so described.

J4.3 Coverings to gutters, valleys, channels or the like shall be measured by length: raking or vertical work shall be so described.

J4.4 Angle fillets, tilting fillets, wedging into grooves and the like shall be given in the description of the linear items.

J5 ROOF DECKING

J5.1 Unless otherwise stated, roof decking (ie. metal decking, wood-wool slabs, compressed straw or seaweed slabs, chipboard etc) shall be measured by area: no deduction shall be made for voids n.e. 0.50 m²: classification shall be as follows:

J5.1.1 Flat deckings.

J5.1.2 Deckings to falls, cross-falls and slopes n.e. 15 deg. from horizontal.

J5.1.3 Deckings to slopes 15 - 45 deg. from horizontal.

J5.1.4 Deckings to slopes over 45 deg. from horizontal.

J5.1.5 Vertical deckings.

J5.2 Bearings, eaves, flashings or the like shall be measured by length.

J6 BEDS AND BACKINGS

Beds and backings for roofing shall be measured in accordance with the provisions of Sub-Section H5.

J7 SUNDRIES

J7.1 Forming openings in every type of roofing shall be enumerated.

J7.2 Forming or cutting holes in all types of roofing for any purpose (other than work measured elsewhere in accordance with these Rules of Measurement) shall be deemed to be included with the items.

J7.3 Clips, tacks, nails and like fixing materials in all types of roofing shall be deemed to be included with the items.

J7.4 Dressing sheet metal roofing into outlet pipes, dishings to gullies and sheet metal collars around pipes, standards and the like shall be deemed to be included with the items.

J7.5 Making good roofing surfaces in connection with cutting holes shall be deemed to be included with the items.

SECTION K - METALWORK

K1 GENERAL PRINCIPLES

- K1.1 Particulars of the kind and quality of materials shall be given.
- K1.2 The weight of metalwork shall be net, without addition for rolling margin or welding material and without deduction for holes, splay cuts, notches and the like.
- K1.3 Welded, riveted or bolted work shall be so described.
- K1.4 Unless otherwise stated, welded members shall be deemed to be ground to smooth finish.
- K1.5 Fixing metal members through vulnerable materials shall be so described.
- K1.6 Curved work shall be so described.

K2 STRUCTURAL METALWORK

- K2.1 Unless otherwise stated, structural metalwork shall be measured by weight: classification shall be as follows:
 - K2.1.1 Grillages.
 - K2.1.2 Beams.
 - K2.1.3 Stanchions.
 - K2.1.4 Portal frames, stating the number.
 - K2.1.5 Roof trusses, stating the number.
 - K2.1.6 Support steelwork, which shall include sheeting rails, braces, struts or the like.
 - K2.1.7 Other classifications as may be appropriate.
- K2.2 *გაერთიანებული* Fittings, such as caps, bases, cleats, brackets, separators and the like (grouped together) shall be given as an item.
- K2.3 *გაერთიანებული* Fixings, such as bolts, distance pieces, rivets and the like (grouped together) shall be given as an item.
- K2.4 *მყვანილობა* Welding shall be given as an item.
- K2.5 Wedging and grouting bases or the like shall be enumerated.
- K2.6 Holding down bolts or the like shall be enumerated: temporary boxing and grouting shall be given in the description of the items.

K3 NON - STRUCTURAL METALWORK

- K3.1 Floor plates, duct covers, sheet metal coverings and linings, wire mesh and expanded metal coverings or the like shall be measured by area: work n.e. 0.30 m wide shall be so described.
- K3.2 Handrails, core-rails, balusters, newels, arch-bars, bearers, stays, frames and the like shall be measured by length: raking work shall be so described.
- K3.3 Matwell frames, straps, collars, hangers or the like shall be enumerated: lugs shall be given in the description of the items.
- K3.4 Connections such as bolting, screwing, welding and the like shall be deemed to be included with the items.

K4 COMPOSITE ITEMS

- K4.1 Balustrades, railings or the like shall be measured by length: raking work shall be so described.
- K4.2 Staircases and landings, cat ladders, gates, grilles and gratings, frames or the like shall be enumerated.
- K4.3 Connections such as bolting, screwing, welding and the like shall be deemed to be included with the items.

K5 SUNDRIES

- K5.1 Priming, galvanising or like protective treatments to structural metalwork members shall be given by the weight of members to be treated: treatment required to be executed before delivery to Site shall be so described.
- K5.2 Drilling holes (ie. holes for pipes and the like, countersunk holes, tapped holes etc) and cutting slots and the like in metalwork (other than work measured elsewhere in accordance with these Rules of Measurement) shall be deemed to be included with the items.

SECTION L - WOODWORK

L1 GENERAL PRINCIPLES

- L1.1 Particulars of the kind and quality of timber shall be given.
- L1.2 Sawn timber (ie. not milled timber) and wrought timber (ie. milled timber) shall be so described.
- L1.3 Unless otherwise stated, timber member sizes given in the description of items shall be deemed to be finished sizes.
- L1.4 Fixing timber members through vulnerable materials shall be so described.
- L1.5 Curved, conical, spherical and elliptical work shall be so described.

L2 STRUCTURAL TIMBERS

- L2.1 Structural timbers shall be measured by length: classification shall be as follows:
 - L2.1.1 Floor joists, beams or the like.
 - L2.1.2 Flat roof joists, beams or the like.
 - L2.1.3 Pitched roof struts, purlins, rafters, hip and valley rafters, ridge boards, ceiling joists, binders or the like.
 - L2.1.4 Wall studs and noggings or the like.
 - L2.1.5 Plates, bearers, kerbs or the like.
 - L2.1.6 Cleats, sprockets or the like.
- L2.2 Strutting and noggling between joists shall be measured by length.

L3 BOARDING

- L3.1 Roof boarding, which shall include tops and cheeks of dormers, shall be measured by area without addition for laps or joints: firings shall be given in the description of the items: no deduction shall be made for voids n.e. 0.50 m²: classification shall be as follows:
 - L3.1.1 Flat roof boarding.
 - L3.1.2 Roof boarding to falls, cross-falls and slopes n.e. 15 deg. from horizontal.
 - L3.1.3 Roof boarding to slopes 15 - 45 deg. from horizontal.
 - L3.1.4 Roof boarding over 45 deg. from horizontal.
 - L3.1.5 Vertical roof boarding.
- L3.2 Weather-boarding, gangway boarding or the like shall be measured by area: sloping or vertical work shall be so described.
- L3.3 Boarding to gutters, eaves, verges, fascias, barges or the like shall be measured by length: bearers shall be given in the description of the items: raking or vertical work shall be so described.

L4 FLOORING

- L4.1 Flooring shall be measured by area without addition for laps or joints: no deduction shall be made for voids n.e. 0.50 m²: classification shall be as follows:
 - L4.1.1 Board flooring: work in boards n.e. 0.30 m wide shall be so described.
 - L4.1.2 Strip flooring, stating the width of strips.
- L4.2 Flooring nosings, margins or the like shall be measured by length.
- L4.3 Access traps in flooring shall be enumerated as extra over the flooring in which they occur.

L5 FILLETS, GROUNDS, BATTENS AND FRAMEWORK

- L5.1 Angle-fillets, tilting-fillets, floor-fillets or the like shall be measured by length.
- L5.2 Open spaced grounds or battens to walls shall be measured by area, taken overall.
- L5.3 Individual grounds or battens shall be measured by length.
- L5.4 Skeleton framework shall be measured by area: work n.e. 0.30 m wide shall be so described.

L6 COVER FILLETS, EDGINGS AND BEADS

- L6.1 Cover fillets, which shall include architraves, skirtings, cornices or the like, shall be measured by length.
- L6.2 Edgings, which shall include window boards and nosings, sills, kerbs or the like, shall be measured by length.
- L6.3 Beads, which shall include stops or the like, shall be measured by length.

L7 LININGS AND CASINGS

- L7.1 Linings shall be measured by area: plain, matchboarded or panelled work shall be so described: no deduction shall be made for voids n.e. 0.50 m²: work n.e. 0.30 m wide shall be so described: classification shall be as follows:
 - L7.1.1 Walls, which shall include returns, reveals of openings and attached columns.
 - L7.1.2 Ceilings.
 - L7.1.3 Sloping soffits of staircases.
- L7.2 Casings shall be measured by area: plain, matchboarded or panelled work shall be so described: classification shall be as follows:
 - L7.2.1 Sides and soffits of attached and isolated beams (grouped together).
 - L7.2.2 Sides of isolated columns.
 - L7.2.3 Cantilevers.
 - L7.2.4 Lintels.
 - L7.3.5 Other classifications as may be appropriate.
- L7.3 Linings to ceilings, to sloping soffits of staircases or casings to sides and soffits of all types of beams at a height over 3.50 m from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages.
- L7.4 Mouldings, cappings, inlays or the like to linings or casings shall be given in the description of the items.
- L7.5 Access traps in linings or casings shall be enumerated as extra over the lining or casing in which they occur.

L8 COMPOSITE AND NON-COMPOSITE FITTINGS AND FIXTURES

- L8.1 Composite and non-composite work shall be so described.
- L8.2 Metalwork or the like, associated with composite work shall be given in the description of the items.
- L8.3 Cupboards, tables, work-benches, counters, dressers, book-cases, sinks, draining boards, backboards, seats or the like shall be enumerated: shelves, divisions, mirrors, tops or the like shall be given in the description of the items.
- L8.4 Handrails, balustrades, newels or the like shall be measured by length: raking work shall be so described.

L8.5 Staircases and landings, ladders, gates, frames or the like shall be enumerated.

L8.6 Applied coverings to fittings and fixtures (ie. plastics, veneers etc) shall be given in the description of the items stating whether on one or more faces: alternatively, applied coverings may be measured by area.

L9 SUNDRIES

L9.1 Cutting decorative grooves, chases or the like in woodwork surfaces shall be measured by length : alternatively, they may be enumerated.

L9.2 Drilling holes (ie. holes for pipes etc) in woodwork (other than work measured elsewhere in accordance with these Rules of Measurement) shall be deemed to be included with the items:

L10 METALWORK

Metalwork items (other than metalwork referred to in Rule L8.2) associated with woodwork shall be enumerated or measured by length as may be appropriate.

L11 IRONMONGERY

Units or sets of ironmongery for fittings and fixtures shall be enumerated.

SECTION M - DOORS AND WINDOWS

M1 GENERAL PRINCIPLES

- M1.1 Particulars of the kind and quality of materials shall be given.
- M1.2 Fixing doors and windows through vulnerable materials shall be so described.

M2 DOORS

- M2.1 Door sets, together with their frames or linings, shall be enumerated stating the method of fixing: panelled, flush and like types of doors shall be so described stating whether solid core, skeleton frame, cellular core or the like: glazing shall be given in the description of the items or alternatively, it may be measured separately: sliding, swinging or folding doors shall be so described.
- M2.2 Door sub-frames shall be enumerated: alternatively, they may be measured by length.
- M2.3 Door shutters shall be enumerated: sliding shutters shall be so described.
- M2.4 Weather moulds or the like shall be measured by length.

M3 WINDOWS

- M3.1 Windows, roof-lights, sky-lights or the like together with their frames shall be enumerated stating the method of fixing: mastic pointing shall be deemed to be included with the items: glazing shall be given in the description of the items or alternatively, it may be measured separately: side hung, folding, pivot hung, sliding or fixed window casements shall be so described.
- M3.2 Window sub frames shall be enumerated: alternatively, they may be measured by length.
- M3.3 Window shutters shall be enumerated: side hung, folding or sliding shutters shall be so described.
- M4.4 Weather moulds or the like shall be measured by length.

M4 SCREENS

- M4.1 Screens, borrowed lights, curtain walling or the like shall be measured by area or alternatively, they may be enumerated: glazing shall be given in the description of the items or alternatively, it may be measured separately.
- M4.2 Doors or windows occurring within a screen shall be enumerated.
- M4.3 Screen frames or sub-frames shall be measured by length: alternatively, they may enumerated.

M5 GLAZING

Glazing (other than work measured elsewhere in accordance with these Rules of Measurement) shall be measured as follows:

- M5.1 Unless otherwise stated, glass shall be measured by area: panes of irregular shape shall be measured as the smallest rectangle from which such irregular shape can be cut.
- M5.2 Sealed factory-glazed units shall be enumerated.
- M5.3 Glass louvres shall be measured by area: alternatively, they may be measured by length stating the number.

M5.4 Glass panes of special shape or with decorative treatment shall be enumerated.

M5.5 Mirrors shall be enumerated stating the method of fixing; alternatively, they may be measured by area.

M6 PATENT GLAZING

M6.1 Patent glazing shall be measured by area: classification shall be as follows:

M6.1.1 Roofs.

M6.1.2 Skylights, which shall include lantern lights.

M6.1.3 Vertical surfaces.

M6.2 Opening portions shall be enumerated.

M7 IRONMONGERY

Units or sets of ironmongery for doors and windows shall be enumerated.

SECTION N - MECHANICAL ENGINEERING INSTALLATIONS

N1 GENERAL PRINCIPLES

N1.1 Mechanical engineering installations shall be classified by function as follows:

- N1.1.1 Rainwater installation.
- N1.1.2 Sanitary installation.
- N1.1.3 Hot and cold water installation.
- N1.1.4 Heating, cooling and refrigeration installations, stating the type.
- N1.1.5 Ventilating and air conditioning installations, stating the type.
- N1.1.6 Fire fighting installation.
- N1.1.7 Hydraulic installation.
- N1.1.8 Compressed air installation.
- N1.1.9 Gas installation, stating the type.
- N1.1.10 Other classifications as may be appropriate.

N1.2 Particulars of the kind and quality of materials shall be given.

N1.3 Mechanical engineering installations shall be measured in accordance with the relevant Rules of this Section; alternatively, they may be enumerated on a locational basis (i.e. sanitary installation to Ground Floor etc.)

N1.4 Heating, cooling, refrigeration, ventilating and air conditioning installations external to buildings shall each be so described.

N2 GUTTERWORK

N2.1 Rainwater gutters shall be measured by length, taken along the centre line over all fittings: curved work shall be so described.

N2.2 Gutter fittings (i.e. bends, elbows, junctions, nozzle outlets etc) shall be deemed to be included with the items.

N3 PIPEWORK

N3.1 Pipes shall be measured by length, taken along the centre line over all fittings.

N3.2 Fittings to small pipes as defined under Rule GR 5.10 shall be deemed to be included with the items: fittings to large and extra large pipes as defined under Rule GR 5.10 shall be enumerated and grouped together for each size of pipe: joints between pipes in the running length shall be deemed to be included with the items.

N3.3 Valves, traps, expansion compensators or the like shall be enumerated.

N4.4 Connections between pipes and equipment shall be deemed to be included with the items.

N4 DUCTWORK

N4.1 Rectangular ductwork shall be measured by length or alternatively, by weight taken along the centre line over all fittings: blank ends shall be added: no deduction shall be made for intersections or openings: extra lengths or weight for seams, stiffeners, supports, fixings or the like shall be deemed to be included with the items.

N4.2 Circular, oval and flexible ductwork shall be measured by length, taken along the centre line over all fittings.

N4.3 Fittings to rectangular ductwork shall be deemed to be included with the items.

N4.4 Fittings to circular and oval ductwork (excluding test holes and covers) shall be enumerated and grouped together for each size of duct.

N4.5 Dampers, grilles, flexible connectors or the like shall be enumerated.

N4.6 Connections between ductwork and equipment shall be deemed to be included with the items.

N5 EQUIPMENT

N5.1 Sanitary fittings, tanks, fans, pumps, hoods, air handling units, or the like shall be enumerated.

N5.2 Continuous convectors or the like shall be measured by length.

N5.3 Heated or ventilated ceilings or the like shall be measured by area.

N6 AUTOMATIC CONTROLS

N6.1 Sensing or activating devices (i.e. thermostats, humidistats, motorised valves etc), control panels, air compressors and receivers or the like shall be enumerated.

N6.2 Wiring, pneumatic tubing, isolators, starters, relays or the like, associated with automatic controls, shall be deemed to be included with the items.

N6.3 Alternatively, automatic control systems shall be given as an item for each installation but equipment common to more than one system shall be enumerated.

N7 CONNECTIONS TO SUPPLY MAINS

Connections to supply mains shall be enumerated subject to the provisions of Sub-Section A13.

N8 INSULATION, LININGS AND PROTECTIVE COVERINGS

N8.1 Insulation to pipe work shall be measured by length taken along the centre line over all fittings.

N8.2 Insulation to rectangular ductwork shall be measured by area over all fittings.

N8.3 Insulation to circular, oval and flexible ductwork shall be measured by length, taken along the centre line over all fittings.

N8.4 Insulation boxes around accessories shall be enumerated.

N8.5 Insulation to equipment shall be enumerated.

N9 SUNDRIES

An item shall be given for each of the following:

N9.1 Supplying supports, which shall include lugs, brackets, hangers, sleeves, plates, anchors, insulating blocks, anti-vibration devices and the like.

N9.2 Marking positions, which shall include marking the position of holes, mortices, chases and the like.

N9.3 Identification, which shall include plates, discs, labels, charts, colour coding and the like.

N9.4 Testing and commissioning, which shall include operating and adjusting completed installations.

N9.5 Tools and spares, which shall include loose keys and consumable stores.

N9.6 Documentation, which shall include as fitted drawings, operating instructions, and maintenance manuals.

N10 BUILDER'S WORK IN CONNECTION WITH MECHANICAL ENGINEERING INSTALLATIONS

N10.1 An item shall be given for builder's work in connection or incidental with each classification of the mechanical engineering installations, which shall include wherever applicable the builder's work referred to in Rule A11.1.5.

N10.2 Any other builder's work in connection or incidental with mechanical engineering installations, which is required to be measured separately under these Rules of Measurement, shall be given in accordance with the relevant Sections of these Rules of Measurement.

SECTION P - ELECTRICAL ENGINEERING INSTALLATIONS

P1 GENERAL PRINCIPLES

P1.1 Electrical engineering installations shall be classified by function as follows:

- P1.1.1 Main switchgear (i.e. high voltage gear, transformers, medium voltage gear etc) and any other equipment serving more than one distribution group.
- P1.1.2 Power distribution.
- P1.1.3 Lighting.
- P1.1.4 Heating, cooling and refrigeration.
- P1.1.5 Ventilating and air conditioning.
- P1.1.6 Communications (i.e. telephones, facsimiles etc).
- P1.1.7 Sound distribution.
- P1.1.8 Signals.
- P1.1.9 Security (i.e. fire alarms, burglar alarms etc).
- P1.1.10 Bells and clocks.
- P1.1.11 Earthing conductors.
- P1.1.12 Lightning conductors.
- P1.1.13 Other classifications as may be appropriate.

P1.2 Particulars of the kind and quality of materials and the type and voltage of the main electricity supply shall be given.

P1.3 Electrical engineering installations shall be measured in accordance with the relevant rules of this Section: alternatively, they may be enumerated on a locational basis (i.e. lighting installation, to Ground Floor etc).

P1.4 The references hereunder to "cable " shall be deemed to include tape, bus-bar trunking or the like.

P1.5 The references hereunder to "conduit" shall be deemed to include trunking, cable tray, ducting or the like.

P2 MAIN CIRCUITS

P2.1 For the purposes of measurement the term "main" shall be deemed to mean "the incoming supply to the main distribution board within a building or a building complex".

P2.2 Cables shall be measured by length.

P2.3 Conduits shall be measured by length.

P3 SUB-MAIN CIRCUITS

P3.1 For the purposes of measurement the term "sub-main shall be deemed to mean" the supply from the main distribution board to a sub-main distribution board.

P3.2 Cables to individual sub-main circuits shall be enumerated and identified, as may be appropriate: alternatively, they may be measured by length.

P3.3 Conduits to individual sub-main circuits shall be enumerated and identified, as may be appropriate: alternatively, they may be measured by length.

P4 FINAL SUB-CIRCUITS AND AUXILIARY INSTALLATIONS

Cables and conduits to termination points shall be enumerated: classification shall be as follows:

P4.1 Lighting points.

P4.2 Lighting switch points, stating whether one-way, two-way or intermediate.

P4.3 General purpose socket outlets: multi-gang socket outlets and the like shall count as one point.

P4.4 Equipment points, stating the type of equipment or the electrical rating: contactors, starters and the like shall be so described as equipment points.

P4.5 Auxiliary installation points (i.e. bell pushes, telephone outlets etc).

P5 ACCESSORIES

Ceiling roses and pendants, lighting switches, socket outlets, bell pushes or the like shall be enumerated.

P6 CONTROL GEAR

Switchgear, distribution gear, contactors, starters, composite switch boards or the like shall be enumerated.

P7 EQUIPMENT

P7.1 Transformers, generators, standby power cubicles, luminaries, external lighting columns, clocks, loudspeakers, bells or the like shall be enumerated.

P7.2 Controls, which shall include accessories and interconnecting cables, shall be measured in accordance with the relevant rules of this Section: alternatively, they may be included with the items of equipment.

P8 CONNECTIONS TO SUPPLY MAINS

Connections to supply mains shall be enumerated subject to the provisions of Sub-Section A13.

P9 SUNDRIES

An item shall be given for each of the following:

P9.1 Supplying supports, which shall include pin-racks, saddles, cleats, clips, hangers, suspenders, D-irons, insulators, sleeves, plates and the like.

P9.2 Marking positions, which shall include marking the positions of holes, mortices and the like.

P9.3 Identification, which shall include plates, discs, labels, charts, colour coding and the like.

P9.4 Testing and commissioning, which shall include operating and adjusting completed installations.

P9.5 Tools and spares, which shall include loose keys and consumable stores.

P9.6 Documentation, which shall include as fitted drawings, operating instructions, maintenance manuals and the like.

P10 BUILDER'S WORK IN CONNECTION WITH ELECTRICAL ENGINEERING INSTALLATIONS

P10.1 An item shall be given for builder's work in connection or incidental with each classification of the electrical engineering installations, which shall include wherever applicable the builder's work referred to in Rule A11.1.5.

P10.2 Any other builder's work in connection or incidental with electrical engineering installations, which is required to be measured separately under these Rules of Measurement, shall be given in accordance with the relevant Sections of these Rules of Measurement.

SECTION Q - TRANSPORT SYSTEMS INSTALLATIONS

Q1 GENERAL PRINCIPLES

Q1.1 Transport systems installations shall be classified by function as follows:

- Q1.1.1 Lifts.
- Q1.1.2 Escalators.
- Q1.1.3 Moving pavements.
- Q1.1.4 Hoists and cranes.
- Q1.1.5 Travelling cradles.
- Q1.1.6 Goods distribution and mechanised warehousing.
- Q1.1.7 Mechanical document conveying.
- Q1.1.8 Pneumatic document conveying.
- Q1.1.9 Automatic document filing and retrieval.
- Q1.1.10 Other classifications as may be appropriate.

Q1.2 Particulars of the kind, size, capacity, loading and floors to be served shall be given.

Q2 SYSTEMS

Transport systems shall be enumerated: references to specifications and component drawings shall be given in the description of the items.

Q3 SUNDRIES

An item shall be given for each of the following:

- Q3.1 Supplying supports, which shall include lugs, brackets, hangers, sleeves, plates, anchors, insulating blocks, anti-vibration devices and the like.
- Q3.2 Marking positions, which shall include marking the positions of holes, mortices, chases and the like.
- Q3.3 Identification, which shall include plates, discs, labels, charts, colour coding and the like.
- Q3.4 Testing and commissioning, which shall include operating and adjusting completed installations.
- Q3.5 Tools and spares, which shall include loose keys and consumable stores.
- Q3.6 Documentation, which shall include as fitted drawings, operating instructions and maintenance manuals.

Q4 BUILDER'S WORK IN CONNECTION WITH TRANSPORT SYSTEMS INSTALLATIONS

- Q4.1 An item shall be given for builder's work in connection or incidental with each classification of the transport systems installations, which shall include wherever applicable the builder's work referred to in Rule A11.1.5.
- Q4.2 Any other builder's work in connection or incidental with transport systems installations, which is required to be measured separately under these Rules of Measurement, shall be given in accordance with the relevant Sections of these Rules of Measurement.

SECTION R – PARTITIONING, SUSPENDED CEILINGS AND RAISED FLOORS

R1 GENERAL PRINCIPLES

- R1.1 Particulars of the kind and quality of materials shall be given.
- R1.2 The method of fixing and jointing partitioning, suspended ceilings' and raised floors members shall be given.

R2 PARTITIONING

eg. pyramids

- R2.1 Unless otherwise stated, partitioning shall be measured ~~by length~~ including all angles, tee-junctions and the like, ~~taken over all doors~~ glazed units and voids and without addition for lapped joints: head and sole plates, jointing battens, studs, metal stiffening sections, firings, thermal or sound insulation material, lining, and the like shall be given in the description of the items: classification shall be as follows:

- R2.1.1 Fixed partitions.
- R2.1.2 Demountable partitions.

- R2.2 Doors and glazed units occurring within fixed or demountable partitions shall be ~~enumerated~~ *eg. 900x2200* *1 ref.*
- R2.3 Sets of cubicle partitions shall be enumerated: doors and glazed units occurring within cubicle partitions shall be given in the description of the items.

- R2.4 Trims, beads, additional supports for fixing heavy fittings or the like shall be deemed to be included with the items.

- R2.5 Curved partitions shall be so described stating the radius.

slab
I??

R3 SUSPENDED CEILINGS

- R3.1 Suspended ceilings shall be measured by area stating the suspension drop (taken from the main structural soffit to the ceiling panel or lining): framing, suspension system with spacing of supports and method of fixing to the structure, thermal or sound insulation material, ceiling panels or lining and the like shall be given in the description of the items: no deduction shall be made for voids n.e. 0.50 m²: work n.e. 0.30 m wide shall be so described; work in insulated areas n.e. 1.00 m² shall be so described: sloping work or work to sloping structural soffits shall be so described stating the av. suspension drop.
- R3.2 Non -suspended ceiling panels or linings, which form an integral part of the suspended ceilings, fixed to sides of walls or to sides and soffits of beams or upstands, shall be measured by area: framing and method of fixing to the structure shall be given in the description of the items: work n.e. 0.30 m wide shall be so described.
- R3.3 Glazed units, ceiling hatches or ceiling panels made from different material occurring within suspended ceilings shall be enumerated.
- R3.4 Trims, beads, additional supports for fixing heavy lighting fittings and the like shall be deemed to be included with the items.
- R3.5 Work to ceilings, beams and upstands at a height over 3.50 m (taken from the main structural soffit) from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages.
- R3.6 Curved, conical, spherical and elliptical work shall be so described stating the radius or radii.

R4 RAISED FLOORS

- R4.1 Raised floors shall be measured by area stating the clearance below the raised access floors: construction supporting system with spacing of supports and method of fixing to the structure, floor panels or lining and the like shall be given in the description of the items: no deduction shall be made for voids n.e. 0.50 m²: work n.e. 0.30 m wide shall be so described: work in isolated areas n.e. 1.00 m² shall be so described.
- R4.2 Access floor traps or floor panels made from different material occurring within raised floors, shall be enumerated.
- R4.3 Skirtings, edge trims or the like shall be measured by length.

R5 SUNDRIES

- R5.1 Forming or cutting holes in all types of partitioning, suspended ceilings and raised floors, for any purpose, (other than work measured elsewhere in accordance with these Rules of Measurement) shall be deemed to be included with the items.
- R5.2 Working suspended ceilings and raised floors around obstructions, columns, wall recesses and projections, shall be deemed to be included with the items.
- R5.3 Making good partitioning, suspended ceiling and raised floor surfaces in connection with cutting holes shall be deemed to be included with the items.

R6 IRONMONGERY

Units or sets of ironmongery for doors occurring within all types of partitions shall be enumerated.

SECTION S - FINISHINGS

S1 GENERAL PRINCIPLES

- S1.1 Particulars of the kind, quality, composition and mix of materials shall be given.
- S1.2 Work to external surfaces (other than work given in a separate Bill as External Works in accordance with the provisions of Rule GR 2.4) shall be so described.
- S1.3 Work to patterns or in more than one colour shall be so described, giving details thereof.
- S1.4 Curved, conical, spherical and elliptical work shall be so described.

S2 IN-SITU FINISHINGS

- S2.1 In-situ finishings (i.e. plaster, granolithic, cobbles, tarmacadam etc) shall be measured net taken as the work in contact with the base without addition for laps or seams stating the number of coats, the nature of surface treatment (i.e. steel-trowelled, wood-floated, polished etc) and any special treatment to the base.
- S2.2 In-situ finishings referred to in this Rule shall be measured by area: no deduction shall be made for voids n.e. 0.50 m²: work to faces n.e. 0.30 m wide shall be so described: work to isolated faces n.e. 1.00 m² shall be so described: classification shall be as follows:
 - S2.2.1 To floors, roofs, roads, pavements or the like: work laid in bays shall be so described stating the av. size of bays: work laid in one operation with the base shall be so described: classification shall be as follows:
 - S2.2.1.1 Level work.
 - S2.2.1.2 Work to falls, cross-falls and slopes n.e. 15 deg. from horizontal.
 - S2.2.1.3 Work to slopes over 15 deg. from horizontal.
 - S2.2.2 To vertical or battering walls, which shall include surfaces of attached columns and piers, retaining walls, parapet walls, wall ends, wall upper surfaces, reveals of openings, recesses and the like occurring in walls.
 - S2.2.3 To horizontal or sloping ceilings, which shall include surfaces of attached beams, sides of openings, recesses and the like occurring in ceilings.
 - S2.2.4 To horizontal or sloping soffits of staircases, which shall include soffits of landings.
 - S2.2.5 To horizontal or sloping isolated beams, which shall include beam upper surfaces.
 - S2.2.6 To horizontal or sloping upstands, which shall include upstand upper surfaces.
 - S2.2.7 To vertical or battering isolated columns and piers.
 - S2.2.8 To floors of staircase landings.
- S2.3 Work to ceilings, to soffits of staircases or to isolated beams at a height over 3.50 m from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages.
- S2.4 In-situ finishings referred to in this Rule shall be measured by length: classification shall be as follows:
 - S2.4.1 To treads or to plain or undercut risers of staircases.
 - S2.4.2 To staircase-strings.
 - S2.4.3 To channels, stating the girth on face: horizontal or raking work shall be so described.
 - S2.4.4 Skirtings, kerbs, cappings or the like: flush, raking or vertical work shall be so described.

- S2.4.5 Coves, mouldings, cornices, architraves or the like, stating the girth on face: raking, vertical or undercut work shall be so described: forming rounded edges, angles and corners shall be deemed to be included with the items.
- S2.4.6 Bands, margins or the like, stating the girth on face: flush, raised or sunk work shall be so described.

S3 TILE, SLAB OR BLOCK FINISHINGS

- S3.1 Tile, slab or block finishings (ie. precast concrete, precast terrazzo, precast mosaic, natural stone, cast stone, marble, ceramic, linoleum, rubber, cork etc) shall be measured net taken as the work in contact with the base without addition for laps or seams, stating the size, the bedding or other method of fixing, grouting, pointing or other finish to joints and any special treatment to the base.
- S3.2 Tile, slab or block finishings to surfaces referred to in Rule S2.2 shall be measured by area, classified and given in accordance with the provisions thereof: provisions of Rule S2.3 shall apply.
- S3.3 Tile, slab or block finishings referred to in this Rule shall be measured by length: classification shall be as follows:
 - S3.3.1 To treads or to plain or undercut risers of staircases.
 - S3.3.2 To staircase-strings.
 - S3.3.3 To channels, stating the girth on face: horizontal or raking work shall be so described.
 - S3.3.4 Skirtings, kerbs, copings, sills or the like: flush, raking or vertical work shall be so described.
 - S3.3.5 Bands, margins or the like, stating the girth on face: flush, raised or sunk work shall be so described.
- S3.4 Special tiles, slabs or blocks to produce coved junctions, moulded edges or the like shall be measured by length as extra over the work in which they occur: special units to form fair or rounded edges, angles and corners shall be deemed to be included with the items.
- S3.5 Special tiles, slabs, or blocks to produce regular features shall be enumerated: units occurring on other tile, slab or block finishings shall be given as extra over the work in which they occur.
- S3.6 Ornamental work and other work to produce irregular features shall be enumerated: work occurring on other tile, slab or block finishings shall be given as extra over the work in which they occur.

S4 PLAIN SHEET FINISHINGS

- S4.1 Plain sheet finishings (i.e. plywood, chipboard, plasterboard, fibreboard, plastics, linoleum, cork, rubber, steel, lead, zinc, aluminium, copper etc) shall be measured net taken as the work in contact with the base without addition for laps or seams stating the method of fixing and any special treatment to the base.
- S4.2 Plain sheet finishings to surfaces referred to in Rule S2.2 shall be measured by area, classified and given in accordance with the provisions thereof: provisions of Rule S2.3 shall apply.
- S4.3 Plain sheet finishings referred to in this Rule shall be measured by length: classification shall be as follows:
 - S4.3.1 To channels, stating the girth on face : horizontal or raking work shall be so described.
 - S4.3.2 Bands, margins or the like, stating the girth on face: flush, raised or sunk work shall be so described.
 - S4.3.3 To recesses, projections or the like, stating the girth on face: forming rounded edges, angles and corners shall be deemed to be included with the items.

S5 FITTED CARPETING

- S5.1 Carpeting shall be measured net taken as the work in contact with the base stating the method of fixing and any special treatment to the base: sheet carpeting and tile carpeting shall be so described.
- S5.2 Fitted carpeting to surfaces referred to in Rule S2.2 shall be measured by area, classified and given in accordance with the provisions there of: provisions of Rule S2.3 shall apply.
- S5.3 Fitted carpeting to treads and risers (grouped together) shall be measured by area.
- S5.4 Fitted carpeting referred to in this Rule shall be measured by length: classification shall be as follows:
- S5.4.1 To staircase-strings.
 - S5.4.2 To channels, stating the girth on face: horizontal or raking work shall be so described.
 - S5.4.3 Skirtings, kerbs or the like: flush, raking or vertical work shall be so described: timber, plastic or metal skirting grounds shall be given with the description of the items.
 - S5.4.4 Bands, margins or the like, stating the girth on face: flush, raised or sunk work shall be so described.
 - S5.4.5 To recesses, projections or the like stating the girth on face.
- S5.5 Special carpet tiles or carpet strips to produce regular or irregular features shall be enumerated as extra over the work in which they occur.

S6 LATHING AND BASEBOARDING

- S6.1 Lathing (ie. wood, metal etc) and baseboarding (ie. plasterboarding, insulating fibreboarding etc) shall each be measured net taken as the work in contact with the finishing applied thereon without addition for laps or seams, stating the method of fixing.
- S6.2 Lathing and baseboarding shall each be measured in accordance with the Rules appertaining to the measurement of the relevant finishing items.

S7 BEDS AND BACKINGS

- S7.1 Beds and backings shall be measured net taken as the work in contact with the base, stating the number of coats if more than one, any special treatment to the base and the nature of surface treatment (i.e. screeded, steel-trowelled, wood-floated etc).
- S7.2 Beds and backings shall be measured in accordance with the Rules appertaining to the measurement of the relevant finishing items.
- S7.3 Reinforcement to beds and backings shall be given with the description of the items.

S8 SUNDRIES

- S8.1 Expansion joints, cover strips, dividing strips, anti-crack lath strips at junction of differing bases, non-slip inserts or the like shall be measured by length: alternatively, they may be given with the description of the items.
- S8.2 Separating membranes to tile, slab or block finishings shall be measured by area.
- S8.3 Carpet accessories such as stair rod holders, grippers, binder bars or the like shall be deemed to be included with the items.

SECTION T - PAINTING AND DECORATING

T1 GENERAL PRINCIPLES

- T1.1 Particulars of the kind and quality of materials shall be given.
- T1.2 Work on external surfaces (other than work given in a separate Bill as External Works in accordance with the provisions of Rule GR2.2), except work on doors, windows, screens and frames thereof, shall be so described.
- T1.3 Material required to be applied by a particular method (i.e. spraying etc) shall be so described stating the method.
- T1.4 Work in more than one colour shall be so described giving details thereof.

T2 PAINTING

- T2.1 Painting shall be measured net taken as the area covered (allowances shall be made for the extra girth of sinkings, projections, corrugation etc) stating the nature of base, the number of priming or sealing coats, the number of undercoats and the number of finishing coats: preparatory work (i.e. rubbing down, burning off, knotting, stopping etc) shall be deemed to be included with the items.
- T2.2 Painting referred to in this Rule shall be measured by area: no deduction shall be made for voids n.e. 0.50 m²: work on isolated surfaces n.e. 0.30 m girth shall be so described: work on isolated surfaces n.e. 1.00 m² shall be so described: classification shall be as follows:
 - T2.2.1 On floors, roofs or the like.
 - T2.2.2 On walls, which shall include surfaces of attached columns and piers, retaining walls, parapet walls, wall ends, wall upper surfaces, reveals of openings, recesses and the like occurring in walls.
 - T2.2.3 On ceilings, which shall include surfaces of attached beams, sides of openings, recesses and the like occurring in ceilings.
 - T2.2.4 On soffits of staircases, which shall include soffits of landings.
 - T2.2.5 On isolated beams, which shall include beam upper surfaces.
 - T2.2.6 On upstands, which shall include upstand upper surfaces.
 - T2.2.7 On isolated columns and piers.
 - T2.2.8 On staircases, which shall include landings, treads, risers, strings and edges of landings.
 - T2.2.9 On doors: work on glazed doors (measured flat over glass) shall be so described.
 - T2.2.10 On windows (measured flat over glass, mullions, transoms and architraves).
 - T2.2.11 On screens (measured flat over glass) which shall include doors and windows occurring within a screen.
 - T2.2.12 On partitions which shall include doors occurring within a partition: work on glazed partitions (measured flat over glass) shall be so described.
 - T2.2.13 On isolated general surfaces, which shall include door and window frames, cornices, skirtings, architraves and the like.
 - T2.2.14 On structural metalwork, which shall include roof trusses, lattice girders, purlins and the like.
 - T2.2.15 On radiators, measured over the area of the heating surfaces.
 - T2.2.16 On railings, fences and gates (grouped together), stating the type (i.e. plain open, close etc).
 - T2.2.17 On gutters, measured over the external and internal surfaces.
 - T2.2.18 On large and extra large service pipes: work on hangers, supports or the like shall be deemed to be included with the items.
- T2.3 Work on ceilings, on soffits of staircases or on isolated beams at a height over 3.50 m from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages.
- T2.4 Painting on small pipes shall be measured by length: work on hangers, supports or the like shall be deemed to be included with the items.
- T2.5 Painting on gratings, rainwater heads or the like shall be enumerated.

T3 SIGNWRITING

Signwriting letters, numerals or the like shall be enumerated.

T4 DECORATIVE PAPERS AND FABRICS

T4.1 Decorative papers and fabrics shall be measured net taken as the area covered, stating the nature of base, the method of fixing and any special treatment to the base.

T4.2 Decorative papers and fabrics referred to in this Rule shall be measured by area: no deduction shall be made for voids n.e. 0.50 m²: work on faces n.e. 0.30 m wide shall be so described: work on isolated faces n.e. 1.00 m² shall be so described: classification shall be as follows:

T4.2.1 On vertical or battering walls, which shall include surfaces of attached columns and piers, retaining walls, parapet walls, wall ends, wall upper surfaces, reveals of openings, recesses and the like occurring in walls.

T4.2.2 To horizontal or sloping ceilings, which shall include surfaces of attached beams, sides of openings, recesses and the like occurring in ceilings.

T4.2.3 To horizontal or sloping soffits of staircases which shall include soffits of landings.

T4.4.4 To horizontal or sloping isolated beams, which shall include beam upper surfaces.

T4.4.5 To horizontal or sloping upstands which shall include upstand upper surfaces.

T4.4.6 To vertical or battering isolated columns and piers.

T4.3 Work on ceilings, on soffits of staircases or on isolated beams at a height over 3.50 m from the immediately below floor level shall be so described stating the height thereafter in 1.50 m stages.

T4.4 Decorative papers and fabrics referred to in this Rule shall be measured by length: classification shall be as follows:

T4.4.1 On staircase-strings.

T4.4.2 On bands, margins or the like: border strips and the like shall be deemed to be included with the items.

SECTION U - DRAINAGE

U1 GENERAL PRINCIPLES

U1.1 Drainage work shall be classified as follows:

U1.1.1 Foul water drainage.

U1.1.2 Surface or underground water drainage.

U1.2 For the purposes of identification, work to be measured under this Work Section shall be deemed to include external drainage work (i.e. work beyond the external walls of a building) from and including the first external manhole: drainage work up to the first external manhole shall be deemed to be measured under Sanitary installation in Work Section N.

U1.3 Applicable principles Rules under Work Section C.

U1.4 Particulars of the kind and quality of materials shall be given.

U2 PIPE TRENCHES

Trench excavation for drain pipes shall be measured by length, stating the av. depth of the trench and the internal diam. of the pipe: trimming bottoms, backfilling, compacting and disposal shall be deemed to be included with the items.

U3 PIPES, FITTINGS AND ACCESSORIES

U3.1 Drain pipes shall be measured by length, taken along the centre line over all fittings, stating the method of jointing: work within inspection chambers or the like shall be so described and shall be deemed to include fixings and supports: suspended or vertical pipes shall be so described.

U3.2 Fittings to pipes (i.e. bends, elbows, junctions, reducers etc) shall be enumerated and grouped together for each size of pipe: joints between pipes in the running length shall be deemed to be included with the items.

U3.3 Accessories (i.e. gullies, traps, inspection shoes, fresh air inlets, non-return flaps etc) shall be enumerated: jointing pipes to accessories, additional excavation, bedding in concrete and providing gratings, sealing plates and the like shall be deemed to be included with the items.

U3.4 Concrete beds, benchings or coverings for drain pipes shall be measured by length stating the internal diam. of the pipe: surrounds to vertical pipes shall be so described: formwork to concrete surfaces shall be deemed to be included with the items.

U4 MANHOLES, SOAKAWAYS, CESSPITS AND SEPTIC TANKS

U4.1 Inspection chambers, manholes, soakaways, cesspits, septic tanks or the like shall be enumerated stating the internal sizes: excavation, disposal, concrete, reinforcement, formwork, brickwork, water proofing, channels, concrete benching, foot-irons, intersecting traps and the like shall be given in the description of the items: building in ends of pipes shall be deemed to be included with the items: alternatively, inspection chambers, manholes, soakaways, cesspits, septic tanks or the like may be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement.

U4.2 Covers to inspection chambers, manholes or the like shall be enumerated.

U5 SURFACE WATER DRAIN CHANNELS

U5.1 Surface water drain channels shall be measured by length: curved work shall be so described: excavation, disposal, concrete, reinforcement, formwork, brickwork, waterproofing, and the like shall be given in the description of the items.

U5.2 Gratings to surface water drain channels shall be measured by length.

U6 CONNECTIONS TO EXISTING DRAINS AND PUBLIC SEWERS

Connecting ends of drains to existing drains or public sewers (subject to the provisions of Sub-Section A13) shall be enumerated: making good existing work, public pavements, roads and the like shall be given in the description of the items.

SECTION V - FENCING AND BOUNDARY WALLING

V1 GENERAL PRINCIPLES

Particulars of the kind and quality of materials shall be given.

V2 FENCING

- V2.1 Fencing shall be measured by length over supports (i.e. posts or the like occurring at regular intervals) and special supports (i.e. posts or the like, other than those occurring at regular intervals) stating the type, the height and the spacing height and depth of supports: horizontal fixing or grouting ends of fencing to strip concrete base shall be given in the description of the items: excavating holes or forming holes to concrete for supports and special supports, compacting, disposal and supports shall be deemed to be included with the items.
- V2.2 Curved fencing (i.e. fencing curved between supports) or raking fencing shall be so described.
- V2.3 Special supports (i.e. end posts, angle posts, integral and independent posts, straining posts etc) shall be enumerated.
- V2.4 Strip concrete base for fencing shall be measured by length: excavation, compacting, disposal, reinforcement and formwork shall be given in the description of the items.
- V2.5 Gates, barriers or the like shall be enumerated: gate stops, catches and stays shall be deemed to be included with the items.
- V2.6 Painting and decorating to fencing shall be measured in accordance with the provisions of Work Section T.

V3 BOUNDARY WALLING

Boundary walling shall be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement.

SECTION W - ACCESSORIES, EQUIPMENT AND FURNISHINGS

W1 GENERAL PRINCIPLES

W1.1 For the purposes of identification, the following definitions shall apply in respect of accessories, equipment and furnishings to be measured under this Work Section:

- W1.1.1 Accessories, shall be deemed to mean those accessories which will be specially manufactured for the purposes of the project or proprietary items not included in other Work Sections.
- W1.1.2 Equipment, shall be deemed to mean the specialist equipment related solely to the function of a building or department (i.e. food preparation or service equipment, laboratory equipment, stage equipment etc).
- W1.1.3 Furnishings, shall be deemed to mean loose furniture, fittings or the like related to the occupation and use of a building or department (i.e. rugs, curtains, artwork, ashtrays, furnishing accessories etc).

W1.2 Particulars of the kind and quality of materials shall be given.

W2 ACCESSORIES

Accessories shall be enumerated.

W3 EQUIPMENT

Each category of equipment shall be given as an item : alternatively, individual items of equipment may be enumerated.

W4 FURNISHINGS

W4.1 Each category of furnishing shall be given as an item: alternatively, individual items of furnishing may be enumerated or measured by length, as may be appropriate.

W4.2 Curtain trucks or the like shall be measured by length: hooks, gliders, stops or the like shall be deemed to be included with the items.

SECTION X - WORKS OF SPECIAL CONSTRUCTION

X1 GENERAL PRINCIPLES

- X1.1 For the purposes of identification, works of special construction to be measured under this Work Section shall be deemed to mean works of a specialist nature not included in other Work Sections.
- X1.2 Particulars of the kind and quality of materials shall be given.

X2 DREDGING

Dredging shall be measured by volume stating the location and limits: unless otherwise stated, measurement shall be deemed to have been taken from soundings.

X3 TUNNELLING

- X3.1 Tunnel excavation shall be measured by volume, which shall be deemed to include the volume of permanent linings, grouped as may be appropriate identify different lengths: classification shall be as follows:
- X3.1.1 Straight tunnels.
 - X3.1.2 Straight shafts.
 - X3.1.3 Curved tunnels.
 - X3.1.4 Curved shafts.
 - X3.1.5 Tapered tunnels.
 - X3.1.6 Tapered shafts.
 - X3.1.7 Other cavities, which shall include transitions, breakways and intersections between shafts and tunnels.
- X3.2 Forward probing shall be measured by length, stating the number of probes.
- X3.3 Disposal of excavated material in tunneling shall be measured in accordance with the provisions of Sub-Section C7.
- X3.4 In-situ concrete linings to tunnels shall be measured by area, stating whether spray or cast concrete: classification shall be as follows:
- X3.4.1 Primary lining.
 - X3.4.2 Secondary lining.
- X3.5 Reinforcement for in-situ concrete linings shall be measured in accordance with the provisions of Sub-Section E3.
- X3.6 Formwork to surfaces of in-situ concrete linings shall be measured in accordance with the provisions of Sub-Section E4.
- X3.7 Pre-formed segmental tunnel linings shall be enumerated stating the method of jointing.
- X3.8 Timber tunnel supports shall be measured by area.
- X3.9 Sprayed concrete tunnel supports and reinforcement shall be measured by area.
- X3.10 Rock bolts for tunnel stabilisation shall be measured by length.
- X3.11 Face packers shall be enumerated.
- X3.12 Metal arch tunnel supports shall be measured by weight.
- X3.13 Injection of grout materials shall be measured by weight.

X4 DIAPHRAGM WALLS

- X4.1 Unless otherwise stated, diaphragm walls shall be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement.
- X4.2 Guide walls shall be measured by length stating whether to one or both sides: excavation, disposal, support concrete, reinforcement, formwork and the like shall be given in the description of the items.
- X4.3 Preparing, cast in pockets or chases at junctions, removal and disposal of guide walls and the like shall be deemed to be included with the items.

X5 ENCLOSURES AND INSTALLATIONS OF A SPECIALIST NATURE

- X5.1 Enclosures of a specialist construction (i.e. air supported or geodetic structures, prefabricated buildings etc) shall be enumerated: work within the enclosure which does not form part of the specialist construction shall be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement.
- X5.2 Installations of a specialist nature (i.e. radiation or chemical protection etc) shall be given as an item: alternatively, they may be measured in accordance with the Rules appertaining to the measurement of work in each Work Section in these Rules of Measurement.