ABERDEEN CITY COUNCIL

ABERDEENSHIRE COUNCIL

THE MORAY COUNCIL

ANNUAL MAINTENANCE CONTRACT 2011/2012

CONDITIONS OF CONTRACT

SPECIFICATION

PREAMBLES TO THE BILL OF QUANTITIES

Aberdeenshire COUNCIL

BON ACCORD

ABERDEEN CITY COUNCIL

the moray Council

Issue Date : 25 April 2011 **Revision : Original Issue**

ANNUAL MAINTENANCE CONTRACT 2011/2012

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DOCUMENT REVISION RECORD

Revision Number	Issue Date	Description of Revision

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The Conditions of Contract referred to in the Tender shall be the I C E Conditions of Contract for Minor Works (Third Edition) (2001) including Amendments dated July 2004, March 2007 and April 2008 approved by the Institution of Civil Engineers jointly with the Association of Consulting Engineers and the Civil Engineering Contractors Association, modified and added to as below.

SPECIAL CONDITIONS

CLAUSE 14

The Contractor shall comply with the Special Requirements in relation to the following Statutory and other bodies: -

Scotia Gas Networks
British Telecommunications P.L.C.
Scottish & Southern Energy P L C
Lighting Works
Scottish Water
Scottish Environmental Protection Agency
Network Rail
B P Development Ltd
Scottish Government in relation to Environment and Rural Affairs
British Pipeline Agency Ltd
Cable & Wireless
BAA PLC

as set out in the pages immediately following. Compliance with these Special Requirements shall not relieve the Contractor of any of his obligations and liabilities under the Contract and fulfilment of such other obligations and liabilities shall not relieve him of his responsibility to comply with the said Special Requirements.

SPECIAL REQUIREMENTS IN RELATION TO SCOTIA GAS NETWORKS.

1. In these Special Requirements the following terms shall have the meanings assigned to them: -

   (i) 'Company' means Scotia Gas Networks.

   (ii) 'Company Representative' means the staff of Scotia Gas Networks or its Authorised Representatives and Agents.

   (iii) 'Apparatus' means all surface or sub-surface equipment and plant including any gas pipeline(s), main and/or service owned, leased or rented by Scotia Gas Networks.

2. Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of any Apparatus within the Site with the Company Representative, who can be contacted at the following point: -

   Address: - Scotia Gas Networks
   (Plant Location)
   95 Kilbirnie Street
   Tradeston
   Glasgow
   G5 8JD

   Telephone: - 0141 418 4093

3. Where such details show that the work or the movement of plant or equipment on the Site may endanger any Apparatus, the Contractor shall give the Company Representative at least 7 days written notice of the date on which it is intended to commence such Works or the movement of plant and equipment in order that the presence of any sub-surface Apparatus can be indicated by markers to be supplied by the Company and placed by the Contractor under the supervision of the Company Representative. The Contractor shall ensure that all Apparatus, is adequately protected from damage and such protective measures shall be to the satisfaction of the Company Representative.

4. In the event of a Company marker being disturbed for any reason it shall not be replaced other than in the exact position and to its former depth unless the repositioning is carried out at the direction and under the supervision of a Company Representative.

5. The Contractor shall carry out all work in connection with the Contract with reference to the requirements of the following publications: -

   (i) Institute of Gas Engineers: IGE/SR/18 ED 2),:- 'Safe Working practices to ensure the integrity of gas pipelines and associated installations (1678)

   (ii) Health and Safety Executive (HSE): HS (G) 47 - 'Avoiding danger from underground services'.

   (iii) Specification for Safe Working in the Vicinity of Transco High Pressure Gas Pipelines and Associated Installations – Requirements for Third Parties (T-SP-SSW-22 Rev 0804).

   (iv) Management Procedure for Cathodic Protection of Buried Steel Systems (SGN/PM/ECP/2)

6. The Contractor shall avoid the disturbance of Apparatus more than is absolutely necessary for the completion of the Works in accordance with the Contract. In particular 'Thrust Blocks' and other such supports shall NOT be disturbed without the specific written approval of the Company Representative. The Contractor should particularly note that large diameter Gas pipelines may either be: -

(i) Transmission pipelines frequently operating at pressures exceeding 7 bar.

(ii) low pressure local distribution mains.

For differing reasons either type poses a considerable hazard to safety if damaged. The Contractor shall also note that small Gas distribution pipes may be of yellow plastic, cast iron, steel or other such material and that unless specifically known to the contrary any such services encountered during the course of the Works should be assumed to be Gas pipelines and treated as such in accordance with these Special Requirements until positively identified otherwise and the Engineer so notified in writing.

7. No vehicle plant or machinery shall cross stand operate or travel within 3.0 metres of any Apparatus particularly Gas pipelines except as approved by the Company Representative. The Contractor shall agree his methods of working near any Apparatus with the Company Representative and ensure that any Apparatus is adequately protected from damage by the use of wooden sleeper tracks or reinforced concrete rafts at crossing points as appropriate. Temporary fencing of adequate strength shall be erected to regulate the movement of vehicles plant and machinery in the vicinity of Apparatus. All such protective measures shall be to the satisfaction of the Company Representative.

8. Where for the purposes of completing the Works in accordance with the Contract it is necessary to lay a new service across an existing Gas pipeline whether above or below a minimum clearance of 0.6m shall be left between the outside of the Gas pipeline and the new service to be installed. Under no circumstances shall a new service be laid parallel above or below a Gas pipeline. Hydraulic or other form of pressure testing of any new services shall not be permitted within 6.0m of any Gas pipeline unless precautions have been taken involving the use of pre-installation tested pipeline having a design factor of 0.3 for a distance of 6.0m either side of the Gas pipeline and/or such additional precautions including but not limited to sleeving barriers and the like as the Company Representative may require in consultation with the Engineer.

9. The Contractor shall particularly note that Gas pipelines and other Apparatus of the Company is usually cathodically protected to Company standard SGN/PM/ECP/2. The Company will require to carry out interaction tests to determine whether its own system will be adversely affected by any new service and/or its protective measures. Any work requiring the removal modification and or movement of Apparatus shall only be carried out by the staff of the Company and/or it's authorised contractors and Agents. In the event that any cathodic protection posts and/or associated Apparatus require to be removed replace and/or moved for the purposes of the Works the Contractor shall give not less than seven days written notice of the requirement to the Company.

10. When excavating or backfilling around Apparatus, the Company Representative shall be given not less than 3 days written notice, of the Contractor's intentions in order that he may supervise the works.

11. Backfilling shall be in 150mm layers, or as may otherwise be directed, consolidated layer by layer to the satisfaction of the Company Representative. Fill shall be free from flints stones and carbonaceous material. Where slabbing reduces such depth clean sand filling shall be used.

12. All excavation adjacent to Apparatus is to be carried out by hand until the exact extent and/or location of Apparatus is known. The Contractor shall note the following: -

(i) Mechanical borers shall not be used within 5.0m of Apparatus.

(ii) Hand held power assisted tools shall not be used within 1.5m of Apparatus without the supervisory presence of a Company Representative.

To prevent any movement of Apparatus during excavation, complete shuttering shall be used directed by the Engineer if: -

(i) Excavation is deeper than the depth of cover of adjacent Apparatus.

(ii) Excavation is within 3.0m of Apparatus in stable soil.
(iii) Excavation is within 6.0m of Apparatus in unstable soil.

Where excavation results in the exposing of Gas pipelines or other Apparatus protective timber cladding shall be applied to the Gas Pipelines or Apparatus to the satisfaction of the Company Representative and shall be maintained until such excavation is reinstated and backfilled.

13. If for the completion of the Works the Contractor intends using any of the following: -

(i) Pile driving equipment within 15.0m of Apparatus (or such greater distance as may be required to ensure that the MAXIMUM peak particle velocity as measured at the Apparatus does NOT exceed 25mm per second).

(ii) Explosives within: -

(a) 400.0m of exposed Apparatus

(b) 100.0m of buried Apparatus

(iii) Hot Works welding and the like within 15.0m of Apparatus

(iv) Hydraulic testing within 6.0m of Apparatus

The Contractor shall advise the Company Representative, giving a least 7 days written notice, in order that any special protective measures for the Apparatus affected may be arranged. The Contractor SHALL NOT proceed with the use of any of the above without the written consent of the Company Representative.

14. All Apparatus manholes and/or other access points and chambers within the Site shall be kept clear and unobstructed. Access for vehicles, winches and/or any further equipment required by the Company for the maintenance of its Apparatus, shall be maintained at all reasonable times and unless otherwise agreed in writing by the Company representative a clearance of 6.0m shall be allowed for such access.

15. The covers to Apparatus manholes and/or other access points and chambers shall only be lifted under the direct supervision of the Company Representative. No employee of the Contractor or of any sub-contractor employed by the Contractor shall enter any chamber and/or Apparatus of the Company unless under the supervision of the Company Representative and in any case not before a gas check as specified by the Company Representative has been carried out in the presence of the Company Representative and such checks have shown it to be safe to enter the Chamber and/or Apparatus. The Company Representative shall be given reasonable access to all Apparatus and chambers when required.

16. In the event of any damage whatsoever even of a minor nature to Apparatus particularly to Gas pipeline coatings and/or test leads the Contractor shall immediately inform the Engineer and report the occurrence by contacting the Company Representative. The Company Representative will arrange for repairs to be carried out.

EMERGENCY ACTION

17. The following actions shall be taken by the Contractor in the event of a gas leak in any Apparatus: -

(i) Evacuate all personnel from the vicinity of the pipeline damage or leak.

(ii) Remove and/or extinguish all sources of ignition for a distance of at least 200m in all directions from the location of the leak. This precaution shall include a ban on the use of any electrical equipment falling within this limit.

(iii) IMMEDIATELY inform The Company the Engineer and (if required the Emergency services in that order.

THE EMERGENCY TELEPHONE NUMBER OF THE COMPANY IS: -

0800 111 999

(iv) Secure the area from the approach of all employee's traffic and/or the general public.

(v) Render every assistance to the Emergency Services and/or the Company as shall be requested for the purposes of mitigating damage arising from the leak and/or for the purposes of securing public safety.

(vi) DO NOT ATTEMPT TO SEAL ANY LEAK OF GAS AT THE POINT OF DAMAGE.

18. Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract.

SPECIAL REQUIREMENTS IN RELATION TO BRITISH TELECOMMUNICATIONS PLC

1. In these Special Requirement the following terms shall have the meanings assigned to them:-

   (i) 'Company' means British Telecommunications PLC
   (ii) 'Company Representative' means the staff of British Telecommunications PLC or its Authorised Representatives and Agents.
   (iii) 'Apparatus' means all surface or sub-surface equipment and plant including any associated cabling and/or ducting owned, leased or rented by British Telecommunications PLC.

2. Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of the Apparatus, within the Site with the Company Representative, who can be contacted at the following point:-

   National Notice Handling Centre
   PP 3WW18
   Telecom House (TLC-ST)
   Trinity Street
   Hanley
   Stoke-on-Trent
   Staffordshire ST1 5ND

3. Where such details show that the works or the movement of plant or equipment may endanger any Apparatus, the Contractor must give the Company Representative at least 7 days written notice of the date on which it is intended to commence such works or the movement of plant and equipment in order that the presence of any sub-surface Apparatus can be indicated by markers to be supplied by the Company and placed by the Contractor under the supervision of a Company Representative. The Contractor shall ensure that all Apparatus, particularly surface running cabling is adequately protected from damage and such protective measures shall be approved by the Engineer.

4. In the event of a Company marker being disturbed for any reason it shall not be replaced other then in the exact position and to its former depth unless the repositioning is carried out at the direction and under the supervision of a Company Representative.

5. The Contractor shall take particular care in relation to the protection of Apparatus, where such Apparatus includes the presence within the Site of optical fibre and/or co-axial cabling. The Contractor should particularly note that damage to such Apparatus is extremely disruptive to the Company network and costly to reinstate. The Contractor shall make every effort to avoid the disturbance of Apparatus more than is absolutely necessary for the completion of the Works in accordance with the Contract.

6. When excavating around, moving or backfilling around Apparatus, the Company Representative shall be given adequate notice, which shall not be less than 3 days, of the Contractor's intentions in order that he may supervise the works. The Contractor should note that the normal depth of cover for Company Apparatus and ducts is as follows:-

   (i) In carriageways 600mm, which is to be maintained.

   (ii) In footways 450mm, which is to be maintained.

   Where the 600/450mm depth of cover cannot be maintained the Contractor shall carry out the instructions of the Engineer for the protection of Apparatus and such actions that follow from the Engineer's instruction shall be supervised by a Company Representative. Where the required depth of cover cannot be maintained over cabling, such cables as are affected shall be enclosed and protected in UPVC duct to be supplied by the Company as directed by the Company Representative.

With regard to excavation in the vicinity of Apparatus and ducts the Contractor should have particular regard to the possibility of reduced cover and the encountering of such Apparatus and ducts at depths of cover less than that given at a) and b) above.

7. All excavation adjacent to Apparatus is to be carried out by hand until the exact extent and/or location of Apparatus is known. Mechanical borers and/or excavators shall not be used within 1.0m of Apparatus without the supervisory presence of a Company Representative. To prevent any movement of Apparatus during excavation, complete shuttering shall be used as directed by the Engineer if:-

   (i) Excavation is deeper than the depth of cover of adjacent Apparatus.

   (ii) Excavation is within 1.0m of Apparatus in stable soil.

   (iii) Excavation is within 5.0m of Apparatus in unstable soil.

   If for the completion of the Works the Contractor intends using any of the following:-

   (i) Pile driving equipment within 10.0m of Apparatus.

   (ii) Explosives within 20.0m of Apparatus.

   (iii) Laser Equipment within 10.0m of Apparatus.

   The Contractor shall advise the Company Representative, giving at least 7 days written notice, in order that any special protective measures for the Company Apparatus affected may be arranged.

8. All Company manholes, joint boxes and/or other access points and chambers within the Site shall be kept clear and unobstructed. Access for vehicles, winches, cabledrums and/or any further equipment required by the Company for the maintenance of its Apparatus, must be maintained at all reasonable times. The Contractor should particularly note the footway type jointing chambers are not specified for carriageway loadings and will need to be adequately protected and/or demolished and rebuilt under the supervision of a Company Representative where such chambers are likely to be placed at risk, either temporarily or permanently, from the movement of plant and/or equipment on the Site.

9. The covers to Company chambers and/or Apparatus shall only be lifted by means of appropriate keys obtained from the Company Representative and under the direct supervision of the Company Representative. No employee of the Contractor or of any sub-contractor employed by the Contractor shall enter any chamber and/or Apparatus of the Company unless under the supervision of the Company Representative and in any case not before the mandatory gas check has been carried out in the presence of the Company Representative and such checks have shown it to be safe to enter the Chamber and/or Apparatus. The Company Representative shall be given reasonable access to all Apparatus and chambers when required.

10. In the event of any damage whatsoever to any Apparatus the Contractor shall immediately inform the Engineer and report the occurrence immediately by contacting the Company as follows:-

    Telephone:- DIAL 100 and ask operator for 'FREEPHONE 111 / Dial before you dig' (0800 9173993)

11. Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract.

12. Contractors should note that there is now a TWO YEAR MAINTENANCE PERIOD for the work involved in raising British Telecom covers and frames.

SPECIAL REQUIREMENTS IN RELATION TO SCOTTISH & SOUTHERN ENERGY P.L.C.

1. In these Special Requirements in the following expressions shall have the meanings assigned to them:

   (i) "Company" means Scottish & Southern Energy P.L.C or its successors and assigns.
   (ii) "Company Representative" means the Chief Civil Engineer of the "Company" defined at 1 (a) of this Special Requirement or other duly Authorised Engineer Representative and/or Agent appointed for the time being to act on behalf of the said "Company".
   (iii) "Plant or Equipment" means any plant, equipment, gear, machinery, apparatus or appliance or any part thereof as defined in the Construction (General Provisions) Regulations, 1961, and the Construction (Lifting Operations) Regulations 1961 owned leased or rented by the said 'Company' defined at 1(a) of this Special Requirement.
   (iv) "Electricity Cable(s) " means any cabling including but not limited to "Overhead Electricity Lines" or "Buried Electricity Cables" owned leased or rented for the purpose of electricity transmission and supply by the said "Company" as defined at 1(a) of this Special Requirement.

2. Before commencing any work or moving heavy plant or equipment over any portion of the Site owned occupied lease or rented by the Company the Contractor shall consult the Company Representative as early as possible and in any event not less than fourteen days before it is proposed to commence work to ascertain whether any Electricity Cable(s) or Plant or Equipment will be affected by the Works and to confirm details of any restrictions or requirements that the Company Representative may consider necessary for the safe carrying out of the Works. The Company Representative, can be contacted at the following point:-

   North East Depot
   Scottish & Southern Energy PLC
   200 Ashgrove Road West
   ABERDEEN
   AB16 5NY

   Telephone:- 01224 667200

3. Where such details show that the Works or the movement of plant or equipment may endanger the equipment of the Company, the Contractor must ensure that the presence of any Electricity Cable(s) Plant or Equipment can be indicated by markers to be supplied by the Company and placed by the Contractor under the supervision of the Company Representative. The Contractor shall ensure that all Electricity Cable(s) Plant or Equipment are adequately protected from damage to the satisfaction of the Company Representative.

4. The work shall be carried out in conformity with the Requirements of the Health and Safety Executive Guidance Notes:-

   (i) No GS6 'Avoidance of Danger from Overhead Electric Cables'

   (ii) 'Health and Safety Executive (HSE): HS(G) 47 - 'Avoiding danger from underground services'

5. Except under such restrictions as the Company Representative may impose for the safety of persons and the protection of property WORKS SHALL NOT BE CARRIED OUT or cranes or other plant erected operated and/or dismantled or materials stored WITHIN THE 'PROHIBITED SPACE' WHICH IS THAT SPACE WITHIN A RADIUS OF:-

   (i) 15.0M OF LIVE OVERHEAD ELECTRICITY LINES WHERE LINES ARE CARRIED ON STEEL TOWERS

   (ii) 9.0M OF LIVE OVERHEAD ELECTRICITY LINES WHERE THE LINES ARE CARRIED OUT ON WOOD POLES

TOGETHER WITH ANYWHERE VERTICALLY ABOVE THIS SPACE. These distances shall be maintained at all times between any Overhead Electricity Lines or anything connected to such Overhead Electricity Lines owned leased or rented by the Company.

6. The Contractor and any sub-contractor employed by him shall particularly note and bring to the attention of their respective employees the danger of 'Flash-over' where as a result of the very high voltages being transmitted potentially lethal shocks can occur in close proximity to live Overhead Electricity Lines WITHOUT ANY CONTACT BEING MADE.

7. Debris produced when trimming or felling trees and/or from demolition MUST NOT fall or be projected into the 'Prohibited Space'. Similarly excavation spoil must not be dumped or accumulated so as to cause infringement of the 'Prohibited Space'.

8. Special care MUST be taken when using material, which shall include but not be limited to, rope wire and/or measuring tape and the like.

9. The Contractor shall exercise particular care when carrying out work which involves the use of water jets or piped slurry. Liquids when being carried or used for the purposes of the Works MUST NOT be allowed to splash fall or otherwise be projected into the 'Prohibited Space'.

10. If a crane or other equipment is used crane stops fencing and warning notices shall be provided by the Contractor to ensure that there can be no encroachment on the 'Prohibited Space' by crane load or other equipment even if the crane load or equipment slips fails or overturns.

11. Portable ladders used in the vicinity of the live Overhead Electricity Lines shall be of wood or other non-conducting material and shall not be reinforced by metal attachments running along stiles of the ladders. Even ladders without reinforcement can lead to serious electrical shocks if allowed to come close to live overhead equipment and therefore special precautions must be taken to ensure that the ladder cannot slip and encroach on the 'Prohibited Space'.

12. Any disturbance of or attachment to any Plant or Equipment or Electric Cable(s) shall ONLY be carried out by the staff of the Company or its authorised contractors and/or agents.

13. Long objects, which shall include but not be limited to, pipes scaffold poles ladders and/or long handled tools or any object of such length that if carried vertically could infringe on the 'Prohibited Space' MUST BE CARRIED HORIZONTALLY.

14. Where for the purposes of completing the Works in accordance with the Contract the need arises to operate within and/or travel through the 'Prohibited Space' the Contractor shall give the Company Representative not less than twenty eight days written notice of the dates upon which it is intended to operate plant or equipment or carry out any work. The permission of the Company Representative MUST be obtained in writing BEFORE any plant or equipment is operated or work of any kind is carried out WITHIN the above distances. Such operations or work shall be carried out in the presence of the Company Representative unless notice shall have been obtained in writing from the Company Representative that such a presence on Site is not required.

15. In the event of the Company requiring emergency and/or maintenance work to be executed on the Electricity Cable(s) whether Overhead Electricity Lines or Buried Electricity Cables during the period of the Contract the Contractor shall afford all reasonable facilities and access to the staff of the Company or its authorised contractors and/or agents.

16. Work should not be carried out in the immediate vicinity of the overhead lines during periods of poor visibility. If this is not reasonably practicable additional precautions MUST be taken including but not limited to the erection of appropriate barriers to ensure maintenance of the appropriate safety clearances.

17. Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract or of the responsibility for taking every precaution to avoid risk to persons and/or damage to property.

SPECIAL REQUIREMENTS IN RELATION TO LIGHTING WORKS

1. Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of underground cables within the Site with the appropriate Council Lighting Section .

2. The Contractor shall prove the position of cables by excavating inspection pits by hand before machine work is started in the vicinity of the cables.

3. In the event of cables being damaged by the Contractor or his representatives the Contractor shall immediately notify the "Contact Engineer" at the appropriate Council Lighting Section. The Contractor will be liable for any expenses incurred by the Council in carrying out the repairs to the damaged Plant.

4. The Contractor must take due care when excavating in the vicinity of underground or overhead lighting cables which should be regarded as "live" at all times.

5. There may be existing underground cables which are not shown on the drawing(s) due to lack of complete records for the location in question. It should also be noted that cables routes shown on the drawing are approximate and for your guidance only.

6. If required, you may obtain assistance in tracing cable route(s) on site by telephoning the appropriate Council Lighting Section (see below) giving minimum of 48 hours notice.

7. When excavating in the vicinity of free-standing lighting columns, the Contractor must ensure that the columns remain adequately supported at their base. If it is thought that this may not be possible, the appropriate Council Lighting Section should be contacted well in advance of the works to discuss the possible temporary removal of any columns affected.

8. Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract'

LIGHTING OFFICES

COUNCIL	CONTACT	OFFICE ADDRESS & TEL NO
ABERDEEN CITY	B. Strachan	West Tullos Roads Depot Aberdeen (Tel. 01224 241565)
ABERDEENSHIRE	K.Melvin	Harlaw Way Harlaw Industrial Estate Inverurie (Tel. 01467 627625)
MORAY	J. W. Phillips	Council Offices Ashgrove Depot Ashgrove Road Elgin (Tel. 01343 557300)

9. All of the Contractor's site staff shall be competent persons and MUST be certified in accordance with APPENDIX B of Engineering Recommendation G39/1:1992 issued by the Electrical Association.

   In the absence of this certification, the Engineer shall require the contractor to remove these persons from the site.

SPECIAL REQUIREMENTS IN RELATION TO SCOTTISH WATER

WORK IN THE VICINITY OF WATER MAINS

1. Introduction

(i) Water mains vary in size but all carry out the same function of delivering water in bulk to given areas and as such are of vital importance to these areas.

(ii) Some such mains carry water to large industries, removal of the water supply to which can cause serious and often expensive consequences. Where damage occurs to a water main the consequences can obviously be very disruptive and far reaching. Where the damage is due to the negligence, act or omission of a party, such a part faces the possibility of having a court action raised against substantial damages.

(iii) Damage to any water main is extremely serious in that vital supplies to large areas are cut-off - especially serious are supplied to e.g. hospitals, kidney machines, old people etc.

(iv) Consequently, every effort must be made to ensure no damage to done to such mains (or indeed to any main) and these instructions are draw up in an attempt to minimise any such risk.

2. Legal Background

(i) Water mains exist by statutory right - most often having been laid in terms of the Water (Scotland) Act 1946. No way-leave is required, but the main once laid becomes a burden on the ground in which it is laid even though the Act does not insist that such a presence is recorded in the deeds etc. Access to it is a statutory right and this must not be impeded. Consequently, no building or other structure or additional material can be placed over or near it.

3. Trial Holes

(i) Before any work is carried out in the vicinity of such pipelines trial holes must be carefully dug by hand to confirm the position of the pipe. Assistance in approximately tracing the line can normally be arranged by Scottish Water, who must be contacted before any trial holes are excavated.

4. No Dig Technology

(i) Directional drilling or any other type of non-open cut installation of services shall not take place near Scottish Water plant or mains without written permission being given. Where damage occurs to a water main the consequences can be very disruptive and far reaching. Where the damage is due to the negligence, act or omission appropriate action will be taken to recover all costs incurred by the Scottish Water in the event of an incident or occurrence.

5. Mechanical Excavation

(i) Mechanical excavation shall not be permitted within 1500mm of the established position of a water main or associated equipment. Machinery working within this limit may only do so in accordance with special instructions which will be given by Scottish Water - otherwise a fence shall be erected to exclude access by mechanical plant except at designated crossing points where suitable protection to the main is provided.

6. Piling

(i) Scottish Water shall be consulted before any piling is carried out within 15m of a water main.

7. Explosives

(i) Similarly, Scottish Water shall be consulted before a decision is made to use explosives within 400m of a water main.

8. The Installation of other Apparatus or Services

(i) Where other apparatus or services are to be laid alongside a water main, a minimum separating distance of 600mm must be observed. All trenches crossing the line of a water main must be kept as near a right angle to the axis of the main as possible (i.e. shortest possible crossing). Suitable means of trench support must be used to limit the width of excavation as necessary.

(ii) Where it is necessary to lay new apparatus across and above a water main a minimum distance of 150mm shall be left between the bottom of the new apparatus and top of the main. This 150mm of material shall remain undisturbed and used as a base for the new work. Normal consolidated fill will then be replaced to surface level. Where apparatus must pass below a water main the trench must be dug by hand as already specified. When the crossing is complete the trench should be backfilled with lean mix concrete (20/1), up to a point 75mm below the barrel of the water main. The concrete backfill should extend at least 1200mm on either side of the water main of the trench. Two hard wood boards 200mm x 450mm, (tapered 50mm to 250mm between the 900mm long edges), should then be wedged under the main (as shown in Fig 1).

(iii) The excavation should then be backfilled with granular material in225mm well-consolidated layers to the original ground level.

(iv) Services or other apparatus shall not, under any circumstances, be laid parallel below a water main (see Fig 1).

9. Exposed Mains

(i) Once exposed, a water main will be treated with the utmost care to prevent damage from whatever source. Further it shall be supported as necessary at all stages of excavation and backfilling, to the satisfaction of Scottish Water. Only short lengths should be exposed at a time and over a no greater length then having one joint. On completion, permanent supports will if necessary, be constructed and left to avoid future settlement.

10. Damage to Water Mains

(i) In the event of mains being damaged by the Contractor or representatives, the Contractor shall immediately notify Scottish Water (Telephone Number – 0845 600 8855) and will be liable for any expenses incurred by Scottish Water in carrying out repairs. Damage however slight even if only to the coating of the pipe, must be reported immediately to Scottish Water and work suspended and men withdrawn until an opportunity to assess the extent of any repair necessary is given.

11. Backfilling

(i) 48 hours notice of intention to backfill under, over or adjacent to a water main must be given to Scottish Water who then may arrange a representative to advise as to

the suitability and consolidation of backfill material over the pipeline. This representative will also inspect for damage done, using Holiday Detector etc, if necessary to ensure the continuity of the coating. Notwithstanding this no material shall be used in the backfilling which could cause damage to the main then or later. In particular pieces of rock, large stones, frozen materials and other hard fill should not be returned or tipped into the trenches containing exposed mains or in any part of the trench above.

12. Traffic Crossings

(i) No traffic will be allowed to run over an unprotected main.

13. Temporary Vehicle Crossings

(i) The cover over the main should be made up to a minimum of 1.5m on the top of which 300mm x 300mm x 4.5m long timbers should be placed (at right angles to the axis of the main). The two layers of timbers should then be spiked together (see Fig 2).

(ii) In exceptional circumstances when construction traffic is likely to be heavy, further protection will be required to the satisfaction of SW. This will be reinforced concrete slabs as described in Fig 3, that are removable (see Fig 2).

(iii) At the completion of the work all additional material must be carefully removed as directed by SW - by hand if required.

(iv) Once formed, these vehicle crossing points shall be the sole means of vehicles crossing the line of the water main. They must be clearly marked. All such points (and the number shall be determined by Scottish Water) shall be fenced on both sides over the crossing and for a distance of 6m away from the crossing). Other fences must run the full length of the water main on any site to prevent crossings being made elsewhere.

(v) Suitable warning notices are to be erected drawing attention to the danger of not using proper crossings.

14. Cathodic Protection

(i) Some water mains are cathodically protected and where a new service is to be laid and is to be similarly protected the authority laying the new service will require to arrange interaction tests to ensure the new cathodic installation does not affect the groundbed current outwith the permitted limits. The cost of any mutually agreed remedial action will be met by the authority responsible for installing the new service.

(ii) Should any cathodic protection posts or associated apparatus need moving to construction operations, reasonable notice should be given to SW and again the associated costs shall be borne by the authority responsible for installing the new service. Where cathodic protection is employed on a water main it is often necessary for bonding to take place between adjacent pipe lengths and associated wires will be in evidence.

(iii) These wires must be kept intact and carefully protected from damage to such wires is important and consequently some instruction of them in these circumstances is necessary. Damage to such wires should be dealt with in the same way as damage to the main itself.

WORK IN THE VICINITY OF SEWERS

15. Definition

(i) 'Network Manager' means the appropriate Network Manager.

16. Location of Sewers

(i) Information regarding the approximate position of public sewers and connections to sewers as defined in the Sewerage (Scotland) Act 1968 may be obtained on application at the office of the Network Manager. The accuracy of the information on the plans is not guaranteed. Before the contractor commences excavation in the proximity of sewers he shall determine the line and level of these sewers by exploration on site.

17. Precaution against Damage

(i) The Contractor shall give adequate notice and full information to the Network Manager regarding all proposals for blasting, pile driving, compaction by vibration or other construction methods which may possibility give rise to vibration in any sewer or in adjacent ground. The Contractor shall control or modify his method of construction to restrict the effect of vibrations on the sewer within the level determined by the Network Manager. Compliance with the requirements of the Network Manager or his representatives shall not absolve the Contractor from responsibility for damage to a sewer resulting from the execution of the Works. All costs relating to the damage and repairs of the sewer will be borne by the Contractor.

(ii) The Contractor shall not permit to flow or to pass into any sewer, culvert, watercourse or drain connecting therewith any liquid, substance, or matter which would be injurious to the construction, maintenance, use of efficiency of any such sewers, culverts, watercourses or drains, or which would cause or be likely to cause silting up, corrosion or decay of the materials of such sewers, culverts, watercourses or drains.

(iii) No water or other liquid, substance or matter will be discharged into any sewer, culvert, watercourse or drain unless approved in writing.

18. Potential Dangers

(i) The undernoted summary of potential dangers which are always present in manholes, sewers and other confined spaces, should help to promote an understanding of the need for extreme care.

(a) Physical Injury
(b) Bacterial Infection
(c) Toxic Gas
(d) Inflammable Gas
(e) Explosion
(f) Oxygen Deficiency
(g) Drowning
(h) Hot discharges and the accidental discharges to sewers of liquids which are acidic, corrosive, inflammable, toxic or radioactive
(i) Structural Failure
(j) Falling Objects
(k) Mechanical and Electrical Plant

(ii) Stringent precautions are taken to safeguard the Authority's Sewer Operatives from the above-noted hazards. Specialised training is given and protective clothing and equipment such as detectors, safety harness, lifelines, approved electrical equipment, protective footwear, barrier creams, etc are issued and used. This training and issue and use of equipment together with the structure of the sewerage

squads ensure that emergency rescue procedures can be instigated immediately should the need arise. Similar precautions must be observed by the Contractor.

19. Entry into Manholes, Sewers and Other Confined Spaces

(i) NO UNAUTHORISED PERSON MAY LIFT A MANHOLE COVER OR ENTER ANY MANHOLE, SEWER OR OTHER CONFINED SPACE WHICH IS VESTED IN SCOTTISH WATER

(ii) Entry into a manhole or a foul or surface water sewer or into a confined space carries a substantial degree of risk and should only be made by properly trained and properly equipped personnel. Guidance and recommendations on safe working practices and the precautions to be taken for entering and working in manholes and sewers is contained in 'Guidance Note GS5: Entry into Confined Spaces' published by the Health and Safety Executive and obtainable from HMSO.

(iii) Entry into or the traversing of a sewer for whatever purpose will only be permitted under special conditions to be issued by the Network Manager on each occasion.

(iv) Covers on manholes on burn culverts may be identical or very similar to covers on sewer manholes and it should be remembered that anyone entering a burn culvert is also at risk. The majority of burn culverts are not the responsibility of the Scottish Water Authority.

GENERAL REQUIREMENTS

20. The above notes are for guidance only and may not be all-inclusive. Scottish Water do not warrant any of the provisions herein stated, and do not warrant the suitability of any of these provisions to any particular works. Further, these provisions are without prejudice to any contract representation or formal writing agreed between the parties hereto. Further consideration may be required in particular circumstances.

21. Discussion Meetings

(i) Prior to any work beginning on site, notice must be given as specified above. In addition discussions to achieve agreement on working methods/practices may also be required and if necessary a "minute of agreement" produced.

22. Further information

(i) Any further information required in respect of these Special Requirements may be obtained from the Network Manager:-

Networks Manager (Grampian)
Scottish Water
Kingshill House
Arnhall Business Park
Westhill
Aberdeenshire, AB32 6TQ
Tel: 0845 601 8855

CONTACT INFORMATION IN CASE OF EMERGENCY

Scottish Water Emergency Helpline 0845 600 8855

SPECIAL REQUIREMENTS IN RELATION TO THE SCOTTISH ENVIRONMENTAL PROTECTION AGENCY

1. Definitions

(i) 'Agency' means the Scottish Environmental Protection Agency.

(ii) Bound - applies to stabilisation of soil heaps by a method other than seeding such as the use of mesh netting, plastic sheeting etc.

(iii) Contractor - means the person or persons, form or company, whose tender has been accepted by the Employer and involves the Contractors personal representatives, successors and permitted assignees.

(iv) Control of Pollution Act 1974 - an Act made by Parliament to make provision with respect to waste disposal and water pollution. The Centre of Pollution Act was amended by Schedule 23 of the Water Act 1989. Under the Act, as amended, the Board is empowered to control the entry of polluting matter or effluents into water. It is an office for any party to cause of knowingly permit polluting materials or effluents to enter or to be discharged to controlled waters without the prior consent of the Board. To do so is liable to lead to prosecution.

(v) Controlled Waters - includes coastal waters, inland waters, lochs, ponds, rivers or watercourses and ground waters.

(vi) Consent - the formal written approval or license given by the Board under the Control of Pollution Act to any party who proposes to make a discharge to Controlled Waters. The Consent will contain certain conditions designed to protect the quality of Controlled Waters. To make a discharge without the consent of the Board is an offence and to do so is liable to lead to prosecution.

(vii) Construction Plant - means all appliances or things of whatsoever nature required in or about the construction completion and maintenance of the Works but does not include materials or other things intended to form or forming part of the Permanent Works.

(viii) Design - means all the work necessary for the preparation and completion of the Drawings from which the permanent Works are to be construction and includes carrying out all procedures and checks and the obtaining of all approvals and provision of all certificates required by the Contract.

(ix) Effluent - means any liquid, excluding uncontaminated surface or groundwater, including particles and other substances in suspension in the liquid discharged to Controlled Waters.

(x) Engineer - means the Consulting Engineer or Resident Engineer or such other Engineer appointed from time to time by the Employer and notified in writing to the Contractor to act as Engineer for the purpose of the Contract in place of the said Engineer.

(xi) Engineer's Representative - means a person being the Resident Engineer or Assistant of the Engineer appointed from time to time by the Employer or the Engineer and notified in writing to the Contractor by the Engineer to perform the duties set out in the Contract.

(xii) Erosion - the wearing away of rocks or soils through the action of water. The process can be considerably accelerated during construction work as the result of the stable surface soils and vegetation being removed.

(xiii) Fauna - a collective term for the animals of any Controlled Waters including, for example, fish, insect larvae and other invertebrates.

(xiv) Flora - a collective term for the plants of any Controlled Waters.

(xv) Groundwater - any water contained below the surface of the ground of the construction site, e.g. the ground water table, aquifers etc.

(xvi) Inert - stable, unable to react chemically under normal circumstances or to be dissolved in water.

(xvii) Licensed Tip Site - a public or privately operated waste disposal site fully licensed to receive the types of material to be disposed of from the building or construction site.

(xviii) Non-toxic - not poisonous or harmful to flora or fauna.

(xix) Oil - any fuel oil petrol diesel, hydraulic, lubricating oil etc., utilised or stored on the site.

(xx) Seeded - applies to the planting of a fast growing crop of plants such as clover and certain grasses in order to stabilise soil heaps thus preventing soil particles from being washed off by rainfall.

(xxi) Site - means the lands and other places on, under, in, or through which the Works are to be executed and any other lands or places provided by the Employer for the purposes of the Contract.

(xxii) Sub Contractor - any party of person who is employed to supply materials or undertake works as a subordinate of the Contractor. Pollution prevention is the responsibility of the Contractor and hence the pollution of any Controlled Waters as a consequence of the actions of a Sub Contractor could result in the Contractor being prosecuted.

(xxiii) Surface Water - any uncontaminated waters which drain off the surface of the ground or can be made to drain or be pumped from an area of ground by the actions of a Contractor.

(xxiv) Temporary Works - means all temporary works of every kind required in or about the construction, completion and maintenance of the Works.

(xxv) Works - means the permanent works together with the Temporary Works.

2. General

(i) The Contractor shall identify all Controlled Waters (including ditches) which may be affected by the Works and the permanent or temporary discharge points to these watercourses.

(ii) When the Contractor is planning the Works, agreement shall be sought with the Agency on pollution prevention measures, strategy and emergency procedures for all construction stages. This shall cover:-

(a) the protection of Controlled Waters and sensitive locations by planning site drainage including the run-off from borrow pits, spoil heaps, haul roads and water crossing places; and

(b) the design and application of measures, (including land acquisition) to provide adequate mitigation of any pollution arising from the project. Contamination of Controlled Waters can lead to serious water quality problems and adversely affect flora and fauna. Therefore, for this and other

reasons, the Contractor could be prosecuted under the Control of Pollution Act 1974, as amended by Schedule 23 of the Water Act 1989 and schedule 16 of the Environment Act 1995.. The Agency's formal Consent for discharge may be required and in extreme cases the Engineer or the Engineer's Representative may have to suspend work until adequate pollution prevention measures have been carried out.

(c) In the event of spillage of any polluting substance and/or pollution of any Controlled Waters, the Contractor must notify the Board and the Engineer immediately by telephone.

(iii) In this regard it should be noted that the Board can be contacted on a 24 hour basis (as noted in paragraph 33).

(iv) Where required, the Contractor shall submit to the Engineer his proposals for maintaining the free passage of fish in any watercourse likely to be affected by the Works, at all times. These shall be submitted to the District Salmon Fishery Board for their approval. A list of approved contacts for each fishery board is listed below:

Don and District Fishery Board
Mr J Kerr (Superintendent)
28 Sclattie Park
Aberdeen
Tel No: 01224 712989

Dee District Salmon Fishery Board Investment House
6 Union Row
Aberdeen AB10 1DQ
Robert Fettes Tel: 01330 844775

Dee Fishery Board
Mr R Fettes (Manager)
Banchory
Tel: 01330 844775

Don & District Salmon Fishery Investment House
6 Union Row
Aberdeen AB10 1DQ
Tel: 01224 878402

Spey Fisheries Research Office
Roger Knight or Bob Laughton
Nether Borlum Cottage
Knockando
AB38 7SD
Tel No 01340 810841

Ugie Salmon Fishery Board
Masson & Glennie
Solicitors
Broad Street
Peterhead
Tel: 01779 474271

Findhorn Fishery Board
Alastair Gordon-Cumming
Estate Office
Altyre Estate
Forres IV36 2SH
Tel No 01309672265

North Esk Fishery Board
46 High Street
Montrose
Tel: 01674 671477

Lossie Fishery Board
Watson Bell
Lower Inchallon
Pluscarden
Elgin, IV30 8TZ
Tel No 01343 890412

Scottish Water
Kingshill House
Arnhall Business Park
Westhill
Aberdeenshire
Tel: 01224 675000

Deveron Fishery Board & Salmon Fishery Board
Mr J Christie (Clerk)
c/o Murdoch, McMath & Mitchell
27-29 Duke Street
Huntly
Tel No: 01466 792291

Scottish Natural Heritage
17 Rubislaw Terrace
Aberdeen, AB10 1XE
Tel: 01224 642863

Ythan Fishery Board & Salmon Fishery Board The Estate Officer Owners Mains of Haddo Tarves Ellon, AB41 9LD Tel No: 01651 851664	Adjacent Riparian and Land Upstream on both sides Downstream on both sides Opposite.

(v) Materials which may cause pollution shall not be stored near Controlled Waters nor shall they be stored in such a manner that they may fall or be carried into Controlled Waters. All refuse and debris arising from the Site in the vicinity of Controlled Waters shall be collected and removed as required so that none may fall or be carried into the Controlled Waters.

(vi) In the event that temporary sanitation cannot be connected to the public foul sewerage system, the Contractor shall apply to the Agency for consent for any discharge in compliance with Section 34 (1) of the Control of Pollution Act 1974.

(vii) The Contractor must not use construction plant in any Controlled Waters without the prior written approval of the Agency. Such approval will only be given where it can be demonstrated that plant is secure from oil leaks etc.

(viii) Where Controlled Waters transect the construction site the Contractor shall agree with the Agency where these should be:-

(a) diverted around the working area;

(b) temporarily culverted through the working area;

(c) blocked, diverted or overpumped. This shall be limited to a period to be agreed with the Agency and where appropriate, with the District Salmon Fishery Board.

(ix) Where construction plant has to cross watercourses, temporary bridges or culverts should be installed together with suitable mud splashguards. The fording of any Controlled Waters will not be permitted without the Contractor obtaining the prior written approval of the Agency.

(x) Cut-off drains must be installed to intercept uncontaminated surface water and thereby prevent it from entering the work area. Agreement shall be reached with the Agency regarding its satisfactory disposal.

(xi) Construction plant washing facilities (including wheel washes) shall be designed to operate on total recirculation wherever possible. Where this cannot be achieved, the disposal of wash water to any Controlled Waters shall not take place without adequate settlement and oil removal prior to discharge. The Contractor will require the Agency's consent for such discharges.

(xii) Borehole drilling of other ground investigations can produce a polluting effluent which may require treatment before being discharged to Controlled Waters. The Agency must be advised by the Contractor of the measures to be taken to prevent pollution before the commencement of any such operations liable to give rise to an effluent.

3. Earthworks

(i) Temporary topsoil and subsoil heaps and stockpiles created after land stripping should be located at reasonable distances from drains or Controlled Waters to prevent any collected materials from either falling into Controlled Waters, or being

integrated with run-off caused by rain and then discharged into such waters. They shall be seeded or bound as soon as practicable after deposition to ensure quick stabilisation and cut-off drains shall be provided to intercept run-off from the stockpiles.

(ii) Drainage from borrow pits, quarries or spoil areas must be treated to the satisfaction of the Agency (e.g. by use of settlement lagoons) before discharge to any drain or Controlled Waters. The Contractor may require the Agency's consent for such discharges.

(iii) Only inert and non-toxic material shall be used to:-

(a) backfill drainage trenches;

(b) backfill burn crossings;

(c) infill areas of standing water;

(d) infill areas where contact with groundwater is probable.

(iv) Where in-river bunding is required and the geology of the river bed is appropriate, sheet piling shall be used for the in-river bund. However, where native material is subject to excess scouring, imported impervious material such as puddle clay or sand bags shall be used or the formation of in-river bunds after consultation by the Contractor with the Agency. Any material placed within the channel or flood plain during the construction of Temporary Works shall be removed by the Contractor in a manner which minimises pollution as soon as its function has been fulfilled.

(v) The Contractor shall stockpile and replace on completion of the Works, any bed material necessarily excavated from a watercourse during construction of the Works. The Contractor shall not remove any bed material from Controlled Waters for use in construction.

(vi) Surface water or Groundwater from excavations or other parts of the working area must not be pumped nor be allowed to issue directly into Controlled Waters or drains but should receive treatment to ensure removal of pollutants in accordance with the Agency requirements discharge to Controlled Waters.

4. Oil Pollution

(i) The Contractor must ensure that oil is stored well away from any drain or Controlled Waters. Oil storage tanks must be surrounded by an impervious bund with no surface water outlet. The bund must be capable of retaining at least 110 per cent (110%) of the volume of the tank. If there is more than one tank within the storage area, the bund must be able to contain 110% of the largest tank or 25% of the total capacity of the tanks, whichever is greatest.

(ii) Valves and couplings connected to oil storage tanks must be located within the bund and delivery hoses shall be fitted with trigger-type spring handles suspended back within the bund after use. Valves and trigger filler handles must be kept padlocked when not in use.

(iii) The transportation of fuel and oil across the site in drums or other containers must be avoided as far as practicable. Where this is unavoidable, extreme caution must be taken to avoid spillages or leaks. The Contractor shall hold adequate stocks of oil-absorbent and containment materials on site. The Contractor must ensure that relevant staff are familiar with the use of these materials.

(iv) Surface water, together with any material which accumulates within the storage tank bund, must be removed by means of a manually controlled positive lift pump. Oil

contaminated water must be disposed of off site at an appropriate licensed tip, incineration plant or oil recovery plant.

(v) The Contractor shall ensure that personnel are nominated as being responsible for the supervision of the filling of oil storage tanks, vehicles etc. and that a "Nominated Person" is available at all appropriate times.

(vi) Mobile fuel and lubricant serving units must be provided with appropriate quality deliver hoses with trigger type delivery nozzles. These vehicles when not in use, must be parked in a secure area within an impermeable bund. Vehicles and plant must not be refuelled near drains or Controlled Waters. Oil powered pumps, generators and the like shall be positioned on impervious drip trays surrounded by earth or sand bunds and located at least 10 metres from any Controlled Waters. The use of such plant adjacent to Controlled Waters is not permitted and the disposal of waste oil/only waters from the drip trays must be by the methods outline in clause 22 of these requirements.

(vii) The Contractor shall take all reasonable measures to ensure the security of all oil storage facilities from acts of wilful damage or vandalism.

5. Concrete Works

(i) Cement, grout and upset concrete (unless specialist products as approved by the Agency are used) must not be allowed to enter any Controlled Waters. Prevention may be achieved by diverting the Controlled Waters away from the working area with fixed shuttering or sandbags or by damming the flow upstream and pumping it beyond the working area. The inlet to the pump should be screened. Residual cement or concrete must be removed from the original channel before the Controlled Waters are returned to it.

(ii) The Contractor must ensure that drainage from excavations where concrete is being, or has been, newly poured shall not be pumped or allowed to issue directly into Controlled Waters without the prior approval of the Board.

(iii) Tools and equipment must not be washed in Controlled Waters. If it is necessary to wash equipment on site, this must be done well away from Controlled Waters and wash water must not be discharged directly into Controlled Waters or road drains without appropriate treatment.

(iv) The Contractor must ensure that if concrete has to be sprayed in the vicinity of Controlled Waters (e.g. on bridges, retaining walls, etc.) suitable protective sheeting is provided to prevent rebounded or windblown concrete from falling into Controlled Waters. Rebounded material must be cleared away before the sheeting is removed.

(v) The direct discharge from any concrete batching plant to Controlled Waters shall not be permitted. Subject to consultation with and agreement by the Agency a discharge to a soakaway may be permissible.

6. Miscellaneous

(i) The Contractor shall take suitable precautionary measures, as agreed by the Agency, to prevent any material from falling into Controlled Waters when concreting, bitumen spraying, plant cleaning or painting operations are being carried out above or adjacent to Controlled Waters.

(ii) The Contractor should note that any approval by the Agency of the Contractor's proposals will not relieve the Contractor of his responsibilities with respect to any pollution which may occur. The Board will not be held liable for any damage to pollution resulting from operations on the Site.

(iii) The Contractor shall provide to the Agency in advance of the commencement of the Works the names of responsible personnel on site together with 24 hour contact telephone numbers.

7. The Agency's address is:-

Scottish Environment Protection Agency
Greyhope House
Greyhope Road
Torry
Aberdeen AB11 9RD

Telephone: (01224) 248338
Fax: (01224) 246591
Emergency No: 0800 807060

Note:-
The Board operates a 24 hour pollution response service at the above telephone numbers.

SPECIAL REQUIREMENTS IN RELATION TO NETWORK RAIL

The Railway is a particularly hazardous environment. The danger from train movements, overhead power lines and electrified rails at ground level must not be underestimated. The industry's safety policy and safety management systems require the enhancement of some safety legislation and the following clauses indicate areas where the legislative requirements are strengthened or particularised.

1. Definitions

In these Special Requirements the following terms shall have the meanings assigned to them:-

(i) 'Network Rail' means Network Rail Infrastructure Ltd., which is incorporated as a registered company in England and Wales.

(ii) 'Access Permit' means a written authority that access may be made to railway property and the conditions under which such access is made.

(iii) 'Competent Person' means a person who has such practical and theoretical knowledge and actual experience of the work activity that he is able to assess the risks and hazards implicit in the work, and the consequences of any change in conditions or circumstances.

(iv) 'Contractor' means the person or person's firm or company whose tender has been accepted by the Employer and includes the Contractor's personal representatives successors and permitted assigns together with his sub-contractors and their personal representatives and any other persons under the direction and control of the Contractor whilst on railway property.

(v) 'The Engineer' means the Engineer as defined in the Contract or other Engineer appointed from time to time by the Employer and notified in writing to the Contractor to act as Engineer for the purposes of the Contract in place of the said Engineer.

(vi) 'Handsignalman' means a person appointed by Network Rail to control and protect the safety of trains.

(vii) 'Lookoutman' means a person who has been trained (and certificated by Network Rail) to warn others of the approach of trains and has experience of working on or about the track. The Lookoutman is identified by a white badge with the work 'LOOKOUT'.

(viii) 'On or about the Railway' means all controlled infrastructure including stations.

(ix) 'Personal Protective Equipment' means all equipment or clothing designed to be worn or held to protect against a hazard likely to endanger health or safety, or an addition or accessory designed to meet this objective.

(x) 'Controller of Site Safety (COSS)' means the person trained and certified as competent to ensure a safe system of protection is in place to enable work to be carried out by a group of persons.

(xi) 'Possession' means planned safety arrangements, which control or prevent the normal movement of rail traffic between defined locations and for a predetermined period.

(xii) 'Network Rail's Representative' means the Regional Director of 'Network Rail' or other duly Authorised Representative Agent and/or Organisation Agent appointed for the time being to act on his behalf by Network Rail.

(xiii) 'Service' means electricity cables, gas pipes, water pipes (including piped sewage), other pipelines or telecommunication plant, irrespective of owner.

(xiv) 'Site' means the land and other places on under in or through which the Works are to be executed and any other Lands or places provided by the Employer for the purposes of the Contract on which the Works are carried out.

(xv) 'Speed Restriction' means a planned restriction on the speed of rail traffic between defined location.

(xvi) 'The Works' means the Permanent Works together with any Temporary Works and shall particularly refer to those parts to be executed over, upon, under, in or through railway land or in such close proximity to it that it could in the opinion of Network Rail affect such land or railway traffic and for these particular purposes shall include the acts of inspecting, examining and walking.

2. Method of Carrying out the Works

(i) The Works shall be carried out in a safe manner which avoids risk of harm to railway facilities and traffic and any person entitled to be on railway property and so as to avoid any interference with any such traffic except as previously agreed and to any such persons.

(ii) The Contractor shall ensure that any rules regulations or instructions imposed for the protection or rail traffic are strictly observed.

3. Contractors Safety Policy

(i) The Contractor shall provide Network Rail with a copy of each of the following documents (including any Contractor's codes of practices, safety instructions or regulations applicable to the Works) for appraisal prior to the commencement of the Works:-

(a) The Contractor's Health and Safety Case;

(b) The Contractor's organisation and arrangements for Health and Safety which must include the arrangements for managing sub-contractors;

(c) The Contractor's arrangements for ensuring compliance with all relevant legislation standards rules and instructions;

(d) The Contractor's Programme for the Works.

4. Exemptions

(i) Notwithstanding any provisions in statutory health and safety requirements relating to building and construction work that give exemptions to certain work on the operational railway, the Contractor shall comply with all such requirements.

5. Access to the Railway

(i) Before any activity is undertaken on the railway, arrangements for safety provisions must be in place to address the activity to be undertaken and the particular hazards of the area in which it will be carried out.

(ii) The safety provisions are set out in Network Rail's Document RT 3170 - 'Personal Track Safety Handbook Issue 3 2002/03' obtainable from Network Rail Safety and Standards Directorate, Operations Unit, Network Rail House, DP1 Euston Square, London, NW1 2EE.

(iii) Within these provisions and depending on the nature of the work to be carried out, there may be a requirements for the Contractor to undergo a full medical examination and undertake specific training for personal track safety and be certificated as competent.

6. Site Familiarisation

(i) The Contractor shall ensure that familiarisation training in the characteristics of the Site is given to all his employees and the employees of any sub-contractor employed by him both before commencement of their work and at agreed intervals during the progress of their works.

(ii) The Contractor shall ensure that his employees and the employees of any sub-contractor employed by him undergo additional familiarisation training if the site boundary is altered.

(iii) The Contractor shall brief all visitors to the site, including staff of Network Rail , of the particular health and safety hazards of the site. Records of all such briefings shall be kept by the Contractor for audit purposes.

7. Risk Assessments

(i) The Contractor is responsible for arranging suitable and sufficient assessments, to be undertaken by a competent person, of the risks to the health and safety of his personnel and other (including the general public) as a consequence of his work activities. Such risk assessments shall be reviewed or re-assessed when necessary, such as when there is a significant change in work or the environment. Initial and amended copies shall be supplied to Network Rail as appropriate before work commences or continues.

8. Use of Railtrack's Land

(i) The Contractor shall from time to time be allowed to take possession of so much railway land as may be agreed for the carrying out of the Works (or as laid down in the Contract). Where access to the Site is required by way of railway land the route of such access shall be agreed with Network Rail .

(ii) Any other railway infrastructure land which is required for temporary use outside that which is essential for the carrying out of the Works shall be the subject of separate negotiations with Network Rail Property.

(iii) The Contractor shall be responsible for ensuring that no person trespasses beyond the agreed limits of the working area or access route and shall if required so to do provide and maintain to the satisfaction of Network Rail temporary fencing of an approved type to prevent trespass on the railway or neighbouring land.

9. Emergency Telephone Numbers

(i) The Contractor shall provide Network Rail, 7 days prior to the commencement of the work on Site written notification to Network Rail Representative of the names and telephone numbers of competent personnel capable to organising remedial action in the event of an emergency on the Site outside normal working hours or when the Contractor's employees and the employees of any sub-contractor employed by him are absent from the Site.

10. Methods of Construction

(i) The Contractor shall provide for approval a detailed statement (including such calculations drawings and design check certificates as are considered necessary by Network Rail) of the methods proposed for the execution of the Works. The

statement shall include details of all proposed Temporary Works (including demolition). The method statement shall be submitted in sufficient time to allow for full consideration by Network Rail and for revised proposals to be submitted if necessary.

11. Fencing on Site

(i) All persons not involved with the Works shall be kept well clear of the site which shall be fenced or barriered off from such persons to the satisfaction of Network Rail. Where necessary the barriers shall include protection from radiation including that from welding arc or fumes and sparks from oxy-gas flames.

12. Access and Accommodation

(i) Network Rail's Representative shall at all reasonable times have free access to any premises where work is being carried out or materials prepared or manufactured for the Works.

(ii) When necessary services accommodation for Network Rail's Representative shall be provided by the Contractor to the satisfaction of Network Rail.

(iii) Network Rail's Representative, where reference to Network Rail is required for the purposes of this contract may be contacted at the following point(s):-

Address:- Buchanan House
58 Port Dundas road
Glasgow
G4 0LQ

Telephone:- 0141 335 3864

Fax:- 0141 335 3292

13. Statutory Notification

(i) All statutory notices required to be served under the relevant statutory provisions or regulations of the Health and Safety at Work Etc. Act 1974, or any statutory re-enactment thereof, in respect of work on the operational railway shall be sent by the Contractor to the Health and Safety Executive with copies to Network Rail.

14. Working Time

(i) The Contractor shall comply with Network Rail's policy on working time. (Details of these requirements may be obtained from the Engineer).

15. Knowledge and Understanding of English

(i) The Contractor must have sufficient knowledge of English (both spoken and written) to understand safety information, and safety instructions and training (where relevant).

16. Alcohol and Drugs

(i) The Contractor shall comply with Network Rail's Policy on Alcohol and Drugs. (Details of these requirements may be obtained from the Engineer).

17. Clothing and Personal Protective Equipment

(i) The Contractor must wear high visibility clothing of a pattern and an approved shade or orange colour where required by Network Rail. The Contractor must ensure that the clothing is worn correctly and kept in a clean condition.

(ii) Personal protective equipment must be used correctly and where there is a possibility of clothing or personal protective equipment being confused with signals, the colours red or green shall not be worn.

18. Removal of Contractor's Employees

(i) Network Rail shall be at liberty to object to and require the Contractor to remove from the Site immediately any person employed on his behalf who in the opinion of Network Rail is not in a fit condition to carry out his duties, or is liable to endanger their own health and safety or that of others.

19. Prescribed Registers and Certificates

(i) The Contractor shall ensure that all relevant prescribed registers and certificates, including those appertaining to the current Construction Regulations, are available for inspection at all times at a location agreed by Network Rail.

20. Fire Safety Training

(i) The Contractor must receive specific instructions related to fire safety and undergo training commensurate with his duties and location, particularly when working in sub-surface railway stations.

21. Fire Precautions

(i) The Contractor shall make arrangements for the protection of the Works and any adjacent railway infrastructure from fire and shall take such additional precautions as Network Rail may require.

22. The Contractor shall comply with all the following Health and Safety Executive publications:-

(i) Guidance Note CS6 - 'The Storage and Use of LPG on Construction Sites'

(ii) Handbook HS(G)3 - 'Highly Flammable Materials on Construction Sites'

(iii) Leaflet IND(G)56P - 'Flammable Liquids on Construction Sites'

23. Halons

(i) The use of halons in hand held fire extinguishers and new fixed fire fighting systems based on halons shall not be permitted.

24. Confined Spaces

(i) A considerable number of confined spaces exist on or about the railway. In certain circumstances this may be a transient state dependent on usage. The Contractor must ensure this staff are suitably trained to recognise a confined space and a safe system of work must be devised by the Contractor, which must be notified to Network Rail before any work is carried out.

25. Contaminated Land

(i) Railway land, especially in the area of former large sidings or depots, may be contaminated. Appropriate precautions must be taken when carrying out activities which disturb or alter the existing regime.

26. Asbestos

(i) The use of asbestos (in all its various forms) has been extensive throughout the railway industry in previous years; accordingly the Contractor must take all appropriate precautions.

27. Lead

(i) Railway bridges, structures and some buildings may have protective and decorative coatings containing substantial quantities of lead; accordingly the Contract must take all appropriate precautions.

28. Cadmium

(i) Cadmium may have been used as an anti-corrosion plating on some metal products (nuts, for example) on or about the railway; accordingly the Contractor must take all appropriate precautions.

29. Leptospirosis

(i) There may be a risk to Leptospirosis (Weils Disease) when working on the railway as a result of contamination by rats; accordingly the Contractor must take all appropriate precautions.

30. Anthrax

(i) The presence of anthrax spores has been detected on or about the railway. The Contractor must be aware of the continuing possibility that anthrax spores may be located on or about the railway and must take all appropriate precautions.

31. Temporary Works

(i) The Contractor shall ensure that:-

(a) inspections are carried out of all Temporary Works and all other temporary supporting structures and that such operations are carried out and recorded in like manner to that specified in each of the said requirements that relate to scaffolding; and

(b) the superintendence provided wherever rapidly increasing or shock loads are being applied to any Temporary Works shall include a person or persons in full view of such Temporary Works with knowledge of the design thereof and able to direct emergency action if this becomes necessary.

32. Noise

(i) When noisy operations are to be carried out the Contractor must take such measures as may be required by Network Rail to ensure the hazard and nuisance is minimised.

(ii) It is Network Rail's policy on Noise Management and Hearing Conservation that where daily personal noise exposure (LEP,d) is likely to exceed 85 dB(A) suitable ear protection must be provided.

(iii) In additional to the requirements of the Noise at Work regulations 1989 the Contractor shall ensure so far as is practicable that all persons appointed by Network Rail on site are provided with suitable personnel ear protection where daily noise exposure (LEP,d) is likely to exceed 85 dB(A).

(iv) Such ear protection when properly worn should reasonably be expected to keep the risk of damage to such person's hearing below that arising from exposure to 'the first action level' or 'the peak action level' both as defined in the Regulations.

(v) In addition to and notwithstanding any maximum noise levels specified in the Contract the Contractor shall be responsible for keeping noise to a level acceptable to the Local Authority and for preventing a noise nuisance arising. The Contractor shall discuss noise levels and methods of working with such Authority and in such an event shall inform Network Rail of the Local Authority's requirement. The Contractor shall not apply for Consent without the approval of Network Rail in writing.

(vi) When noisy operations are to be carried out at night or on Sunday the Contractor shall warn all persons likely to be affected by such operations in a manner approved by the Engineer.

(vii) The Contractor shall comply with the general principles laid down in BS 5228 standard Noise Control of Construction and Open Sites or equivalent EC/ISO Standard.

33. Legal Action to Reduce Noise

(i) If any approach is made to the Contractor by a Local Authority or Magistrate's Court in respect of noise emission from the Site (whether or not such approach comprises the serving upon the Contractor of a Notice made pursuant to Section 60 of the Control of Pollution Act 1974 or an Order made pursuant to Section 59 of that Act or an Order made pursuant to Section 80 or 82 of the Environmental Protection Act 1990 or any subsequent re-enactment thereof) except to the extent that any immediate action is necessary to comply with such a Notice or Order prior to the receipt of appropriate instructions by Network Rail the Contractor shall not change or give any undertaking to change such programme or methods of construction without consulting the Engineer and Network Rail.

34. Screens, Hoardings and Lights

(i) The Contractor shall provide all necessary appropriate temporary screens, hoardings, guard rails, barriers, fans, protective sheeting, fencing, lighting to ensure the safety and protection of his employees and others and the work at all times throughout the duration of the Contract.

(ii) The location of any such screen, hoarding, shall not affect signal sighting nor obscure places of safety and must not be erected without the prior consent of Network Rail.

(iii) All lights shall be so placed or screened so as not to interfere with any signal lights, Driver Only Operation platform monitoring devices, or in any other way affect the vision of train drivers.

35. Buried Pipes, Ducts and Cables

(i) The Contractor's attention is drawn to the possibility of buried pipes, ducts and cables including high voltage electrical power cable. The Contractor shall take all reasonable precautions to establish the position, existence and location of any buried pipes, ducts and cables which may be present before any excavation or the driving of objects into the ground and shall take all reasonable precautions to avoid

damaging buried pipes, ducts and cables when excavating and driving objects into the ground.

(ii) Any equipment (Cable Avoiding Tools (CATs) for example) utilised to establish the position of buried pipes, ducts and cables must be authorised before use by Network Rail, in consultation with the Engineer, and be used in accordance with Railway Group Standard GC/RT5200 - 'Excavations and the identification of Services'.

36. Explosives

(i) Explosives (which term does not include railway fog signals - commonly known as detonators) shall **NOT** be used on or about the railway without the written agreement of Network Rail.

37. Lasers

(i) Equipment incorporating lasers shall not be used by the Contractor without the prior written consent of Network Rail and is such consent is given the Contractor shall comply with any Code of Practice on the lasers produced by Network Rail and relevant British and European Standards published from time to time.

(ii) Before any laser may be used on the site the Contractor shall provide a copy of his general safety instructions and specific safety regulations to Network Rail for approval, and no items of work using lasers shall commence without Network Rail 's prior written consent.

38. Welfare and Sanitary Facilities

(i) The Contractor must make arrangements as necessary for the welfare and sanitary needs of his personnel. The use of existing railway facilities including waiting rooms, mess rooms or sanitary facilities will not be permitted unless agreement has been reached by Network Rail and other users as appropriate.

39. Electrically Conductive Survey Equipment

(i) Electrically conductive survey equipment shall not be used within 2.75 metres or any live overhead equipment, nor shall it be used within 2.0 metres of any rail.

40. Crossing the Railway Track

(i) The Contractor shall not cross or convey Constructional Plant and/or materials across or along any railway track unless special arrangements have been made and written consent given by Network Rail.

(ii) Where public rights of way exist over occupation and/or accommodation level crossings and/or bridges, the Contractor shall only use such crossings in the way that they are intended to be used by the public, unless specific written approval has been given by Network Rail.

(iii) Only in exceptional circumstances will the provision of a temporary level crossing be permitted over any operational railway track. If Network Rail is prepared to accept the provision of a level crossing for constructional traffic over any railway track and all temporary public level crossings time must be allowed to enable to approval of HM Railway Inspectorate to be obtained in addition to the period of notice required by Network Rail for making the necessary arrangements and carrying out the work.

41. Safety Personnel

(i) The Railway industry has an established regime of safety supervision when work is undertaken on or about the tracks which may involve Lookoutmen, Handsignalmen and COSSs (Controllers of Site Safety) amongst others - only competent and certificated personnel may undertake these duties.

(ii) Network Rail may require these and other safety personnel to be appointed for the control of trains, the protection of the Contractor's personnel and to ensure the safety of the rail traffic, other staff, property and others during the progress of the Works.

42. Emergency Action

(i) The Contractor shall prepare an emergency procedure which must include the method of stopping trains in the event of an incident that could affect the safety of trains and/or persons and in the case of an electrified line how to arrange to have the current switched off in the event of an emergency. This procedure must be accepted in writing by Network Rail before work starts.

(ii) The Contractor shall ensure that his personnel are fully conversant with this procedure and understand it. Auditable checks should be undertaken at intervals agreed with the Engineer to monitor this understanding.

43. Timing of Work on or about Railway Tracks

(i) Work shall only commence on or about the tracks when agreed to and authorised in writing by Network Rail.

(ii) Any work which, in the opinion of Network Rail, requires a possession, isolation and/or speed restriction, shall be carried out on dates and at times agreed in writing by Network Rail. Such speed restrictions, possessions and isolations and regulated to minimise delays to railway traffic and may, therefore, require working outside the Contractor's normal working hours.

44. Confirmation of Possession of the Railway Lines

(i) If the Contractor's programme for the Works has been accepted by Network Rail and consent has been given to the proposed method of carrying out the Works the Contractor shall in all cases submit written notice to Network Rail confirming any speed restrictions, possessions or isolation requirements prior to the period of notice laid down in the Contract in advance of the proposed commencement of work on or near the railway lines.

45. Rail Traffic during a Possession or Isolation

(i) During a possession and/or isolation the Contractor shall allow for engineers, trains and/or on-track machines to be passed through the work site by prior arrangement. This will necessitate the temporary clearance of the railway track and cessation of those activities that could affect their passage or the safety of personnel on or about the tracks.

46. Cancellation of Speed Restriction Possession and/or Isolation

(i) Network Rail may require to cancel, alter or curtail the dates and times of any agreed speed restrictions, possessions and/or isolation at short notice if this proves necessary because of any emergency situation, but in such an event alternative arrangements will be made as soon as the situations permits.

47. Working Methods near Railway Track

(i) Unless agreed in writing by Network Rail, no Constructional Plant of any kind shall be used and/or materials placed, stacked and/or handled in such a manner that in the event of mishandling and/or failure such plant and/or materials could fall foul of a vertical plane 3.0 metres from the nearest edge of the nearest rail on which trains may run or on a station platform within 3.0 metres of the platform edge (subject to provisions when working near overhead line equipment).

(ii) The Contractor shall submit details (including drawings) of the proposed method of using Constructional Plant and the stacking and/or handling of materials on or about the track when required. In this event such work shall not begin until any required safety measures have been carried out to the satisfaction of Network Rail.

48. Notification of Toxic Substances on Site

(i) Toxic substances as defined in the Health and Safety Executive Guidance Note EH40 shall not be brought on or about the railway without the prior written consent of Network Rail.

(ii) If any unforeseen toxic substance is encountered or discovered on site during the progress of the work, the Contractor shall firstly secure the working area where these are discovered and then immediately submit the proposed method of operation and the precautions to be taken including handling disposal and/or re-use to Network Rail before continuing any work affected by the discovery.

49. Notification of Accidents to Railtrack

(i) Notwithstanding the statutory requirements of the Health and Safety at Work etc. Act 1974, the Contractor shall immediately report to Network Rail all accidents and occurrences causing damage to property or potentially affecting the safe working of the railway and all injuries (other than of a trivial nature) reportable diseases and work linked injuries and any dangerous occurrences as defined in the 'Reporting of Injuries, Diseases and Dangerous Occurrences regulations 1985' and as applicable those accidents cited in the 'Railways (Notice of Accidents) Order 1986' when these occur on the operational railway.

(ii) Details of all such occurrences shall be recorded on the appropriate form and a copy sent to Network Rail within 24 hours of any such occurrence.

(iii) All injuries to the Contractor's personnel (including minor injuries which the Department of Health and/or the Department of Social Security may specify) must be reported when working on the non-operational railway and a copy of the report sent to Network Rail.

(iv) Network Rail will advise the Contractor as to those parts of the Site which are on operational and those which are on non-operational railway.

50. Return to Work after Illness Injury or Accident

(i) Network Rail may require Contractor's personnel to undergo a medical examination before returning to work after a prolonged illness, serious injury or accident to establish their fitness for work.

51. Advertisements

(i) The Contractor shall not permit any advertisements to be displayed on or above railway property without the prior consent of Network Rail.

52. Services

(i) The degree of protection provided to Services on or about the railway can vary. The Contractor shall not interfere with any Services unless authorised by Network Rail except where shown on the contract drawings to be altered by the Contractor.

(ii) Should any unknown or unexpected Service be uncovered on railway property during the Works, the Contractor shall establish ownership, inform Network Rail and the owner of the Service and take appropriate precautions for protection.

(iii) The Contractor shall uphold, maintain and keep in working order in its existing location any Service not diverted.

53. Arrangements to Provide Protection to Railway Equipment

(i) The Contractor shall provide maintain and remove on completion of the Works all necessary protection to prevent damage to the tracks, track ballast, signal and telecommunication equipment and all other railway equipment during the execution of the work.

54. Electrified Railways

(i) The Contractor's attention is drawn to the presence in some areas of electric traction equipment which may be either overhead line equipment above the track and/or third or fourth conductor rail at track level. Either system carries a potentially lethal electric current and proximity to this equipment can cause death or severe injury.

(ii) The Contractor shall obtain warning notices to Network Rail's specification and shall erect these in prominent positions approved by Network Rail. The Contractor shall ensure that his personnel observe such warnings, together with any other instructions as may be included in the current Personal Track Safety Handbook RT3170 or any later replacement thereof. A poster explaining methods of resuscitation shall be erected and maintained in a prominent position at the place of work.

(iii) The Contractor shall fully comply with any requirements of Network Rail as to the earthing and bonding (or electrical segregation) of metal work and foil covered sheet materials.

55. Overhead Line Equipment (unless working within the protection afforded by isolation arrangements).

(i) Overhead line equipment is charged at high voltage and should be considered live at all times and the Contractor must observe the following precautions:-

(a) Work shall not be carried out, cranes or other plant erected, operated and/or dismantled or materials stored within the 'Prohibited Space' WHICH IS THAT SPACE WITHIN A RADIUS OF 2.75 METRES OF THE LIVE OVERHEAD EQUIPMENT TOGETHER WITH ANYWHERE VERTICALLY ABOVE THIS SPACE.

(b) The figure of 2.75 metres used in determining the Prohibited Space shall be increased by the length of any tool, equipment and/or material being handled. However, work on the railway track, platforms, walkways and the like below overhead equipment is permitted provided that tools, equipment and/or materials are not at any time raised above head height.

(c) Portable ladders used in the vicinity of the live overhead equipment shall be wood or other non-conducting material and shall not be metal reinforced nor contain any metal. Even ladders without reinforcement can lead to serious electrical shocks if allowed to come close to live overhead equipment and

therefore special precautions must be taken by the Contractor to ensure that the ladder cannot slip and encroach into the prohibited space.

(d) Any disturbance of or attachment to any equipment forming part of the electric traction system shall only be carried out by Network Rail or on their behalf.

(e) Long objects, which shall include but not be limited to, pipes, scaffolds, poles, ladders and/or long handled tools or any object of such length that if carried vertically could infringe on the Prohibited Space must be carried horizontally below head height.

(ii) Where, in the opinion of Network Rail, alternative safe systems of work are more appropriate, these could include:-

(a) Provision of Protective Screening and/or Platforms between the Work area and the Live Overhead Line Equipment

Erection and removal of screening and/or platforms must be carried out under the protection of isolation arrangements. Where such screening and platforms are erected Railtrack may agree to work being carried out without isolation arrangements.

and

(b) Isolation and Earthing of the Overhead Line Equipment and of Isolation Arrangements

The Overhead Line Equipment will not be made 'live' whilst the isolation arrangements are in being.

(iii) No work shall begin or personnel be allowed within the Prohibited Space unless or until isolation arrangements have been made.

56. Third or Fourth Rail Electrification (unless working within the protection afforded by isolation arrangements).

(i) A third or fourth conductor rail and associated electrical equipment shall be considered live at all times.

(ii) Work in the vicinity may involve the provision of special protection or alterations to the equipment.

(iii) All these shall be provided or carried out by or on behalf of Network Rail. Alternatively, Network Rail may isolate a length of third or fourth conductor rail and such other electrical equipment as considered necessary and implement isolation arrangements.

(iv) No work shall commence or personnel allowed to be exposed to risk from the third or fourth conductor rail or associated electrical equipment until isolation arrangements have been made.

57. Stability of Track

(i) Excavations near any railway track and/or structure shall not commence until all measures required to maintain the stability of the track and/or structure have been completed and Network Rail have indicated that there is no further objection to the Contractor proceeding with the excavation work.

58. Interference with Drains/Watercourses

(i) Any springs, watercourses or drains which may be interfered with or cut through shall be preserved and pipes and other means be provided so as not to stop or diminish their present flow. Should any drain or spring appear and/or be uncovered, adequate measures shall be provided to convey the water and soil therefrom to a suitable outlet and every reasonable precaution taken to protect the railway infrastructure from harm as a consequence of the work. The Contractor shall not without the prior written approval of Network Rail, make temporary or permanent connections to any mains, drains, pipes, watercourses or other services.

(ii) The Contractor shall not discharge any pollutant into any spring, water course, drain or other pipe but if such discharge occurs he shall inform Network Rail and the appropriate authorities by the quickest practical means.

59. Flooding or Pollution

(i) The Contractor shall take all necessary precautions to the satisfaction of Network Rail to prevent water, mud or other substances flooding or polluting the property or equipment of the railway.

60. Environmental Policy

(i) The Contractor shall comply with those provisions of the Network Rail Environmental Policy and Management System that are specifically drawn to his attention.

61. Clearance of Railway Infrastructure Land

(i) The Contractor shall not leave rubbish on railway infrastructure land and property and shall subject to the approval of Network Rail clear away and remove all Contractor's equipment surplus materials and temporary works as and when in the opinion of Network Rail in consultation with the Engineer these cease to be required for the Works.

62. Damage to Railway Infrastructure Land or Property

(i) All damage or defects or disturbance caused to railway infrastructure land the property as a result of the Works (whether occurring during the Works themselves or during the maintenance period) shall be made good by the Contractor as soon as possible to the satisfaction of Network Rail in consultation with the Engineer.

63. Contractor not relieved of Obligations

(i) Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract.

SPECIAL REQUIREMENTS IN RELATION TO BP PETROLEUM DEVELOPMENT LTD

Work in the Vicinity of Oil Pipelines

1. The "Company" means BP Petroleum Development Ltd.

2. The approximate location of oil pipelines will be notified to the Contractor. A meeting must be convened between the Contractor and the company's representative prior to Construction Work commencing in order that the line of the Company's apparatus can be clearly indicated. To this end the Contractor should contact the Senior Pipelines Engineer, Forties District, BP Petroleum Development. (Tel 01224 723131).

3. The Contractor shall provide free access at all times to the Company's representative to inspect the Construction Work in the vicinity of the Company's apparatus.

4. No work on top of the pipeline is allowed until the exact depth of the pipeline has been established by hand digging.

5. If it is necessary to expose the pipeline at any time, for security reasons, this must be kept to a minimum.

6. No mechanical plant shall be allowed within 3 metres of the Company's apparatus.

7. Where it is absolutely necessary for the Contractor's plant to cross the line of the Company's apparatus the Contractor must give prior notice to the Company's representative and place on the ground above the apparatus a suitable sleeper bridge to spread the load and prevent damage to the Company's apparatus. The Contractor's plant must not cross the line of the Company's apparatus at any point until the above precautions have been taken.

8. In the event of the Contractor or his representatives damaging one of the Company's pipelines, the following procedure and conditions must be adhered to:-

   (a) Immediately such damage takes place the Contractor must notify the Company's Emergency Control in Aberdeen, Telephone 01224 723131 (24 hours day).

   (b) The Contractor's representatives must adhered strictly to instructions given by the Company's representative regarding the vacating of the site in the vicinity of the damaged apparatus.

   (c) The Contractor must undertake to be responsible to the Company for any such damage and to make full payment to the Company of any expenses incurred by the Company for plant, labour, material and supervision necessitated by such damage.

SPECIAL REQUIREMENTS IN RELATION TO THE SCOTTISH GOVERNMENT IN RELATION TO ENVIRONMENT AND RURAL AFFAIRS

1 In these Special Requirements of the Scottish Government in relation to Environment and Rural Affairs the following term shall have the meaning assigned to it:

(a) 'Scottish Government Representative' means the staff of The Scottish Government or its appropriately authorised representatives and agents empowered to act on its behalf.

2 Before commencing any work over any portion of the Site the Contractor shall confirm with the local Scottish Government Rural Payments and Inspections Directorate (SGRPID) office details of any restrictions relating to the prevention of the spread of animal, plant or poultry diseases which may for the time being be in force relating to the Site and any surrounding land or access ways to which the Contractor or any sub-contractor employed by him may have or seek to gain entry for the purpose of the Works. The Scottish Government Representative can be contacted at the following point:

Address: **SGRPID**

Government Building

28 Longman Road

Longman East

Inverness

IV1 1SF697

Tel: 01463 234141

Fax: 01463 714697

Email: SGRPID.Inverness@scotland.gsi.gov.uk

3 The Contractor shall ensure that his employees or the employees of any sub-contractor employed by him shall avoid all contact with livestock on or adjacent to the Site and keep strictly to any route which has been agreed with any owner/occupier of land affected by the Works at all times.

4 Where it is necessary for the purpose of the Works to enter land on which livestock are or may be kept the Contractor shall take all precautions to prevent any livestock penetration from adjacent land onto such land or contact between any livestock on that land and other livestock from adjacent land.

5 Where it is necessary for the purpose of the Works to enter land which is or has recently been occupied by livestock the Contractor shall provide, at each entry or exit to such land, appropriate arrangements for disinfecting all footwear and vehicles upon entry or exit from such land to the satisfaction of the Engineer. He shall ensure that all footwear and vehicles are cleansed of all dirt and mud before disinfecting with a clean disinfectant, regularly replenished at the correct dilution and which carries a valid citation on the label certifying approval by The Scottish Government.

6 The Contractor shall not enter buildings occupied or used by livestock for the purpose of the Works without the express written consent of the owner/occupier. When such entry is necessary, rubber boots and protective over-garments of an appropriate type shall be worn at all times which shall be disinfected upon the entry and exit from such buildings in accordance with the instructions given at paragraph 5 above.

7 Notwithstanding any other provisions within the Contract the Contractor shall take all necessary precautions to ensure that streams, ditches and water troughs are not polluted as a result of the carrying out of the Works and that ditches and drainage outfalls are adequately protected from damage, Pollution or silting to the satisfaction of the Engineer.

8 The Contractor shall ensure that litter or debris resulting from the Works is not left or allowed to accumulate on or adjacent to the Site in areas accessible to livestock. The Contractor shall make every effort to remove discarded foodstuffs remaining from human consumption - these may carry infectious agents harmful to livestock.

9 The Contractor shall ensure that all gates are kept closed and appropriately secured and shall make every effort to avoid damage to fences hedges trees and walls in order to prevent livestock from straying. Where such damage does occur the Contractor shall take immediate action to secure any resulting breach from the penetration or escape of livestock and immediately thereafter notify the Engineer who shall consult the owner/occupier as appropriate.

10 In addition to the above requirements the Contractor shall take all necessary precautions to protect farmers stock herds against the risk/spread of Brucellosis. Such precautions shall include the provision by the Contractor at each entry or exit to such land, appropriate arrangements for disinfecting all footwear and vehicles upon entry or exit from such land to the satisfaction of the Engineer. He shall ensure that all footwear and vehicles are cleansed of all dirt and mud before disinfecting with a clean disinfectant, regularly replenished at the correct dilution and which carries a valid citation on the label certifying approval by The Scottish Government.

11 Notwithstanding the above requirements the Contractor shall comply with best practice as set out in Scotland's Environment And Rural Services (SEARS) "Biosecurity for Staff" booklet available at :-

http://www.sears.scotland.gov.uk/DocumentView.aspx?id=40

12 The Contractor shall take steps to minimise the risk of spreading plant pests or diseases or non-native species and shall strictly comply with any legislation associated with the movement of:

a) Soil which may be contaminated with plant pests or diseases, which cause damage to crops or the natural environment;

b) Vegetation which may be infected with plants pests or diseases;

c) Non-native species, including animals, plants, insects and aquatic species; and

d) Soil and water which may be contaminated with non-native species.

13 The Contractor shall strictly comply with any specific conditions that the Scottish Government Representative may require to prevent the spread of pests or diseases or non-native species.

14 The Contractor shall comply with the Horticultural Code of Practice for Scotland on Invasive Non-Native Species.

15 With regard to livestock diseases:

Foot and Mouth Disease
Newcastle Disease (Fowl Pest)
Swine Fever
Swine Vesicular Disease

Should an outbreak of any of the above highly infectious diseases occur in the area the Contractor or any sub-contractor employed by him shall not enter further upon any land and shall immediately inform the Engineer and request instructions. The Engineer shall consult with and seek instructions immediately from the Scottish Government Representative.

16 Carcass burial pits contain the remains of animals which have been slaughtered for the purposes of containing certain diseases (Foot and Mouth, but occasionally Anthrax) ("Carcass Burial Pits"). Unauthorised exhumation of such carcasses is illegal. Where there is prior knowledge that Carcass Burial Pits may exist in the area of the Works the Scottish Government Representative may be able to offer assistance in their location. However, if during the course of the Works a Carcass Burial Pit is encountered by the Contractor or any sub-contractor employed by him all work shall cease at that location and the Contractor shall appropriately secure that area of the Site against access and immediately inform the Engineer and request instructions. The Engineer shall consult with and seek instructions immediately from the Scottish Government Representative.

17 Compliance with the above requirements do not relieve the Contractor of any of his obligations under the Contract.

SPECIAL REQUIREMENTS IN RELATION TO THE BRITISH PIPELINE AGENCY LTD

1. In this Special Requirement the following terms shall have the meanings assigned to them:-

   (i) "Authority" means the British Pipeline Agency Ltd.

   (ii) "Authority's Representative" means the staff of the British Pipeline Agency Ltd or its Authorised Representatives and Agents.

   (iii) 'Pipeline' means pipelines administered by the British Pipeline Agency Ltd and includes any associated apparatus administered by the Authority.

2. Government oil pipelines are subject to the statutory control of the Department of Energy or Ministry of Defence. The erection of buildings or structures or the carrying out of any work (subject to minor exceptions) within 3.0m of the line or immediately above the line of any such Pipeline without the consent of the respective Minister is prohibited. Commercial pipelines carrying oil or gas operate under private acts of Parliament and are subject to similar restrictions. At certain locations as part of multiple routes pipelines operated by British Gas Plc may be involved. The Authority are agents for any such Pipeline.

3. Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of any Pipeline administered by the Authority within the Site with the Authority's Representative, who can be contacted at the following point:-

   Address:-

   Fisher German Chartered Surveyors
   PO Box 7273
   Ashby De La Zouch
   LE65 2BY

   www.linesearch.org

4. Pipeline administered by the Authority is for gas and oil carriage at high pressures and is usually of steel construction. Pipeline may vary in size from 75mm to 900mm diameter. In general Pipeline routes are indicated by marker posts at road crossings, fences, hedgerows and the like. Depth of cover is usually a minimum of 1.0m.

   (i) Where such details show the Works or the movement of plant or equipment may endanger any Pipeline, the Contractor must give the Authority's Representative at least 7 days written notice of the date on which it is intended to commence such work or the movement of plant and equipment on Site in order that the presence of any Pipeline can be indicated by markers to be supplied and placed by the Contractor and if appropriate under the supervision of the Authority's Representative. No vehicle plant or machinery shall cross stand operate or travel within 3.0m of any Pipeline except as approved by the Authority.

   (ii) The Contractor shall agree his methods of working near any such Pipeline with the Authority's Representative and ensure that any Pipeline is adequately protected from damage by the use of wooden sleeper tracks or reinforced concrete rafts as appropriate. Temporary fencing of adequate strength shall be erected to regulate the movement of vehicles plant and machinery in the vicinity of the Pipeline. All such protective measures shall be approved by the Engineer.

5. For the purposes of access by the Authority to any Pipeline or along the route of a Pipeline a minimum 6.0m clearance shall be maintained so far as is reasonably possible at all times.

6. The Contractor shall make every effort to avoid the disturbance of any Pipeline more than is absolutely necessary for the completion of the Works in accordance with the Contract.

7. All excavation adjacent to any Pipeline shall be carried out by hand until the exact location of the Pipeline is known. Mechanical borers and/or excavators shall not be used within 3.0m of any Pipeline. To prevent movement of any Pipeline during excavation, complete shuttering and other adequate and appropriate support measures agreed with the Authority and approved by the Engineer shall be used if:-

   (i) Excavation is deeper than the depth of cover of any adjacent Pipeline.

   (ii) Excavation is within 3.0m of any Pipeline in stable soil.

   (iii) Excavation is within 6.0m of any Pipeline in unstable soil.

   (iv) Pile driving equipment within 30.0m of any Pipeline.

   (v) Explosives within 200.0m of any Pipeline.

   (vi) Any hot work such as welding and the like within 6.0m of any Pipeline.

8. The Contractor shall advise the Authority's Representative, giving at least 7 days written notice, in order that any special protective measures for the Pipeline affected may be arranged and if thought appropriate the Authority's Representative may attend upon Site to supervise such work.

9. Where new services are to pass under an existing Pipeline the minimum clearance shall be 300mm. A concrete slab 100mm thick by 1.0m wide by 6.0m long shall be placed 150mm below the Pipeline following the new service route.

10. Where the new services are to pass over an existing Pipeline the minimum clearance shall be 300mm. A concrete slab 100mm thick by 1.0m wide by 6.0m long shall be placed 150mm above the Pipeline following the new service route.

11. Where the new service is a pipeline the section traversing the easement of the Authority shall be pre-installation tested to full working limits. If yield testing is proposed a single length of pre-yield tested pipe shall be used to span the easement of the Authority. At points where British Gas PLC have an interest it may be required that the new pipeline be temporarily sleeved with line quality pipe for up to 13.0m.

12. The Contractor should particularly note that Pipeline may have cathodic protection arrangements which could adversely affect steel or iron structures or services in the immediate vicinity of the Pipeline. The Contractor should make provision for any necessary testing to ascertain the possibility of such detrimental interaction. Neither Pipeline owners nor the Authority can be held responsible for damage to works the cause of which is thought to originate in any such interaction with the cathodically protected Pipeline.

13. When backfilling around any Pipeline administered by the Authority, the Authority's Representative shall be given adequate notice, which shall not be less than 3 days, of the Contractor's intentions in order that he may attend upon the Site to inspect the work and supervise the operation.

14. Backfilling shall be in 225mm layers consolidated layer by layer to the satisfaction of the Engineer. Fill shall be free from flints stones and carbonaceous material. Where slabbing reduces such depth clean sand filling shall be used.

EMERGENCY ACTION

15. The following actions shall be taken by the Contractor in the event of a leak in any Pipeline:-

   (i) Remove all personnel from the immediate vicinity.

(ii) So far as is possible remove and/or extinguish all sources of ignition for a distance of at least 400 metres in all directions from the location of the leak. This precaution shall include a ban on the use of any electrical apparatus falling within this limit.

(iii) IMMEDIATELY inform the Authority the Engineer and (if required) the Emergency services in that order.

(iv) Secure that area from the approach of traffic and/or the general public.

(v) Render every assistance to the Emergency Services and/or the Authority as shall be requested for the purposes of mitigating damage arising from the leak and/or for the purposes of securing public safety.

(vi) DO NOT ATTEMPT TO SEAL ANY LEAK OF GAS OR OIL AT THE POINT OF DAMAGE

(vii) With regard to landslope and any apparent flow direction of any leaking oil, BUT WITHOUT COMPROMISE TO a) or b) above construct if possible and as necessary dams or bunds with earth and/or board to prevent oil flows reaching ditches streams drains manholes or other such water courses and ducts.

16. Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract.

SPECIAL REQUIREMENTS IN RELATION TO CABLE & WIRELESS

1. In these Special Requirement the following terms shall have the meanings assigned to them:-

   a) **Apparatus** means all surface or sub-surface equipment and plant used by Cable & Wireless UK including any associated cables or ducts owned, leased or rented by Cable & Wireless UK.

   b) **Cable** means any polythene or other sheath containing optical fibres or metallic conductors.

   c) **Depth of cover** means the depth from the surface to the topmost barrel of the duct nest, in the case of ducts encased in concrete, to the top of the concrete, and in the case of directly buried cable, the top of the cable.

   d) **Jointing chamber** means any manhole, surface box or other chamber giving access to Cable & Wireless UK apparatus or their network.

   e) **Utility** means an organisation licensed to provide gas, water, electricity, Cable TV or telecommunications services.

   f) **Developer** means an organisation licensed to develop industrial/ residential premises or given licence to connect to utility apparatus.

   g) **Contractor** means the individual, firm or company contracted to undertake the work for a Utility or Other Parties.

   h) **Site** means the location of, or in the vicinity of, the various works.

2. Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of the Apparatus within the Site with the Company Representative, who can be contacted at the following point:-

   Cable & Wireless
   C/O Atkins Telecoms
   NRSWA Team
   PO Box 290
   260 Aztec West
   Almodsbury
   BRISTOL
   BS32 4WE

   Tel 01454- 288 808
   Fax 0870 240 3012

3. Upon receipt of this notification, Atkins Telecoms will identify if Cable & Wireless UK apparatus is affected. If any Cable & Wireless UK apparatus is affected by the works then Atkins Telecoms will provide necessary records and confirm details of Cable & Wireless UK apparatus and network operated within the affected area or adjacent to the proposed work site.

Location of Plant

4. It is the responsibility of the Contractor to undertake adequate plant location procedures. These may include searches for metallic cables which must be performed by actively inducing a signal in a cable conductor via a transmitter. A passive search is not considered sufficient.

5. Before applying a tracing signal to the Cable & Wireless UK apparatus, the Contractor shall seek confirmation from Atkins Telecoms that the Cable & Wireless UK clients' apparatus will not suffer any disruption to the Cable & Wireless UK networks normal workings as a result of the nature of the signal being induced.

Trial Excavations

6. Optic fibre cables are very susceptible to damage from excavation tools. They are not electrically conductive and cannot be located by radio induction methods. Once an approximate location is known, the exact location must be ascertained by means of hand dug pilot holes.

7. Where the work to be carried out by the Contractor involves excavation in the vicinity of our clients' apparatus, the Contractor shall carry out the instructions of the Engineer to by trial excavation, determine the exact location and depth of the Cable & Wireless UK apparatus.

8. All excavations adjacent to the Cable & Wireless UK apparatus are to be carried out by hand until the extent and /or location of the apparatus is known.

9. **All excavation work shall be executed in accordance with the current issue of Health and Safety series booklet HSG47, Avoiding danger from underground services.**

Depths of cover

10. The Contractor should note that the minimum depths of cover for Cable & Wireless UK apparatus which shall be maintained together with specified separation requirements. Where the minimum depths of cover specified by Cable & Wireless UK cannot be maintained, the Contractor shall carry out the instructions of the Engineer for the protection or diversion of the apparatus and such actions that follow from the Engineer's instruction shall be supervised by a Company Representative.

11. **The Contractor should have particular regard to the possibility of encountering Cable & Wireless UK apparatus (including ducts and cables), at depths of cover other than that reported.**

12. Where directly buried cables are encountered and the required depth of cover cannot be maintained, the cables shall carry out the instructions of the Engineer for the protection of the cables and such actions that follow from the Engineer's instruction shall be supervised by a Company Representative.

13. Surface cables (such as cables on bridges or walls) which are liable to be placed in danger from the Works shall be protected as instructed by the Engineer and such actions that follow from the Engineer's instruction shall be supervised by a Company Representative.

Separation

14. Reference should be made to HSG47 to ensure that adequate separation is achieved. The following details outline the specific requirements of Cable & Wireless UK and capture the HSG47 requirements:-

High voltage cables

15. High voltage single core cables of 1000 V and above shall have a minimum clearance from Company Apparatus of 500 mm.

16. High voltage multi-core cables of 1000 V and above shall have a minimum clearance from Company Apparatus of 350 mm.

17. In exceptional circumstances where the above clearances cannot be maintained, the separating distance may be reduced to a minimum of 175 mm. In such circumstances, concrete, of a quality as directed by the Company Representative, must be inserted to completely fill the space between the High Voltage cable and the Company Apparatus, in accordance with the requirements of the Company Representative. Any further services must have a minimum clearance of 250 mm from the concrete.

Low voltage cables

18. Low voltage cables of less than 1000 V shall have a minimum clearance from Company Apparatus of 180 mm. In exceptional circumstances where the above clearance cannot be maintained, the separating distance may be reduced to a minimum of 75 mm. In such circumstances, concrete, of a quality as directed by the Company Representative, must be inserted to completely fill the space between the services, in accordance with the requirements of the Company Representative. Any further services must have a minimum clearance of 250 mm from the concrete.

Ancillary electrical apparatus

19. Lamp posts, traffic posts and other such ancillary electrical apparatus shall have a minimum clearance of 150 mm from underground Company Apparatus and 600mm clearance from above ground Company Apparatus.

High pressure gas mains and other Undertakers plant/equipment

20. High pressure gas mains shall have a minimum clearance of 450 mm from Company Apparatus. All other undertakers' plant and equipment, when running in parallel with Company Apparatus, shall have a minimum clearance of 200 mm. Where gas mains cross Company Apparatus, the minimum clearance shall be 200 mm. All other undertakers' plant and equipment, when running across Company Apparatus, shall have a minimum clearance of 100 mm.

Other Undertakers plant

21. Other undertakers' plant and equipment which runs in parallel with Company Apparatus shall have a minimum clearance of 200mm. All other undertakers' plant and equipment when running across Company Apparatus, shall have a minimum clearance of 100mm.

Tramways

22. Each separating distance shall be individually agreed with the Company Representative.

Jointing Chambers

23. Protection :-

    (i) Footway type jointing chambers are not designed to withstand carriageway loadings

    (ii) Where such chambers are liable to be placed at risk, either temporarily or permanently, from vehicular traffic or from the movement of plant and/or equipment, they will need to be adequately protected. Alternatively, they may have to be demolished and rebuilt to carriageway standards, at the Contractors expense under supervision of Cable & Wireless UK representative.

    (iii) All Cable & Wireless UK jointing chambers and / or other access points shall be kept clear and unobstructed. Access for vehicles, winches, cable drums and / or any further equipment required by Cable & Wireless UK for the maintenance of its apparatus, must be maintained at all reasonable times.

24. Access :-

(i) The covers to Cable & Wireless UK jointing chambers and / or apparatus shall only be lifted by means of the appropriate keys and under the direct supervision of a Cable & Wireless UK representative. Contractors shall not enter any Cable & Wireless UK jointing chamber and / or apparatus unless under the supervision of a Cable & Wireless UK representative and in any case not before the mandatory gas test has been carried out in the presence of Cable & Wireless UK representative and such checks have shown it to be safe to enter the Cable & Wireless UK chamber and / or apparatus. The Contractor shall be given reasonable access to Cable & Wireless UK apparatus and chambers when required.

Notification Periods

25. Where the Contractors works or the movement of plant or equipment may endanger Cable & Wireless UK apparatus, the Contractor shall give the Cable & Wireless UK agent Atkins Telecoms [as indicated at Appendix A] **at** least 7 working days notice in writing of the intended date to commence operations.

26. No excavation should be made without first consulting the relevant Cable & Wireless UK apparatus layout drawings, which will be made available from the Cable & Wireless UK agent Atkins Telecoms on request and allowing 28 working days for processing the relevant drawings. However, should this not be possible, direct contact should be made to the Atkins Telecoms Bristol NRSWA Operations Centre as soon as possible to assess the situation.

27. When excavating, moving or backfilling (including use of Foamed Concrete for Reinstatements – FCR) around Cable & Wireless UK apparatus, Atkins Telecoms (as agent for Cable & Wireless UK) shall be given adequate prior written notice of the Contractors intentions, in order that the works may be adequately supervised. Such notice shall not be less than 3 working days.

Excavation and backfill

28. All excavations adjacent to Cable & Wireless UK apparatus are to be carried out by hand until the extent and or location of the Cable & Wireless UK apparatus is known.

29. Use of mechanical borers and / or excavators shall not be used without the supervisory presence of a Cable & Wireless UK representative or a given exemption.

30. Shuttering of the excavation or support to Cable & Wireless UK apparatus, at the Contractors expense, shall be used as directed by the Cable & Wireless UK representative.

31. At least 7 working days notice must be given to Atkins Telecoms as agent for Cable & Wireless UK in order that any special protective measures may be required to protect Cable & Wireless UK. apparatus when equipment such as pile driving, explosives, laser cutting high powered RF equipment or RF test gear, is to be used in conjunction with the works.

32. Contractors are advised to refer to the National Joint Utilities Group [NJUG] 4 Document which outlines the identification of small buried mains and services.

33. Foam concrete

34. If foam concrete is being used as the backfill material, it shall not be used either above or within 500 mm of any Company Apparatus. A suitable material in accordance with the specification for the Reinstatement of Openings in Highways shall be substituted.

Attendance of Company Representative

35. If a situation requires the attendance on site of a Cable & Wireless UK representative for a continuous period of more than 6 hours, suitable facilities shall be provided by the Contractor , at their expense, to meet the office and ablution requirements.

Damage reports

36. In the event of any damage whatsoever occurring to our Cable & Wireless UK apparatus, the Contractor shall immediately inform Cable & Wireless UK by contacting their agent Atkins Telecoms at their Bristol NRSWA Operations Centre as identified in Appendix A.

37. All relevant costs of any subsequent repair and / or removal of the Cable & Wireless UK apparatus shall be charged to the Contractor, irrespective of who affects the repair.

38. The above requirements do not relieve the Contractor of any of their obligations under the contract.

References. The following reference material relate to these Special Requirements:

Document Number	Document Title
Volume B	Generic Documents for Tendered and Period Contract Works for C&W.
ISBN 0 10 542291 6	New Roads and Street Works Act 1991
0 7176 1744 0	HSG47 Avoiding Danger from Underground Services
NJUG 4	The Identification of Small Buried Mains and Services
NJUG 7	Recommended Positioning of Utilities' Apparatus for New Works on New Developments and in Existing Streets
NJUG 9	Recommendations for the Exchange of Records of Apparatus Between Utilities
ISBN 0-11-552546-7	Code of Practice for Recording of Underground Apparatus in Streets (010503)

SPECIAL REQUIREMENTS IN RELATION TO BAA plc

1. In these Special Requirements the following terms shall have the meanings assigned to them:-

   (i) "Authority" means the BAA plc.

   (ii) "Authority's Representative" means the staff of the BAA plc or its Authorised Representatives and Agents.

2. Before commencing any work or moving heavy plant or equipment over any portion of the Site the Contractor shall confirm details of any safety restrictions in relation to equipment and the height of plant (in particular cranes), which may be required by the Authority with the Authority's Representative, who can be contacted at the following point:-

   Aberdeen Airport Ltd
   Engineering Department
   Aberdeen Airport
   Dyce
   Aberdeenshire Council AB21 7DU

   Contact Number :-
   Facilities Manager : Tel 01224 725708

3. The Contractor shall note that particular restrictions apply to the use of high mast jib cranes within 3 kilometres of an active civilian aerodrome or airport and/or in areas known to be used for low flying training. The Contractor is reminded that hazarding an aircraft constitutes an offence in law. Failure by the Contractor to obtain and/or abide by any restrictions requested by the Authority or the Authority's Representative may constitute negligence.

4. The Contractor shall ensure that any restrictions requested by the Authority or the Authority's Representative shall be brought to the attention of and applied by any sub-contractors employed for the purposes of completing the Works.

5. In the case of low flying areas used by military aircraft and/or the presence of military airfields, the Contractor shall seek guidance from the appropriate military authority at the following address

   The Head of Safeguarding
   Ministry of Defence Estate Organisation
   Blakemore Drive
   Sutton Coldfield
   B75 7RL

6. Further information relating to Works in the vicinity of an active civilian aerodrome or airport and additional restrictions and Planning Guidelines are available in the Scottish Executive Circular “The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003” which came into force on 10 February 2003.

7. Compliance with the above requirements shall not relieve the Contractor of any of his obligations under the Contract.

FREEDOM OF INFORMATION

Clause 15

1. All information submitted to the Employer may need to be disclosed and/or published by the Employer. Without prejudice to the foregoing generality, the Employer may disclose information in compliance with the Freedom of Information (Scotland) Act 2002, (the decisions of the Employer in the interpretation thereof shall be final and conclusive in any dispute, difference or question arising in respect of disclosure under its terms), any other law, or, as a consequence of judicial order, or order by any court, tribunal or body with the authority to order disclosure (including the Scottish Information Commissioner).

2. In respect of the information described in Appendix B to the Form of Tender, and agreed in writing by the Employer, for the period specified for that category of information (such information for the specified period being referred to hereafter as "Non-disclosure Items"), the Employer will not voluntarily disclose the information to any third parties ("third parties" in this context not including employees, agents or contractors of the Employer provided such employees, agents or contractors are bound not to further use or disclose the Non-disclosure Items except to the extent instructed by the Employer and as permitted in terms of this Agreement) without the prior consent of the Contractor (such consent not to be unreasonably withheld or delayed) save as permitted below.

3. If the Employer receives a request under Section 1 of the Freedom of Information (Scotland) Act 2002 (or, if applicable, a request under the Environmental Information (Scotland) Regulations 2004), which includes any of the Non-disclosure Items, the Employer may seek the consent of the Contractor to release some or all of the Non-disclosure Items in response to the said request and shall do so if the Employer is minded to disclose such items, whether in terms of the public interest or otherwise. If the Contractor shall fail to respond to such a request for consent within seven days of the request being made, it shall be deemed to have consented to the release of information as requested by the Employer. In all cases the Employer may, without the consent of the Contractor, disclose any of the Non-disclosure Items if the Employer (acting reasonably) is satisfied that it is in the public interest for it to do so. In reaching this conclusion the Employer shall take into account any representations made in connection with this by the Contractor but the decisions of the Employer as to what constitutes the public interest shall be final and conclusive in any dispute, difference or question arising in respect thereof.

PREAMBLE TO THE SPECIFICATION

1. The Specification referred to in the Tender shall be the 'Specification for Highway Works', published by The Stationery Office (formerly HMSO) as Volume 1 of the Manual of Contract Documents for Highway Works, as modified and extended by the following:

   (i) Appendix 0/1: Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures;

   (ii) Appendix 0/2: Contract-specific minor alterations to existing Clauses, Tables and Figures;

   (iii) The Numbered Appendices listed in Appendix 0/3;

   (iv) The list of drawings contained in Appendix 0/4.

   (v) Appendix 0/5: Special national alterations of the Overseeing Organisation of Scotland, Wales or Northern Ireland.

   (vi) **The Tender Document for Individual Contract included as part of the Tender Documents. The contents of these documents shall, in all cases, take precedence over the Specification and the contents of this Annual Maintenance Contract Document.**

2. The relevant publication date of each page of the Specification for Highway Works is given in the Schedule of Pages and Relevant Publication Dates.

3. An Additional Clause as indicated by a suffix 'A' in Appendix 0/5 is an alteration originating from the Overseeing Organisation of Scotland, Wales or Northern Ireland. An Additional Clause as indicated by a suffix 'AR' in Appendix 0/1 is a Contract-specific alteration.

4. A Substitute Clause, as indicated by the suffix 'S' in Appendix 0/5 is an alteration originating from the Overseeing Organisation of Scotland, Wales or Northern Ireland. A Substitute Clause as indicated by a suffix 'SR' in Appendix 0/1 is a Contract-specific alteration.

5. A Cancelled Clause as indicated by a suffix 'C' in Appendix 0/5 is an alteration originating from the Overseeing Organisation of Scotland, Wales or Northern Ireland. A Cancelled Clause indicated by a suffix 'CR' in Appendix 0/1 is a Contract-specific alteration.

6. Insofar as any of the Numbered Appendices may conflict or be inconsistent with any provision of the Specification for Highway Works the Numbered Appendices shall always prevail. Additionally, Numbered Appendices 0/1 and 0/2 shall take precedence over Numbered Appendix 0/5.

7. Any reference in the Contract to a Clause number or Appendix shall be deemed to refer to the corresponding Substitute Clause number of Appendix listed in Appendix 0/1, 0/2 or 0/5.

8. Where a Clause is altered any original Table/Figure referred to in the Clause shall apply unless the Table/Figure is also altered. Where a Table/Figure is altered any reference in a Clause to the original Table/Figure shall apply to the altered Table/Figure.

9. Where a Clause in the Specification relates to work goods or materials which are not required for the Works it shall be deemed not to apply.

10. Any Appendix referred to in the Specification which is not used shall be deemed not to apply.

11. Where a Clause in the Specification is prefixed by an # this indicates that this particular Clause has a substitute National Alteration for one or more of the Overseeing Organisations of

Scotland, Wales or Northern Ireland. Substitute or additional National Clauses shall be used within countries to which they specifically apply and they are deemed to replace corresponding Clauses in the main text of the Specification as appropriate. The substitute National Clauses are located at the end of the relevant Series together with the additional National Clauses of the Overseeing Organisations.

12. Other than where references to the Overseeing Organisation are made in the context of the Overseeing Organisation granting statutory or type approvals, the roles and functions of the Overseeing Organisation shall be undertaken by the Engineer.

    Where the Specification requires the provision of documentation to the Overseeing Organisation for statutory or type approval such documentation shall be provided to the Engineer.

13. If the Specification is used in conjunction with a Contract under which the Contractor is responsible for the design of any part of the Permanent Works, the delegation of the roles and functions of the Overseeing Organisation as stated in paragraph 12 above shall be further amended as follows:

    (i) If any agreement, consent or approval required to be obtained from the Overseeing Organisation impacts on the health and safety of the general public, the environment or any property or equipment not owned or operated by the Contractor, such agreement, consent, approval shall be obtained from the Engineer.

    (ii) Where the Specification provides for the Overseeing Organisation to require a test, waive the requirement for a test or alter testing frequency, the party to whom the Overseeing Organisation's roles and functions have been ascribed by paragraph 12 above shall exercise such decisions in accordance with the Employer's requirements stated in the Contract.

14. The Reference Date for British Standard Documents shall be 1st January 2010

1.2 Specification for Highway Works
Schedule of Pages and Relevant Publication Dates

Series/Appendix	Page Number	Publication Date
000	1	March 1998
	3F	May 2005
	2	November 2006
100	2	May 2001
	W1F	May2005
	12 to 14, 20F	November 2005
	1, 3 to 7, N1, N3	May 2006
	8 to 9, 11, 15 to 19, N2, N4	November 2006
	10, N5 to N6F	November 2008
200	1, 3F	May 2001
	2	May 2004
300	1	May 2001
	4	November 2002
	2 to 3, 5 to 6F	May 2008
400	1 to 6, 8, 10 to 13F	November 2007
	7, 9	November 2008
500	23 to 24, 26	November 2004
	28F	May 2005
	3, 22, N1F	May 2006
	2, 5, 27	November 2006
	6, 25	November 2007
	1, 4, 7 to 21	November 2009
600	33	November 2003
	2, 27 to 28, 30 to 32, 34 to 36, N1	November 2005
	25 to 26	November 2006
	42 to 49, 52 to 68F	November 2007
	37, 50	November 2008
	1, 3 to 24, 29, 38, to 41, S1 to S3F, N2 to N4F	November 2009
700	2 to 3, 5 to 6, N1, N3 to N5F	November 2006
	4, N2	November 2007
	1, 7 to 32F	November 2009
800	1 to 25F	November 2009
900	2 to 5, 9 to 22m 24 to 26, 28 to 67F	August 2008
	1, 6 to 8, S1F	November 2008
	23, 27	May 2009
1000	3, 5 to 6	November 2005
	1 to 2, 4, 7 to 15, 19 to 33F	May 2006
	16 to 18	November 2006
1100	1 to 4F	November 2004
	2, N1F	November 2006
	3	August 2008
1200	5	May 2001
	2 to 3, W1F	August 2003
	1, 14 to 16F	May 2004
	4, 9 to 11, 13	May 2005
	12	November 2006
	6 to 7, N1 to N4F	November 2007
	8	May 2008
1300	N2F	November 2003
	3 to 4	November 2004
	1, 5 to 10, 12F	November 2005

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	2, 11, N1	May 2006
1400	2, N1F	May 2001
	1, 3 to 9F	May 2006
1500	7	May 2001
	2	February 2003
	3 to 4, 8 to 11, 13	November 2004
	1, 5 to 6, 12, 14 to 17F	November 2006
1600	1, 4 to 5, 9, 15, 17 to 18, 24 to 26, 29 to 31, 35, 38, 49F	March 1998
	2, 6 to 8, 10 to 14, 16, 19, 27 to 28, 32 to 34, 36 to 37, 39 to 42, 44 to 48	November 2003
	3, 20 to 23, 43	November 2005
1700	2 to 7, 10 to 15	May 2004
	8 to 9	November 2005
	1, 16 to 22F	May 2006
1800	1, 4, 6, 8 to 9	May 2004
	2 to 3, 5, 7, 10 to 12F	November 2005
1900	17	May2003
	1, 5, 8 to 14, 16, 18 to 30F, S1 to S2F	May 2005
	6 to 7, 15	May 2008
	2 to 4	November 2008
2000	1, 3 to 4F	May 2001
	2	November 2004
2100	1, 4F	March 1998
	2	November 2003
	3	November 2005
2300	1	March 1998
	2 to 3F	May 2001
2400	1, 4, 7F	May 2005
	2	May 2006
	3, 5 to 6	May 2008
2500	1	May 2001
	2, 8, 11F	November 2003
	10	November 2004
	6 to 7, 9	May 2005
	5	May 2006
	3 to 4	November 2006
2600	1	March 1998
	2 to 4	November 2003
	5	November 2004
	6	May 2005
	7F	November 2006
3000	1, 4 to 7, 10, 12 to 17, 19, 22 to 27F	May 2001
	20	November 2004
	2 to 3	May 2006
	8 to 9, 11, 18, 21	May 2008
5000	1, 4 to 19F, S1F	May 2005
	2 to 3	November 2008
Appendix A	1 to 32F	May 2008
Appendix B	1	May 2006
	2 to 7F	November 2006
Appendix C	1	May 2005
	2F	November 2006
#Appendix D	1F	May 2005

Series/Appendix	Page Number	Publication Date
Appendix D(NI)	N1F	March 1998
#Appendix E	1F	May 2005
Appendix E(NI)	N1F	May 2005
Appendix F	14	May 2008
	1 to 13, 15 to 56F	May 2009
Appendix G	1F	May 2004
Appendix H	1	May 2004
	2	November 2005
	3	November 2006
	4 to 9F	November 2008

APPENDIX 0/1 - CONTRACT SPECIFIC ADDITIONAL, SUBSTITUTE AND CANCELLED CLAUSES AND TABLES INCLUDED IN THIS CONTRACT

LIST OF ADDITIONAL CLAUSES, TABLES AND FIGURES

CLAUSE 570AR : REPLACING, RAISING OR LOWERING COVERS, GRATINGS AND FRAMES ON EXISTING CHAMBERS AND GULLIES.

1. Where existing covers, gratings or frames have to be replaced, the Contractor shall carefully remove any damaged parts and clean any parts to be re-used. If necessary, any concrete or mortar bedding shall be broken out, the surface shall be prepared and the frame, grating or cover bedded or replaced to its original position.

2. Where the levels of existing covers or gratings have to be adjusted the Contractor shall carefully excavate for and remove the existing cover or grating and frame, which shall be cleaned to remove all adhering material. The underlying brickwork, concrete or mortar in bedding, chamber or shaft walls shall then be broken down to the required level and the surface prepared to receive new construction. Where necessary, reinforced concrete cover slabs shall be broken out. Precast concrete cover slabs shall be lifted off and cleaned ready for re-use, unless otherwise directed by the Overseeing Organisation.

3. New construction in brickwork or concrete shall be built on the existing chamber or shaft and shall conform to the relevant requirements in any Order for new manholes, catchpits, gullies, Statutory Undertakers' chambers and the like. Unless otherwise directed by the Overseeing Organisation, the existing precast concrete cover slabs and the existing covers, gratings and frames shall be re-used in the work.

4. After the removal of the frame the existing bed shall be examined and any loose or defective material and broken bricks, tiles or concrete sections shall be removed.

5. The Contractor shall report to the Overseeing Organisation at the earliest opportunity any covers, gratings or frames which are either broken or cannot be opened.

6. The bed shall be altered with metal shims, clay tiles or Class A engineering bricks as appropriate for the height of the required build-up.

7. The frame will be haunched with mortar to within 40mm of its top. The remaining 40mm will be painted with joint bitumen.

8. Unless otherwise directed by the Overseeing Organisation, the remainder of the void around the frame shall be filled with either bitumen macadam or rolled asphalt surfacing material as appropriate to match the surrounding surface. The surface course shall be laid in a uniform layer of the specified thickness and shall include pre-coated chippings in the case of rolled asphalt.

9. Where directed by the Overseeing Organisation covers and frames shall be broken-out, adjusted, reinstated and able to be trafficked in the course of one working day. The Contractor shall not break-out more covers and frames than he can fully reinstate by the end of the working day and he shall use an epoxy resin based or other approved high early strength mortar. Newly raised ironwork shall be protected from traffic to allow an adequate curing period.

10. In certain circumstances, for example if the site is to be overlaid, the Overseeing Organisation shall instruct the Contractor to adjust covers and frames to specified levels above the existing adjacent surface. The covers and frames shall be adjusted as above and shall additionally be surrounded by a temporary ramp in bituminous material to a gradient not steeper than 1:10. The Contractor is reminded that he shall provide warning signs in accordance with the requirements of the Contract.

Final Levels

11. Unless otherwise instructed by the Overseeing Organisation the Contractor shall adjust covers and frames as follows.

(i) All manhole, inspection chamber, hydrant, etc. farmland covers shall be adjusted to the same level as the existing adjacent surface.

(ii) All gully gratings and frames shall be adjusted to a level 6mm below the existing adjacent surface.

General

12. The Contractor shall ensure that no material is allowed to fall into the chamber or gully pot during the course of the work.

13. The Contractor shall take precautions to avoid damage to any apparatus within a chamber or to the chamber or gully pot itself.

CLAUSE 571AR: DRAINAGE OFFLETS

1. Drainage offlets shall be dug through the verge to the required profile and falls. Care shall be taken not to disturb the soil beneath or adjacent to the excavation.

2. Excavated material shall only be disposed of to a tip off the site, provided by the Contractor, when directed by the Overseeing Organisation. Excavated material shall normally be deposited on the verge, spread evenly to a maximum depth of 75mm and at least 1 metre clear of the edge of the ditch or offlet or any other ditch or offlet. Material deposited on the verge shall not be allowed to encroach onto the carriageway.

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CLAUSE 970AR: SINGLE COURSE MACADAM (20mm)

1. The material shall be made in accordance with the general requirements of BS4987 subject to the following provisos.

2. Unless otherwise authorised by the Overseeing Organisation, it shall be mixed in accordance with the following requirements for traffic Category B indicated in Table 970/A.

TABLE 970/A: SINGLE COURSE MACADAM			
Aggregate grading			
Sieve	Crushed rock	Grade of binder Bitumen	Binder Content % Mass of Total Mixture
Mm	Type 1 - 7 % by mass passing		
31.5 20 14 10 6.3 2 63μm	100 90 - 100 50 - 80 - 15 - 35 4 - 15 2 - 6	AC 160/220	4.3 (+/- 0.6%)

3. The polished stone value and aggregate abrasion value of the coarse aggregate shall be 50 minimum and 10 maximum respectively.

4. Where regulating or screeding is required or permitted by the Overseeing Organisation in order to provide a uniform surface coarse thickness, the material to be used shall be as described in the Contract. A tack coat of bitumen emulsion in accordance with Appendix 7/4 and shall be applied to all surfaces prior to regulation.

5. The surface of newly-compacted single course macadam shall be blinded by hand or mechanically with bituminous grit in accordance with BS 4987-1:2003, 7.9. The rate of spread shall be 7.5 ± 1 Kg/m^2. (130m^2/ton).

6. Range of average thickness of compacted course 35mm - 60mm.

APPENDIX 0/2 - CONTRACT SPECIFIC MINOR ALTERATIONS TO EXISTING CLAUSES, TABLES AND FIGURES INCLUDED IN THIS CONTRACT

List of Minor Alterations to Existing Clauses, Tables and Figures

None

APPENDIX 0/3: LIST OF NUMBERED APPENDICES REFERRED TO IN THE SPECIFICATION AND INCLUDED IN THE CONTRACT

Appendix 0/3 is comprised of two lists, A and B, of Numbered Appendices as follows:-

List 'A' is a complete list of the Numbered Appendices referred to in the Specification for Highway Works with those not adopted marked 'Not Used'. Those identified by the letters T or C shall be completed by the Tenderer or Contractor respectively.

Numbered Appendices listed as "Not Used" are not included in this document but may be included in individual schemes carried out under this Annual Maintenance Contract. Such additional Appendices shall be adopted as if identified as used in this Appendix 0/3.

Numbered Appendices included in this document may be amended or extended as required for individual schemes carried out under this Annual Maintenance Contract. Such amended or extended Appendices shall take precedence over those included in this document.

List 'B' gives the list of Contract-specific Numbered Appendices devised for the Contract.

Guide to types of Numbered Appendices - who compiles/completes:

1 Symbol

(Co) Compiler compiles: Identified in the Notes for Guidance examples by the term 'Sample' included in their title.

(Co/C) Compiler partially compiles and Contractor completes and returns to Overseeing Organisation.

(Co/T) Compiler partially compiles and Tenderer completes and returns with Tender.

(C) Contractor completes and returns to Overseeing Organisation.

(P) This indicates the Appendix is a national proforma and format must not be altered.

LIST 'A': List of Numbered Appendices Referred to in the Specification for Highway Works			
Volume No.	Completed by	App. No.	Title
			INTRODUCTION
	(Co)	0/1	Contract-Specific Additional, Substitute and Cancelled Clauses, Tables and Figures Included in the Contract
	(Co)	0/2	Contract-Specific Minor Alterations to Existing Clauses, Tables and Figures Included in the Contract
	(Co)	0/3	List of Numbered Appendices Referred to in the Specification and Included in the Contract
	(Co)	0/4	List of Drawings Included in the Contract
	(Co)	0/5	Special National Alterations of the Overseeing Department of Scotland/Wales/Northern Ireland
			PRELIMINARIES
	Not Used	1/1	Temporary Accommodation and Equipment for the Overseeing Organisation
	Not Used	1/2#	Vehicles for the Overseeing Organisation
	Not Used	1/3	Communication System for the Overseeing Organisation
	Not Used	1/4	Working and Fabrication Drawings
	(Co)	1/5	Testing to be Carried out by the Contractor
	(Co)	1/6	Supply and Delivery of Samples to the Overseeing Organisation
	(Co)	1/7	Site Extent and Limitations on Use
	Not Used	1/8	Operatives for the Overseeing Organisation
	(Co)	1/9	Control of Noise and Vibration
	Not Used	1/10	Structures to be Designed by the Contractor
	Not used	1/11	Structural Elements and Other Features to be Designed by the Contractor
	Not used	1/12	Setting Out and Existing Ground Levels
	(Co)	1/13	Programme of Works
	(Co)	1/14	Payment Applications
	(Co) SS	1/15	Accommodation Works
	(Co)	1/16	Privately & Publicly Owned Services & Supplies
	(Co)	1/17	Traffic Safety and Management
	(Co)	1/18	Temporary Diversions for Traffic
	Not Used	1/19	Routeing of Vehicles
	Not used	1/20	Recovery Vehicles for Breakdowns
	Not used	1/21	Information Boards
	Not Used	1/22	Progress Photographs
	Not Used	1/23	Risk to Health and Safety from Materials or Substances
	Not Used	1/24	Quality Management System
	Not Used	1/25	Temporary Closed Circuit Television (CCTV) System for the Monitoring of Traffic
	Not Used	1/26	Temporary Automatic Speed Camera System for the Enforcement of Mandatory Speed Limits at Road Works (TASCAR)
	Not Used	1/27	Temporary Automatic Speed Camera System for the Enforcement of Mandatory Speed Limits at Road Works (TASCAR) – Particular Requirements
			SITE CLEARANCE
	Not Used	2/1	List of Buildings, etc to be Demolished or Partially Demolished
	Not Used	2/2	Filling of Trenches and Pipes
	(Co)	2/3	Retention of Material Arising from Site Clearance
	Not Used	2/4	Explosives & Blasting
	Not Used	2/5	Hazardous Materials

LIST 'A': List of Numbered Appendices Referred to in the Specification for Highway Works			
Volume No.	Completed by	App. No.	Title
	(Co)	3/1	FENCING Fencing, Gates and Stiles
	Not Used Not Used	4/1 4/2	ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN) Road Restraint Systems (Vehicle and Pedestrian) Information Required to Demonstrate Compliance of Road Restraint Systems to BS EN 1317-1, BS EN 1317-2, BS En 1317-3 and DD ENV 1317-4:2002
	(Co) (Co) Not used Not Used (Co) (Co) Not used	5/1 5/2 5/3 5/4 5/5 5/6 5/7	DRAINAGE AND SERVICE DUCTS Drainage Requirements Service Duct Requirements Surface Water Channels and Drainage Channel Blocks Fin Drains and Narrow Filter Drains Combined Drainage and Kerb Systems Linear Drainage Channel Systems Thermoplastic Structural Wall Pipes and Fittings
	(Co) (Co) Not Used Not Used Not used (Co) (Co) (Co) Not used Not Used Not Used Not Used Not Used	6/1 6/2 6/3 6/4 6/5 6/6 6/7 6/8 6/9 6/10 6/11 6/12 6/13 6/14 6/15	EARTHWORKS Requirements for Acceptability and Testing etc. of Earthworks Materials Requirements for Dealing with Class U1B and Class U2 Unacceptable Materials Requirements for Excavation, Deposition, Compaction (other than Dynamic Compaction) Requirements for Class 3 Material Geotextiles Used to Separate Earthworks Materials Fill to Structures and Fill Above Structural Foundations Sub-formation and Capping and Preparation and Surface Treatment of Formation Topsoiling Earthworks Environmental Bunds, Landscape Areas, Strengthened Embankments Ground Anchorages, Crib Walling and Gabions Swallow Holes and Other Naturally Occurring Cavities and Disused Mine Workings Instrumentation and Monitoring Ground Improvement Limiting Values for Pollution of Controlled Waters Limiting Values for Harm to Human Health and the Environment
	(Co) (Co) Not Used (Co)(C) Not Used (Co) Not Used Not Used (Co)	7/1 7/2 7/3 7/4 7/5 7/6 7/7 7/8 7/9	ROAD PAVEMENTS – GENERAL Permitted Pavement Options (Schedules 1, 2, 3, 4 and 5) Excavation, Trimming and Reinstatement of Existing Surfaces Surface Dressing – Performance Specification (Sheets 1, 2 & 3) Bond Coats, Tack Coats and other Bituminous Sprays (Sheets 1, 2 and Binder Data Sheet) In-Situ Recycling - The Remix and Repave Processes Breaking Up or Perforation of Existing Pavement Slurry Surfacing Incorporating Microsurfacing (Sheets 1, 2 &3) Not Used Cold-Milling (planing) of Bituminous Bound Flexible Pavement
	Not Used	7/10	Not Used

LIST 'A': List of Numbered Appendices Referred to in the Specification for Highway Works			
Volume No.	Completed by	App. No.	Title
	Not Used	7/11	Overband and Inlaid Crack Sealing Systems
	Not Used	7/12	Arrester Beds
	Not Used	7/13	Saw-Cut Crack and Seal Bituminous Overlays on Existing Jointed Concrete Pavements
	Not Used	7/14	Preparation of Jointed Concrete Pavements Prior to Overlaying and Saw-Cut and Seal of the Bituminous Overlay
	Not Used	7/15	Saw-Cut, Crack and Seat Existing Jointed Reinforced Concrete Pavements
	Not Used	7/16	Cracking and Seating of Existing Jointed Unreinforced Concrete Pavements and CBM Bases
	Not Used	7/17	Cracking Plant and Equipment Progress Record
	Not Used	7/18	Site Specific Details and Requirements for Cold Recycled Bitumen Bound Material
	Not Used	7/19	Site Specific Details and Requirements for Recycled Cement Bound Material
	Not Used	7/20	Site Specific Details and Requirements for Inducing Cracks
	Not Used	7/21	Surface Dressing – Recipe Specification (Sheets 1, 2 and Binder Data Sheet)
	Not Used	7/22	Repair to Potholes
			ROAD PAVEMENTS – CONCRETE AND CEMENT BOUND MATERIALS
	Not Used	10/1	Plant and Equipment for the Construction of Exposed Aggregate Concrete Surface
			KERBS, FOOTWAYS AND PAVED AREAS
	(Co)	11/1	Kerbs, Footways and Paved Areas
	Not Used	11/2#	Access Steps
			TRAFFIC SIGNS
	(Co)	12/1#	Traffic Signs: General
	Not Used	12/2	Traffic Signs: Marker Posts
	(Co)	12/3	Traffic Signs: Road Markings and Studs
	Not Used	12/4	Traffic Signs: Cones, Cylinders, FTD'S and Other Traffic Delineators
	Not used	12/5	Traffic Signs: Traffic Signals
	Not Used	12/6	Traffic Signs: Special Sign Requirements on Gantries
			ROAD LIGHTING COLUMNS AND BRACKETS AND CCTV MASTS
	(Co)	13/1#	Information to be provided When Specifying Lighting Columns and Brackets
	(C)/(P)	13/2	(Specification for Highway Works) Typical Lighting Column and Bracket Data Sheets 1 and 2
	(P)	13/3	Instruction for Completion of Lighting Column and Bracket Data Sheet
	Not Used	13/4	Information to be Provided when Specifying CCTV Masts
	Not Used	13/5	(Specification for Highway Works) Typical CCTV Mast Data Sheets
	Not Used	13/6	Instructions for Completion of CCTV Mast Sheets
	Not Used	13/7#	Information to be Provided When Specifying Cantilever Masts
	Not Used	13/8	(Specification for Highway Works) Typical Cantilever Masts Data Sheets 1 and 2
	Not Used	13/9	Instructions for Completion of Cantilever Masts Data Sheets

LIST 'A': List of Numbered Appendices Referred to in the Specification for Highway Works			
Volume No.	Completed by	App. No.	Title
			ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS
	(Co)	14/1	Site Records
	(Co)	14/2	Location of Lighting Units and Feeder Pillars
	(Co)	14/3	Temporary Lighting
	(Co/C)	14/4	Electrical Equipment for Road Lighting
	(Co/C)	14/5	Electrical Equipment for Traffic Signs
			MOTORWAY COMMUNICATIONS
	Not Used	15/1	Motorway Communications
	Not Used	15/2	Cable Duct Requirements
			PILING AND EMBEDDED RETAINING WALLS
	Not Used	16/1	General Requirements for Piling and Embedded Retaining Walls
	Not Used	16/2	Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles
	Not Used	16/3	Bored Cast-in Place Piles
	Not Used	16/4	Bored Piles Constructed using Continuous Flight Augers and Concrete or Grout Injection through Hollow Auger System
	Not Used	16/5	Driven Cast-in-Place Piles
	Not Used	16/6	Steel Bearing Piles
	Not Used	16/7	Reduction of Friction on Piles
	Not Used	16/8	Non-Destructive Methods for Testing Piles
	Not Used	16/9	Static Load Testing of Piles
	Not Used	16/10	Diaphragm Walls
	Not Used	16/11	Hard/Hard Secant Pile Walls
	Not Used	16/12	Hard/Soft Secant Pile Walls
	Not Used	16/13	Contiguous Bored Pile Walls
	Not Used	16/14	King Post Walls
	Not Used	16/15	Steel Sheet Piles
	Not Used	16/16	Integrity Testing of Wall Elements
	Not Used	16/17	Instrumentation for Piles and Embedded Walls
	Not Used	16/18	Support Fluid
			STRUCTURAL CONCRETE
	Not used	17/1	Concrete - Classification of Mixes
	Not used	17/2	Concrete - Impregnation Schedule
	Not Used	17/3	Concrete – Surface Finishes
	Not used	17/4	Concrete – General
	Not Used	17/5	Buried Concrete
	Not used	17/6	Grouting and Duct Systems for Post-Tensioned Tendons
			STRUCTURAL STEELWORK
	Not Used	18/1	Requirements for Structural Steelwork
			PROTECTION OF STEELWORK AGAINST CORROSION
	Not Used	19/1	(Specification for Highway Works) Form HA/P1 (New Works) Paint System Sheet
	Not Used	19/2	Requirements for Other Work
	Not Used	19/3	(Specification for Highway Works) Form HA/P2 Paint Data Sheet
	Not Used	19/4#	(Specification for Highway Works) Form HA/P3 Paint Sample Despatch List; Sheets 1 and 2
	Not Used	19/5	General Requirement

LIST 'A': List of Numbered Appendices Referred to in the Specification for Highway Works			
Volume No.	Completed by	App. No.	Title
	Not Used	20/1	WATERPROOFING FOR STRUCTURES Waterproofing For Concrete Structures
	Not Used	21/1	BRIDGE BEARINGS Bridge Bearing Schedule
	Not used	22/1	Not Used
	Not Used Not Used	23/1 23/2	BRIDGE EXPANSION JOINTS AND SEALING OF GAPS Bridge Deck Expansion Joint Schedule Sealing of Gaps Schedule (Other than in Bridge Deck Expansion Joints)
	(Co)	24/1	BRICKWORK, BLOCKWORK AND STONEWORK Brickwork, Blockwork and Stonework
	Not used Not used Not used Not used Not used	25/1 25/2 25/3 25/4 25/5	SPECIAL STRUCTURES Requirements for Corrugated Steel Buried Structures Requirements for Reinforced Earth and Anchored Earth Structures Requirements for Pocket Type Reinforced Brickwork Retaining Wall Structures Environmental Barriers Requirements for Buried Rigid Pipes for Drainage Structures
	Not used Not used Not used	26/1 26/2 26/3	MISCELLANEOUS Ancillary Concrete Bedding Mortar Cored Thermoplastic Node Markers
	(Co)(C)(P) (Co)(C)(P) Not used (Co) (Co) Not Used (Co) Not Used Not Used Not used Not used Not Used	30/1 30/2 30/3 30/4 30/5 30/6 30/7 30/8 30/9 30/10 30/11 30/12	LANDSCAPE AND ECOLOGY General, sheets 1, 2 and 3 Weed control Control of Rabbits and Deer Ground Preparation Grass Seeding, Wildflower Seeding and Turfing Planting, Sheets 1 and 2 Grass, Bulbs and Wildflower Maintenance Watering Establishment Maintenance for Planting Maintenance of Established Trees and Shrubs Management of Waterbodies Special Ecological Measures
	Not Used Not Used Not Used Not Used Not Used	50/1 50/2 50/3 50/4 50/5	MAINTENANCE PAINTING OF STEELWORK (Specification for Highway Works) Form HA/P1 (Maintenance) Paint System Sheet Requirements for Other Work (Specification for Highway Works) Form HA/P2 Paint Data Sheet (Specification for Highway Works) Form HA/P3 Paint Sample Despatch List: Sheets 1 and 2 General Requirements

List 'B' gives the list of Contract Specific Numbered Appendices Devised for the Contract.

Volume No.	Appendix No.	Appendix Title
	1/70	Management of Site Waste
	6/70	Requirements for dealing with Surplus Earthworks Materials (Aberdeen City & Aberdeenshire Councils Only)
	7/70	Preparation of Surfacing and Adjustment of Iron Work
	11/70	Footways and Paved Areas (Precast Concrete Paving)
	11/71	Footways and Paved Areas (Flexible Construction)
	11/72	Footways and Paved Areas (Insitu Concrete Paving)
	11/73	Footways and Paved Areas (Concrete Block Paving)
	11/74	Footways and Paved Areas (Granolithic Concrete Paving)
	11/75	Footways and Paved Areas (Granite Sett Paving – Reclaimed)
	11/76	Footways and Paved Areas (Granite Slabbed Paving – Reclaimed)
	11/77	Footways and Paved Areas (Racking of Existing Kerbs, Setts and Slabs)
	30/70	Grass Seeding, Wildflower Seeding and Turfing (Amenity and Landscaped Areas)

APPENDIX 0/4: LIST OF DRAWINGS INCLUDED IN THE CONTRACT

1. Contract-specific drawings supplied to each Tenderer.

Contract Specific Drawings are included in the Tender Document.

2. Standard Drawings

2. (i) Supplied to each Tenderer

Drawing No.	Title
SERIES A - HIGHWAY SECTIONS	
Group 1: Flexible / Composite Construction	
A70	Dual Carriageway
A71	Single Carriageway
A72	Standard Grass Verge VG1
A73	Verge with Footway VF1
A74	Standard Central Reserve CR1
A75	Dual Carriageway Lay-by
A76	Single Carriageway Lay-by (Type 1
A77	Single Carriageway Lay-by (Type 2
Group 2A: Flexible / Composite Construction	
A80	Dual Carriageway
A81	Single Carriageway
A82	Standard Grass Verge VG2A
A83	Verge with Footway VF2A
A84	Standard Central Reserve CR2A
Group 2B: Flexible / Composite Construction	
A86	Dual Carriageway
A87	Single Carriageway
A88	Standard Grass Verge VG2B
A89	Verge with Footway VF2B
A90	Standard Central Reserve CR2B
A91	Single Carriageway Lane Widening
Group 2A/2B: Flexible / Composite Construction	
A92	Dual Carriageway Lay-by
A93	Single Carriageway Lay-by (Type 1)
A94	Single Carriageway Lay-by (Type 2)
A95	Widened Grass Verge VG2A/2B (W)
Group 3: Flexible / Composite Construction	
A97	Single Carriageway
A98	Standard Grass Verge VG3
A99	Widened Grass Verge VG3 (W)
A100	Single Carriageway Lay-by
Group 4: Flexible / Composite Construction	
A102	Single Carriageway
A103	Standard Grass Verge VG4
A104	Widened Grass Verge VG4 (W)

Drawing No.	Title
Group 5: Flexible / Composite Construction	
A107	Single Carriageway
A108	Dual Carriageway
A109	Standard Grass Verge VG5
A110	Verge with Footway VF5-1
A111	Verge with Footway VF5-2
A112	Standard Central Reserve CR5-1
A113	Standard Central Reserve CR5-2
A114	Footway Types 1, 2, 3 & 4.
A115	Footway Type 5
A116	Footway Type 6
A117	Single Carriageway Lane Widening
SERIES B - EDGE OF PAVEMENT DETAILS	
B70	Precast Concrete Kerbs (K1 - K11)
B71	Precast Concrete Edging (K12 - K14
B72	Precast Concrete Kerbs (K15 - K19)
B73	Turf Edging Types 1 and 2
B74	Deterrent Paving Type 1 (Cobbles)
B75	Tie in Details
B76	Paviour Detail at Kassel kerbs
B77	Cast Iron 'Aberdeen' Bollard
B78	Granite Sett Paving 1, 2 & 3
B79	Accesses to Light Industrial Property Urban Types 1 and 2
B80	Textured Footways at Pedestrian Crossing
B81	Textured Footways at Pedestrian Crossing
B82	Textured Footways at Pedestrian Crossing
B83	Textured Footways at Pedestrian Crossing
B84	Vehicular Access to Domestic Premises
B85	Pedestrian Crossing Details
B86	Replacement of Existing Kerb on New and Existing Foundation
B87	Textured footways at Pedestrian Crossing
B88	Raised Bus Boarding Kerbs
B89	Double Dropper Kerbs
B90	Typical Edge Reconstruction Road category Types 3 & 4
B91	Textured Paving at Uncontrolled Crossing Points
B92	Typical Bollard Detail
SERIES F – DRAINAGE	
F70	Gullies Channel - Type G1 and G2 Gullies Footway Type G7
F71	Gullies, Combination Types G3, G4, G5 & G6
F72	Gullies, Footway - Type G7
F73	Typical Gully Layout (Rural Location)
F74	Typical Gully Layout (Urban Location)
F80	Manhole (Backdrop) Type (x) BD
F812	Typical Downpipe Connection
F82	Mandrel (For use in Drains)
F84	Rodding-Eye Detail
F85	Headwalls
F86	Geotextile and Polythene Wrap to Drains
F87	Channel Drainage Proprietary Type

Drawing No.	Title
F88	Connection of Down Pipe through Footway
F89	Detail of Proprietary Footpath Crossing
SERIES H - FENCES, STILES AND GATES	
H70	Field Access Type 1
H71	Field Access Type 2
H72	Car Park Locking Gate
H73	Steel Tubular Frame Type Double Gates. Types 1, 2 and 3
H74	Security Fencing
H75	Wooden Post and Five Rail Fence (Agricultural
H76	Wooden Post and Woven Wire Fence
H77	Wooden Post and Six Wire Fence
SERIES I - UNDERGROUND CABLE DUCTS	
I70	British Telecom Typical Trench Details
I71	Hydro Electric Typical Details
SERIES K - TRAFFIC SIGNS	
K70	Sign Face Construction Details
K71	Traffic Signs Support Details/Standard Signs up to 140 dia
K72	Traffic Signs Support Details/Non Standard Signs
K73	Ground Light Bollard
K74	Chevroflex Roundabout Units Lighting Details
K75	Delineation of Junctions with Hazard Marker Posts
K76	Car Park Entrance Bar
K77	Information Board
K78	Traffic Light & Controller Installation
SERIES K - ROAD LIGHTING	
K80	Standard Column 5 metres
K81	Standard Column 8 - 12 metres
K82	Post Top Column 4 - 5 metres
K83	Column Base Layout. Looped Type Termination
K84	Column Base Layout. Live Service Type
K85	Feeder Pillars Typical Planting Details
K86	Feeder Pillar Internal Layout
K88	Electrical Warning Notice
K89	Aluminium Alloy Column
K90	Column Planting Details – Socket Type Root

2. (ii) Inspected By Tenderers

The following drawings are made available for inspection by tenderers at:

NONE

2. (iii) Brought Into The Contract By Reference

(a) Highway Construction Details (HCD) published by HMSO as Volume 3 of the Manual of Contract Documents for Highway Works contain the following drawings brought into the Contract by reference. Unless otherwise stated below the whole drawing is brought into the Contract.

Drawing No.	**Title**
SECTION 1: CARRIAGEWAY AND OTHER DETAILS	
SERIES F – DRAINAGE	
F1	Surface water drains - trench and bedding details
F2	Filter drains - trench and bedding details
F3	Type 1 Chamber (brick or insitu concrete manhole)
F4	Type 2 Chamber (precast concrete manhole)
F5	Type 3 Chamber (precast concrete manhole)
F6	Type 4 Chamber (precast concrete manhole)
F7	Type 5 Chamber (precast concrete manhole)
F9	Type 5 Chamber grating details
F10	Chamber fittings - ladder, handhold and safety chain
F11	Type 7 Chamber (1050 catchpit)
F12	Chamber Type 8 (600 catchpit)
F13	Precast and insitu cast gullies
F14	Sumpless gully chamber and alternative rising section
F15	Drainage channel blocks Types A, B and C
F16	Drainage channel blocks Types D, E and F
F18	Edge of pavement drains - fin drains and narrow filter drains
F19	Edge of pavement drains - installation of fin drains
F20	Edge of pavement drains - installation of narrow filter drains
F21	Edge of pavement drains - under channel drainage layers
F22	In-Line outlet to triangular SW channel
F23	In-Line outlet to trapezoidal SW channel
F24	Weir outlet to SW channel
F25	Type 9 Chamber (Brick or in situ concrete shallow inspection chamber)
F26	Type 10 Chamber (Brick or In Situ concrete shallow inspection chamber)
F27	Type 11 chamber (Precast concrete deep inspection chamber)
F28	Chamber fittings – guardrail
SERIES H - FENCES, STILES AND GATES	
H1	Temporary Fences Types 1 and 2
H2	Temporary Fences Types 3 and 4
H3	Motorway and Accommodation Works Timber Post and 4 (or 5) Rail Fences
H4	Motorway and Accommodation Works high tensile strained wire deer fences 135
H5	Motorway and Accommodation Works high tensile strained wire deer fences 180
H6	Motorway and Accommodation Works high tensile strained wire deer fences 210
H7	Turning posts strained wire fences
H8	General details strained wire fences – Sheet 1

Drawing No.	Title
H9	General details strained wire fences – Sheet 2
H10	General details strained wire fences – Sheet 3
H11	Accommodation Works chain link fences
H12	Accommodation Works rectangular wire mesh and hexagonal wire netting fences
H13	Accommodation Works strained wire fences (General Pattern
H14	Accommodation Works timber palisade and close boarded fences
H15	Accommodation Works timber post and 3 rail fences
H16	Accommodation Works woven and lap boarded panel fences
H17	Steel single field gate
H18	Steel half mesh single field gate
H19	Steel extra wide single field gate
H20	Steel double field gate
H21	Timber single field gate
H22	Timber double field gate
H23	Timber wicket gate Type 1
H24	Timber wicket gate Type 2
H25	Timber kissing gate
H26	Hinges for steel field gate
H27	'D' latch, Type A for steel single field gates
H28	Sliding bolt latch, Type B for steel single field gates
H29	Tubular steel latch for steel double field gates
H30	Hinges for timber field gates
H31	Spring catch for timber single field gates
H32	Latch and drop bolt for timber double field gates
H33	Standard gate stops
H34	Timber stile - Type 1
H35	Timber stile - Type 2
H36	Diagrammatic Methods of Attaching Fencing to Structures
H37	Rules for the selection of non-structural timber for use in environmental barriers – sheet 1
H38	Rules for the selection of non-structural timber for use in environmental barriers – sheet 2
H39	Planting Works Fencing – Rabbit and Deer Fencing Types 1 and 2
H40	Planting Works Fencing – Rabbit and Deer Fencing Types 3 and 4
H41	Planting Works Fencing – Gate
H42	Planting Works Fencing – Stile Types 3 and 4
H43	Planting Works Fencing – Fenced Tree Guards Types 1, 2 and 3
H44	Planting Works Fencing – Urban Area Fencing
H45	Badger Gate
H46	Attachment of Wire mesh to Fencing (Sheet 1 of 3)
H47	Attachment of Wire mesh to Fencing (Sheet 2 of 3)
H48	Attachment of Wire mesh to Fencing (Sheet 3 of 3)

APPENDIX 0/5 SPECIAL NATIONAL ALTERATIONS OF THE OVERSEEING DEPARTMENT OF SCOTLAND

The following Additions, Substitutions, Cancellations and minor alterations shall be made:

None

APPENDIX 1/5 : TESTING TO BE CARRIED OUT BY THE CONTRACTOR

Details of the Testing to be carried out by the Contractor is shown below in Table 1/5.

Where indicated below that a Test Certificate is required it is acceptable to supply this for Tests carried out previously, provided the Certificate is not more than 12 months old. In these circumstances the Contractor will not be required to carry out any Testing.

Notes:

1. Tests comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the Contractor (see Sub-clause 105.4).

2. (N) indicates that a UKAS test report or certificate is required.

3. Unless otherwise shown in this Appendix tests for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials.

4. Cube strength tests are not required for concrete complying with Clause 2602.

5. Sampling and testing will be carried out by the Contractor to the frequency stated below and the Contractor's rates for the work shall include for this. All sampling must be carried out by UKAS accredited personnel. All tests must be carried out at a UKAS approved laboratory.

6. The Contractor shall allow the Overseeing Organisation every reasonable opportunity and facility to inspect and monitor the sampling and testing processes. The Contractor shall notify the Overseeing Organisation of who, where and when samples and testing are being carried out and be able to demonstrate that the UKAS accreditation required above is being complied with

TABLE 1/5: Testing to be carried out by the Contractor

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
Series 300					
306	Permanent Fencing:-				Quality management scheme applies
	Concrete Components	Cover to reinforcement	1 per consignment (Maximum 1 per 100 Components) (BS1722)		
308	Gates and Styles:-				Quality management scheme applies
	Reinforced concrete posts	Cover to reinforcement	1 per consignment (Maximum 1 per 100 Components) (BS 3470)		
308 & 311	Preservation of timber	Full sapwood penetration	As required in sub-Clause 311.2(v)	Required for each batch	Quality management scheme applies
Series 400					
402	Welding	Welding procedures (Manufacturer's Tests)	(Every seven years)	Required	Quality management scheme applies
		Welder qualification (Manufacturer's Tests)	As required in sub-Clause 402.6(iii)		
		Production Testing (Manufacturer's Tests)	As required in sub-Clause 402.6(iv)		
	Welded Joints	Destructive Testing	As required		

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Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
403	Anchorages and attachment systems for use in drilled holes	Ultimate Tensile Load (Manufacturer's Tests)		Required	To provide well attested and documented evidence
404	Anchorages in drilled holes :	On-site tensile load test	As required in Appendix 4/1	Required	
	Post Foundations		A minimum of 1 test and not less than 1 test per 100 metres of safety fence		
406	Vehicle parapets			Required	Quality Management scheme applies
407	Anchorages and attachment systems for use in drilled holes	Ultimate tensile load (Manufacturer's tests)		Required	To provide well attested and documented evidence
409	Vehicle parapet posts	Production testing as specified in BS 6779-1 1998 (Amd. No. 14290, 21 March 2003) (Manufacturer's tests)		Required	Certification in accordance with Clause 409 is required
410	Anchorages in drilled holes	On-site tensile load test	As required in Appendix 4/1	Required	

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
Series 500					
501	Pipes for drainage and service ducts				Product Certification Scheme applies
	Vitrified Clay				
	Concrete-PC/SRC, Not exceeding 900 mm dia				
	Concrete-Prestressed, Not exceeding 900 mm dia				
	Iron-cast				
	Iron-ductile				
	PVC-U				
	GRP				
	Plastics. See Table 5/1				
	Corrugated steel			Required (AASHTO)	
	Corrugated steel bitumen protection, Not exceeding 900 mm dia				
	Other Materials			Required	BBA Certification applies
503	Pipe Bedding	Grading and fines content (N)	1 per source	Required.	Source Approval.
		Water Soluble Sulfate (WS) Content (N)	5 per source		

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
503 cnt'd		Oxidisable sulfides (OS) content and total potential sulfate (TPS) content (N)	5 per source		
		Resistance to fragmentation (N)	1 per source		
505	Filter medium backfill	Plastic Index (N)	1 per source	Required.	
		Resistance to fragmentation (N)	1 per source.		
		Water Soluble Sulfate (WS) Content (N)	5 per source.		
		Oxidisable sulfides (OS) content and total potential sulfate (TPS) content (N)	5 per source.		
		Grading and fines content (N)	1 per source		
		Permeability(N)	1 per source.		
507	Chambers				Product Certification Scheme applies
	Precast concrete				
	Corrugated galvanized steel	(Manufacturer's tests)		Required	Product Certification Scheme applies
	Manhole steps				
	Steel fitments				
	Covers ,Grates and Frames				Product Certification Scheme applies

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
507 cnt'd	Cover Bolts				Quality management scheme applies
508	Gullies and pipe junction				Product Certification Scheme applies
	Precast concrete				
	Clay				
	Cast iron and steel				
513	Permeable backing to structures	Plastic Index (N)	1 per source	Required	Source Approval
		Water-soluble sulfate (WS) content (N)	5 per source		
		Oxidisable sulfides (OS) content and total potential sulfate (TPS) content (N)	5 per source		
		Resistance to fragmentation (N)	1 per source		
		Grading (N)	1 per source		
		Permeability (N)	1 per source		
	Precast hollow concrete blocks	(Manufacturer's tests)		Required	
516	Combined kerb and drainage systems	Load test	A minimum of 1 test and not less than 1 test per 1000m for each type and source	Required	Certification that the systems comply with Clause 516 is required

Clause	Work Goods or Material		Test	Frequency of Testing	Test Cert.	Comment
517	Linear drainage systems		Load test	A minimum of 1 test and not less than 1 test per 1000m for each type and source	Required	Certification that the systems comply with Clause 517 is required
600 Series						
601, 631 to 637, 640	Acceptable material					
	Class	General Description			Required	As required by the Overseeing Organisation
	1	General granular fill	Grading/uniformity coefficient (N)	Twice weekly		
			mc/MCV (N)	2 per 1000 cu.m		
	2	General Cohesive fill	Grading (N)	Twice weekly		
			mc/MCV/PL Undrained shear strength (N)	2 per 1000 cu.m		
	5	Topsoil	Grading (N)	1 per source		
	6	Selected granular fill	Grading / uniformity coefficient (N)	1 per 400 tonnes		
			Organic matter / water soluble sulfate (N)	Weekly		
			mc/MCV (N)	1 per 400 tonnes		
	Fill adjacent to cementitious material or metallic items		Water soluble sulfate (WS) content, oxidisable sulfides (OS) content and total potential sulfate (TPS) content (N)	1 per 400 tonnes or per location if less than 400 tonnes		

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
602	Earthworks material beneath surface of a road or paved central reserve	Frost heave (N)		Required	
	(i) Off site source		1 every four months		
	(ii) On-site source		As required		
612	Compaction of fills			Required	As required by the Overseeing Organisation
	Method of compaction	Field dry density (N)	Minimum – each class of material as required		
	End product compaction	Optimum mc (2.5 kg rammer/vibrating hammer method) (N)	Each class or sub class of material		
		Field dry density (N)	1 per 400 tonnes		
Series 700					
710	Constituent materials in recycled aggregate	Quality control	Checks are to be carried out by the Contractor in accordance with the procedure set down in 'Quality Protocol for the Production of Aggregates from Inert Waste' and with those in this Clause	Required	The quality control procedure shall be in accordance with the 'Quality Protocol for the Production of Aggregates from Inert Waste' published by Waste and Resources Action Programme is available from WRAP website, http://www.wrap.org.uk The results of all quality control checks shall be delivered promptly to the Overseeing Organisation on request
711	Overbanding and inlaid crack sealing systems			Required	BBA certification (or equivalent) applies

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
Series 800					
801, 803, 804, 805, 806	General requirements for unbound mixtures adjacent to cement bound materials, concrete pavements, structures or products	Water-soluble sulfate (WS) content (N)	1 per 400 tonnes or per location if less than 400 tonnes	Required	
		Oxidisable sulfides (OS) content and total potential sulfate (TPS) content (N)	1 per 400 tonnes or per location if less than 400 tonnes		
	Unbound mixtures beneath surface of a road or paved central reserve	Frost Heave (N)	1 per source		
		Grading and Fines Content (N)			
		Plastic Index (N)			
		Resistance to fragmentation (N)			
		Resistance to wear micro-Deval test (N)			
		Resistance to freezing and thawing (magnesium sulfate soundness) (N)	1 per source		
		Water Absorption (N)			
		Volume stability of blast furnace slags	6 monthly		
		Volume stability of steel (BOF and EAF) slags			
		CBR (N)	1 per source and then monthly		
		OMC/mc (N)	1 per source		
		Density (N)			

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
Series 900					
901 925 926 938	Aggregates for bituminous materials			Required	National quality management sector schemes apply
	Resistance to fragmentation (hardness)	Resistance to fragmentation (N)	1 per source		
	Resistance to freezing and thawing (durability)	Soundness (N)	1 per source		
		Water Absorption (N)	1 per source		
	Cleanness	Sieve test (mass passing 0.063 mm sieve) (N)	Monthly		Washing and sieving method to be used
	Shape	Flakiness Index (N)	Monthly		
	Coarse aggregate for surface courses	Resistance to polishing (PSV) (N)	1 per source		
		Resistance to surface abrasion (AAV) (N)	1 per source		
	Binders for bituminous mixtures	Penetration (N)	1 per 750 tonnes	Required	National quality management sector scheme applies. Modified binders should have a BBA HAPAS Roads and Bridges Certificate. In the event that no such Certificates have been issued, then in the interim, only modified binders undergoing BBA assessment should be considered for approval by the Overseeing Organisation
		Softening point (N)	1 per 750 tonnes		

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
903 to 907, 909 to 912, 914, 916, 925, 926, 929, 930, 937, 938, 941, 943, 946 to 948	Bituminous mixtures	Grading (N)	For Audit Test purposes only		National Highway Sector Schemes apply.
		Binder content (N)			
929	Base and Binder Course Asphalt Concrete (Design Mixtures)	Permanent Works – In situ air void content (N)		Required	
		Permanent Works – Refusal air void content (N)			
		Permanent Works – Deformation resistance			
		Deformation resistance (design)		Required	
		Stiffness (design)			
911	Hot Rolled asphalt surface course (Design Mixtures)	Design Binder Content	1 per source	Required	The test certificate is the CE Mark for the mixture.

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Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
915	Coated Chippings for application to Hot Rolled Asphalt Surfacings	Hot sand test (N)	1 per source		National Highway Sector Schemes apply.
		Rate of spread (N)	5 per day		
921	Surface macrotexture	BS EN 13036-1 Volumetric Patch Technique (N)	BS EN 13036-1	Required	
924	High friction surfaces	Quality control checks	AS required in Clause 924.5	Required	BBA HAPAS Roads and Bridges certification (or equivalent) applies
		System coverage	AS required in Clause 924.6		
	Aggregate	Resistance to polishing (PSV) (N)	1 per source and as required for coated chippings in sub-Clause 915.2	Required	
937	Stone mastic asphalt (SMA) binder course and regulating course	Permanent Works – In situ air void content (N)		Required	
		Permanent Works – Deformation Resistance			
		Binder drainage test (design)	In accordance with DD 232 : 1996	Required	The test certificate is the CE Mark for the mixture
		Deformation resistance (design)			
942	Thin surface course systems	Binder drainage test			The test certificate is in the form of a BBA HAPAS Certificate

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
918	Slurry surfacing incorporating microsurfacing				
	Binder				National Quality Management Sector Scheme applies. Modified binders should have a BBA HAPAS Roads and Bridges Certificate. In the event that no such certificates have been issued, then in the interim, only modified binders undergoing BBA assessment should be considered for approval by the Overseeing Organisation
		Product identification	Per product per source	Required	Tests are expected to be repeated every 2 years
		Vialit cohesion	Per product per source	Required	Tests are expected to be repeated every 2 years
		Rate of spread	For each machine	Required	Not more than 6 weeks prior to start of work
		Penetration at 25^{o}C and 5^{o}C (N)	Every manufactured batch		Manufacturer's QA test results may be submitted
	Aggregates	Flakiness Index (N)	1 per source	Required	Less than 6 months prior to work
		Resistance to polishing (PSV) (N)	Source approval	Required	
		Resistance to surface abrasion (AAV) (N)	Source approval	Required	
		Grading (N)	1 per source	Required	
	System	TAIT or BBA/HAPAS		Required	

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
920	Bond coats, tack coats and other bituminous sprays				
	Binder	Product identification	1 per product per source	Required	Tests are expected to be repeated every 2 years
		Vialit cohesion	1 per product per source	Required	Tests are expected to be repeated every 2 years
		Accuracy of spread	1 for each binder and sprayer per month	Required	Not more than 6 weeks prior to start of work and one per month
		Rate of spread	1 per week		
		Penetration at 25°C and 5°C (N)	Every manufactured batch		Manufacturer's QA test results may be submitted
Series 1100					
1101	Precast concrete kerbs, channels, edgings and quadrants	Bending strength	Minimum of 8 per 1000 units of each product (BS EN 1340)	Required	
1104	Precast concrete flags	Bending strength	Minimum of 8 per 1000 units of each product (BS EN 1339)	Required	
	Bedding – Granular Material				
	Bedding – Mortar				
1107	Concrete block paving	Compressive strength	Minimum of 8 per 1000 m^2 (BS EN 1338)	Required	
Series 1200					
1202	Permanent traffic signs				Quality management scheme applies. Certification that the traffic sign is capable of passing the tests in BS 8442 is required

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
1207	Anchorages in drilled holes to supports of traffic signs	Loading Test on Site			
1210	Holding down bolts and anchorages to base of permanent bollards			Required	Certification that the holding down bolts and anchorages are capable of complying with the performance requirements of BS 8442 is required
1212	Road Markings				National quality management and product certification scheme applies. Sampling procedures are given in BS EN 1824
		Tests specified in BS EN 1824		Required	
	Glass Beads	Arsenic trioxide content Lead content and Antimony content (N)	One per contract and/or per specific source of supply	Required	
1214	Permanent traffic cones and traffic cylinders			Required	Certification that permanent traffic cones and cylinders have been tested and comply with BS EN 13422 is required.
		Tests specified in BS 873: Part 8	2 of each size and category / type.		
	Flat traffic delineators			Required	Certification that FTD's have been tested and comply with Clause 1214 is required.
		Test specified in Clause 1214			
	Other traffic delineators	Test specified in Clause 1214		Required	Certification that the delineators have been tested and comply with Clause 1214 is required.

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
1214 Cnt'd	Temporary cones, cylinders, FTDs and other delineators			Required	Certification that at least 1 in 500 of any batch of cones, cylinders, FTDs and other delineators to be used in the Temporary Works have passed the tests in Clause 1214 as appropriate is required
Series 1400					
1421	Cable				Product Certification scheme applies
1424	Lighting Units	Test Specified in Clause 1424	Each Unit	Required	Certification that the installation complies with BS 7671 (the I.E.E. Wiring Regulations) is required
	Networks	Test Specified in Clause 1424	Each Network	Required	Certification that the installation complies with BS 7671 (the I.E.E. Wiring Regulations) is required
Series 1700					
1702 1704	Cement types as stated in sub-Clause 1702.1			Required	Certificate to be provided annually for each type of cement. Quality management and product certification schemes apply
	Cements (all types)	Chloride content	Per source		Tests to be carried out by the manufacturer and results included on the test certificates required above

Clause	Work Goods or Material	Test	Frequency of Testing	Test Cert.	Comment
1702 1704 Cnt'd	Aggregates	Grading and fines content (N)	1 per week per source		Results of routine control tests from the factory production control system operated by the producer to be provided – see Annex H of BS EN 12620. Product certification scheme applies.
		Shell content (N)	Monthly		
		Flakiness index(N)	Monthly		
		Resistance to fragmentation (N)	Every 6 months		
		Drying shrinkage (N)	1 per 5 years		
		Chloride content (N)	1 per week or as otherwise agreed		
		Sulfate content (N)	Yearly		
	Admixtures	Chloride content (N)	1 per consignment	Required (BS 934-2)	
		Sulfate Content (N)	1 per consignment	Required	
		Acid-soluble alkali content (N)	1 per consignment		
Series 3000					
3005	Grass seeding, wildflower seeding and turfing	Rate of spread of fertiliser	1 per 1000 square metres		
		Rate of spread of seeding	1 per 1000 square metres		
		Chemical analysis of fertiliser	1 per source		
		Grass seed germination and purity (Official Seed Testing Station tests)	1 per source and mix variety	Required prior to sowing	

APPENDIX 1/6: SUPPLY AND DELIVERY OF SAMPLES TO THE OVERSEEING ORGANISATION

1. The Contractor shall provide or make available, for testing by the Overseeing Organisation, the materials listed in Table 1/6.

   Notes:

   1. Samples comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the contractor (see Clause 105).

   2. Unless otherwise shown in this Appendix samples of work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials.

   3. Unless otherwise scheduled under Clause 2602 samples of concrete complying with that clause are not required.

   4. (N) indicates UKAS laboratory accreditation required for sampling.

   All sampling must be carried out by UKAS accredited personnel.
   All tests must be carried out at a UKAS approved laboratory.

Table 1/6 : Supply and Delivery of Samples to the Overseeing Organisation

Clause	Sample Description	Test	Frequency of Sampling	Comments
500 Series				
503	Pipe Bedding	Grading (N)	1 per 500 tonnes	As required by the Overseeing Organisation
505	Filter Material	Grading (N)	1 per 500 tonnes	
600 Series				
	Acceptable Material			
601, 631 to 637, 640	Class: General Description			
	1: General granular fill	Grading (N)	Twice weekly	As required by the Overseeing Organisation
		mc/MCV (N)	2 per 1000 cu.m	
	2: Cohesive fill	Grading (N)	Twice weekly	
		mc/MCV (N)	2 per 1000 cu.m	
	5: Topsoil	Grading (N)	1 per source	
	6: Selected granular fill	Grading (N)	1 per 400 tonnes	
		Sulphate content (N)	Weekly	
		mc/MCV (N)	1 per 400 tonnes	
612	Compaction of fills			As required by the Overseeing Organisation
	Method Compaction	Field Dry Density (N)	Minimum - each class of material as required	
	End product compaction	Optimum mc (2.5kg rammer/vibrating hammer method)(N)	Each class or sub class of material	
		Field Dry Density (N)	1 per 400 tonnes	

Table 1/6 : Supply and Delivery of Samples to the Overseeing Organisation				
Clause	Sample Description	Test	Frequency of Sampling	Comments
Series 800				
803, 804	Unbound Mixture Types 1 & 2	Grading (N)	As required	
		Water Content (N)		
		Plasticity Index (N)		
Series 900				
903 to 914, 916, 925, 926, 931,970	Bituminous Mixtures	Grading / Binder Content (N)	1 per 200 tonnes (Min 1 per day).	
		Binder Pen. / Softening Point (N)	As required	
		Temperature (N)	Every load	Delivery, laying and rolling
910, 911	Hot Rolled Asphalt Surface Course (Design Mixtures	Grading / Binder (N)	1 per 50 tonnes (min 1 per day)	
		Temperature (N)	Every load	Delivery, laying and rolling
915, 925	Coated Chippings	Grading / Binder Content (N)	1 per 25 tonnes	Samples to be taken on site
		Flakiness Index (N)	1 per site per day	
		Hot Sand Test (N) BS 598	1 per 25 tonnes	
921	Surface Texture	BS 598:Part 105 Sand Patch (N)	BS EN 13036-1	10 Patches on a diagonal line
942	Material Complying with Clause 942	Grading (N) Binding (N) Temperature (N) Surface Regularity (N)	1 per day 1 per day Every load As requested by the Overseeing Organisation	Reference should be made to Clause 942.
Series 1700				
1707	Concrete	Cube Strength (N)	As required in accordance with Clause 1707.2	
	Fresh Concrete	Air Content Consistence (slump or compacting factor or Vebe) N	Each batch	
Series 3000				
3005	Topsoiling and grass seeding	Rate of spread of fertiliser	1 per 1000 square metres	As required by Overseeing Organisation
		Rate of spread of seeding		

APPENDIX 1/7: SITE EXTENT AND LIMITATIONS ON USE

Extent of Site

1. Details of the limit of the site given to the Contractor for carrying out the contract works is shown in the plan of the location of the works.

2. This area does not include additional areas of highway which the Contractor may require for advanced signing and coning which for the purpose of this clause are also considered to be part of the site.

APPENDIX 1/9: CONTROL OF NOISE AND VIBRATION

Noise

1. The Local authority has informally agreed that the following measures would be acceptable and these are given as a guide; however it is for the contractor to decide whether to seek the Local authority's formal consent to his proposed methods of work and to the steps he proposes in order to minimise noise.

2. The normal working hours within a Site shall be Monday to Friday between 0700 and 1900 hours and Saturday between 0700 and 1700 hours, with no working on Sundays or public holidays. Exceptionally, consent for work outside these hours may be given after any necessary consultation. 14 day's notice is required from the Contractor when seeking such notice.

   In these instances, for example within traffic sensitive locations, works involving noise sufficient to cause annoyance may be permitted to continue until times agreed with the Local Authority, but nor normally going beyond 2200 hours. Under no circumstances will the use of pneumatically operated percussive tools be permitted before 0700 or after 2300 hours at any location.

   Works on a Sunday shall not normally begin before 0900 hours and will be complete before 1800 hours. Routine construction works and demolition works which are likely to produce noise sufficient to cause annoyance will not normally be permitted overnight, between 1900 – 0700 hours from Monday to Saturday inclusive or at any time on a Sunday.

3. The noise levels scheduled below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working.

General Sound Levels During Daytime Weekday Working

4. The noise 1m outside the nearest noise-sensitive building will be limited to:-

   (a) an equivalent continuous sound level over the period between 0700 hours and 1900 hours of Leq(12h) = 70dB(A) and

   (b) an overall maximum sound level of 90dB(A).

Higher Sound Levels for Short Periods of Time During Daytime Weekday Working.

5. An increase of 3dB(A) above the 70dB(A) limit during the noisiest period only can be accepted over a period of 6 hours.

   An increase of 6dB(A) above the 70dB(A) limit during the noisiest period only can be accepted over a period of 3 hours.

   An increase of 9dB(A) above the 70dB(A) limit during the noisiest period only can be accepted over a period of 1.5 hours.

It must be noted that the overall daytime limit, i.e. Leq(12h) = 70 dB(A) must be met.

6. Sound levels during weekend working shall be as described for daytime weekday working, however, where practically possible works shall be programmed in such a manner so as to limit noise early in the morning.

7. The Contractor shall furnish such information as may be required by the Local Environmental Health Officer in relation to noise levels emitted by plant or equipment used or installed on a site or which the Contractor intends to use or install on a site and also afford all reasonable facilities to enable such officers to carry out such noise-monitoring as may be necessary.

8. The Overseeing Organisation shall have the right to order the Contractor to cease using any item of plant insufficiently silenced or generating noise levels in excess of those specified.

9. Compliance with these conditions and any other requirements of the contract will not of itself constitute any ground of defence against any proceedings instituted under Section 59 of the Control of Pollution Act 1974 (whereby any occupier of premises may complain to the Sheriff of a noise nuisance).

Recording of Sound Levels

10. The Overseeing Organisation may require that the Contractor record sound levels outside the nearest noise sensitive building during the works and submit the results to them.

APPENDIX 1/13: PROGRAMME OF WORKS

General

1. The Contractor shall provide the programme in a form of a bar chart produced as a result of a 'critical path analysis' and must abide by the constraints below. It shall show the level of detail appropriate to each stage of the Works and all activities and restraints, each of which shall be given a short title. All events shall be numbered and annotated with earliest and latest event dates.

Schedule of Constraints

2. In preparing the programme the Contractor shall take account of the general requirements of the Contract and the following: -

   (i) Work to privately and publicly owned services and supplies.

   (ii) Possession.

   (a) Where footway resurfacing is being undertaken, the maximum length of footway which may be excavated at any one time will be restricted to 50 metres, unless approval is granted by the Overseeing Organisation.

   (b) For schemes involving planing works the Contractor should note that the time lapse on any one site between the commencement of planing and the completion of resurfacing shall not exceed 2 weeks.

   (c) For all Works where existing road markings are obliterated junction markings shall be re-applied within 24 hours. If the Contractor chooses to use temporary road markings for this requirement then all permanent road markings and road studs must be applied within 2 weeks.

   (d) During the period of absence of road markings "No Road Markings" signs shall be erected by the Contractor.

   (iii) Traffic safety and management including notice requirements. The Contractors attention is directed to the requirements of appendix 1/17 and to paragraph 9 of Appendix 17 in particular..

   (iv) Restrictions arising from the use of substances hazardous to health. The Contractors attention is directed to the requirements of Appendix 1/23.

   (v) Date, day and time limitations.

   The following table describes locations where no works shall be carried out within the time periods described, without the consent of the Roads Authority.

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeen City Council			
	ABBOTSWELL ROAD	From Traffic Signals A956 Wellington Road westwards for 50m	1
	ABBOTSWELL ROAD	From West Tullos Road Roundabout eastwards for 50m	1
	ANGUSFIELD LANE	From Traffic Signals at B9119 Queen's Road Junction northwards for 50m	1
	ASHGROVE ROAD	From Traffic Signals at A978 Westburn Drive Junction eastwards for 50m	1
	ASHLEY ROAD	From Traffic Signals A93 Great Western Road northwards for 50m	1
	ASHLEY ROAD	From Traffic Signals at C127C Union Grove Junction southwards for 50m	1
	BAILLIESWELLS ROAD	From Traffic Signals at A93 North Deeside Road Junction northwards for 50m	1
	BALNAGASK ROAD	From Traffic Signals A956 Wellington Road eastwards for 50m	1
	BANKHEAD AVENUE	From A96(T) Inverurie Road Roundabout northwards for 50m	1
	BEACH BOULEVARD	From A956 East North Street Roundabout eastwards for 60m	1
	BEACH BOULEVARD	From Traffic Signals at Links Road northeast and southwest for 50m	1
	BEACH ESPLANADE	From Traffic Signals at A956 King Street Junction eastwards for 50m	1
	BERRY STREET	From Traffic Signals at C157C Gallowgate Junction westwards for 50m	1
	BON-ACCORD STREET	From Traffic Signals at Fonthill Road Junction northwards for 50m	1
	BON-ACCORD STREET	From Traffic Signals at A93 Springbank Terrace junction north and southwards for 50m	1
	BON-ACCORD STREET	From Traffic Signals at A9013 Union Street Junction to 50m south of Langstane Place	1
	BROOMHILL ROAD	From A90(T) South Anderson Drive Roundabout west and eastwards for 60m	1
	BROOMHILL ROAD	From A9013 Holburn Street Mini-Roundabout south-westwards for 60m	1
	CAIRNAQUHEEN GARDENS	From B983 Mid Stocket Road Junction southwards for 20m	1
	CAIRNCRY ROAD	From A90(T) North Anderson Drive Roundabout eastwards for 60m	1
	CAIRNCRY ROAD	From A978 Westburn Drive Six Road Roundabout westwards for 60m	1
	CALSAYSEAT ROAD	From Traffic Signals at A96 Powis Terrace Junction westwards for 50m	1
	CASTLE TERRACE	From Traffic Signals at A956 Commerce Street Junction eastwards for 50m	1
	CHAPEL STREET	From Traffic Signals at A9013 Union Street Junction northwards for 50m	1
	CLIFTON ROAD	From Traffic Signals at A978 Hilton Street/Leslie Road junction north and southwards for 50m	1
	COMMERCE STREET	From Traffic Signals at A956 Virginia Street Junction southwards for 50m	1
	CRAIGSHAW DRIVE	From Traffic Signals at A956 Wellington Road Junction westwards for 50m	1
	CROWN STREET	From Traffic Signals at A93 Springbank Terrace junction north and southwards for 50m	1
	CROWN STREET	From Traffic Signals at A9013 Union Street Junction to 50m south of Langstane Place	1
	CROWN STREET	From Crown Street Roundabout (Millburn Street) northwards for 40m	1
	DON STREET (WOODSIDE)	From Traffic Signals at A96 Great Northern Road Junction eastwards for 50m	1
	DYCE DRIVE	From A96(T) Dyce Drive Roundabout to 40m west of Argyll Road, Dyce	1
	FAIRLEY ROAD	From junction Old Skene Road to junction C89C Chapel of Stoneywood Road	1
	LAUREL DRIVE	From A90(T) Persley Roundabout eastwards for 20m	1
	FAIRVIEW STREET	From A90(T) Danestone Roundabout southwards for 20m	1
	FARBURN TERRACE	From junction A947 Victoria Street, Dyce to junction Wellheads Drive, Dyce	1
	FARBURN TERRACE	From Farburn Terrace Roundabout northwards for 20m	1
	FERNHILL DRIVE	From A944 Lang Stracht Junction northwards for 20m	1
	FERRYHILL ROAD	From Crown Street Roundabout south-westwards for 40m	1
	FERRYHILL TERRACE	From Crown Street Roundabout westwards for 20m	1
	FONTHILL ROAD	From A9013 Holburn Street Roundabout eastwards for 60m	1
	FONTHILL ROAD	From Traffic Signals Whinhill Road/Bon Accord Street Junction west and eastwards for 40m	1
	FOREST AVENUE	From A93 Great Western road Junction northwards for 60m	1
	FOREST AVENUE	From Forest Avenue Roundabout north and southwards for 40m	1
	FOREST AVENUE	From B9119 Queen's Gate Roundabout southwards for 60m	1
	FOREST ROAD	From Kings Gate Junction southwards for 60m	1
	FOREST ROAD	From B9119 Queen's Gate Roundabout northwards for 60m	1

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeen City Council			
	FORESTERHILL ROAD	From A90 North Anderson Drive Roundabout south-eastwards for 60m	1
	FOUNTAINHALL ROAD	From B9119 Queen's Cross Roundabout northwards for 60m	1
	FOUNTAINHALL ROAD	From Beechgrove Terrace Junction southwards for 60m	1
	FRASER PLACE	From Traffic Signals at A96 Causewayend/Powis Place junction west and eastwards for 50m	1
	GARTHDEE ROAD	From A90(T) South Anderson Drive Roundabout to 100m west of Sainsbury's Roundabout	1
	GIRDLENESS ROAD	From A956 Wellington Road Junction eastwards for 20m	1
	GREENBANK ROAD	From Traffic Signals at A956 Wellington Road Junction eastwards for 50m	1
	GREENWELL ROAD	From A956 Wellington Road Junction eastwards for 20m	1
	HARDGATE	From A9013 Holburn Street Roundabout south-westwards for 20m	1
	HARDGATE	From A9013 Holburn Street Roundabout north-eastwards for 20m	1
	HARDGATE	From A93 Willowbank Road Junction south-westwards for 20m	1
	HARENESS ROAD	From A956 Wellington Road Roundabout eastwards for 20m	1
	HILTON DRIVE	From A978 Westburn Drive Six Road Roundabout northwards for 60m	1
	JESMOND DRIVE	From Traffic Signals at B997 Scotstown Road Junction westwards for 50m	1
	JOHN STREET (CITY CENTRE)	From New Woolmanhill Roundabout to junction Loch Street	1
	KIRKBRAE	From Traffic Signals at A93 North Deeside Road Junction northwards for 50m	1
	LANG STRACHT	From junction A944 (Switchback) to junction Fairley Road, Kingswells (Old Skene Road)	1
	LANGDYKES ROAD	From A956 Wellington Road Roundabout eastwards for 40m	1
	LINKS ROAD (BEACH)	From Traffic SIgnals at Beach Boulevard northwest and southeast for 50m	1
	LINKS ROAD (BRIDGE OF DON)	From Traffic Signals at A956 Ellon Road Junction eastwards for 50m	1
	LITTLEJOHN STREET	From C157C Gallowgate Junction eastwards for 20m	1
	LITTLEJOHN STREET	From Traffic Signals at A96 West North Street Junction westwards for 50m	1
	MABERLEY STREET	From Traffic Signals at C156C George Street Junction westwards for 50m	1
	MABERLEY STREET	From Roundabout at B986 Skene Square eastwards for 50m	1
	MARKET STREET (CITY CENTRE)	From Guild Street/Market Street Roundabout to junction A9013 Union Street	1
	MASTRICK DRIVE	From Traffic Signals at A944 Lang Stracht northwards for 20m	1
	MASTRICK ROAD	From A90(T) North Anderson Drive Junction westwards for 40m	1
	MEALMARKET STREET	From Traffic Signals at A96 West North Street Junction eastwards for 50m	1
	MENZIES ROAD	From Traffic Signals at C154C Victoria Road Junction westwards for 50m	1
	MENZIES ROAD	From A956 Queen Elizabeth Bridge Roundabout westwards for 40m	1
	MILLBURN STREET	From Traffic Signals at South College Street to junction Crown Street	1
	MOUNT STREET	From Traffic Signals at B983 Rosemount Place Junction northwards for 20m	1
	MUGIEMOSS ROAD	From Old Meldrum Road Junction eastwards for 250m	1
	MUGIEMOSS ROAD	From A90(T) Mugiemoss Road Roundabout westwards for 100m	1
	NORTH DONSIDE ROAD	From A956 Ellon Road Roundabout westwards for 60m	1
	NORTH ESPLANADE EAST	From A956 Market Street Roundabout eastwards for 50m	1
	OAKHILL ROAD	From Kings Gate Junction northwards for 60m	1
	PARK STREET	From A956 East North Street Roundabout northwards for 60m	1
	PARKWAY EAST	From A90(T) The Parkway Roundabout eastwards for 60m	1
	PITMEDDEN ROAD (DYCE)	From A947 Victoria Street, Dyce Junction north-westwards for 40m	1
	PROVOST FRASER DRIVE	From A90(T) North Anderson Drive Roundabout westwards for 40m	1
	PROVOST RUST DRIVE	From A90(T) North Anderson Drive Roundabout westwards for 40m	1
	PROVOST WATT DRIVE	From B9077 Great Southern Road Roundabout southwards for 40m	1
	RAEDEN PARK ROAD	From Traffic Signals at A944 Westburn Road Junction southwards for 50m	1
	RAEDEN PARK ROAD	From B983 Mid Stocket Road Junction northwards for 20m	1
	REDMOSS ROAD	From A956 Wellington Road Roundabout westwards for 20m	1
	RENNIES WYND	From Traffic Signals at A93 Guild Street Junction to junction Carmelite Street	1
	RIVERVIEW DRIVE	From A947 Stoneywood Road Roundabout eastwards for 20m	1
	RIVERVIEW DRIVE	From A947 Old Meldrum Road Roundabout eastwards for 20m	1

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeen City Council			
	ROSEMOUNT PLACE	From junction South Mount Street to Skene Square Roundabout	1
	SCHOOL ROAD (SEATON)	From A956 King Street Roundabout eastwards for 50m	1
	SCHOOLHILL	From Blackfriars Street Mini-Roundabout eastwards for 100m	1
	SCLATTIE PARK	From A96(T) Inverurie Road Roundabout southwards for 50m	1
	SOUTER HEAD ROAD	From A956 Wellington Road Roundabout eastwards for 40m	1
	SOUTH CROWN STREET	From Crown Street Roundabout southwards for 40m	1
	SOUTH ESPLANADE WEST	From Traffic Signals at C154C Victoria Road Junction westwards for 50m	1
	SOUTH ESPLANADE WEST	From A956 Queen Elizabeth Bridge Roundabout eastwards for 40m	1
	SOUTH SILVER STREET	From Traffic Signals at A9013 Union Street Junction northwards for 30m	1
	SPRING GARDEN	From Traffic Signals at C156C George Street Junction eastwards for 50m	1
	SPRING GARDEN	From C157 Gallowgate Junction westwards for 50m	1
	SPRINGFIELD ROAD	From Traffic Signals at Countesswells Road Junction north and southwards for 100m	1
	SPRINGFIELD ROAD	From traffic Signals at A93 North Deeside Road Junction northwards for 60m	1
	ST ANDREW STREET	From Blackfriars Street to Loch Street	1
	ST CLAIR STREET	From Traffic Signals at A96 West North Street Junction eastwards for 50m	1
	ST SWITHIN STREET	From Traffic Signals at C127C Union Grove Junction northwards for 50m	1
	ST SWITHIN STREET	From B9119 Queen's Cross Roundabout southwards for 50m	1
	STRONSAY DRIVE	From A944 Lang Stracht Junction southwards for 40m	1
	STRONSAY DRIVE	From C159C Kings Gate Junction northwards for 40m	1
	SUMMERHILL ROAD	From A944 Lang Stracht Junction southwards for 20mFrom	1
	SUMMERHILL ROAD	From C159C Kings Gate Junction northwards for 50m	1
	TILLYDRONE AVENUE	From A978 St Machar Drive Roundabout northwards for 40m	1
	UNION ROW (CITY CENTRE)	From Traffic Signals at A9013 Union Street Junction northwards for 50m	1
	UPPERKIRKGATE	From Traffic Signals at C157C Broad Street Junction westwards for 50m	1
	WELLHEADS DRIVE	From Traffic Signals at Dyce Drive Junction eastwards for 50m	1
	WELLHEADS DRIVE	From Farburn Terrace Roundabout, Dyce southwards for 40m	1
	WEST TULLOS ROAD	From B9077 Great Southern Road Roundabout eastwards for 40m	1
	WEST TULLOS ROAD	From Abbotswell Road Roundabout south-eastwards for 40m	1
	WEST TULLOS ROAD	From A956 Wellington Road Roundabout westwards for 40m	1
	WHINHILL ROAD	From Traffic Signals at Fonthill Road southwards for 40m	1
	WHINHILL ROAD	From B9077 Great Southern Road Roundabout north-eastwards for 40m	1
	WHITESTRIPES AVENUE	From A90 Danestone Roundabout northwards for 40m	1
A9011	ASHGROVE ROAD WEST	From Traffic Signals at A90(T) North Anderson Drive Junction eastwards for 50m	1
A9011	ASHGROVE ROAD WEST	From Traffic Signals at A978 Westburn Drive Junction westwards for 50m	1
A9012	ROSEHILL DRIVE	From Hilton Drive Junction north-westwards for 50m	1
A9012	ROSEHILL DRIVE	From A90(T) North Anderson Drive Roundabout eastwards for 50m	1
A9013	HOLBURN STREET	From junction A90(T) South Anderson Drive to junction Alford Place/ A9013 Union Street	1
A9013	KING STREET	From junction B988 Castlegate to junction A96 West North Street	1
A9013	UNION STREET	From junction A9013 Holburn Street to junction B988 Castlegate	4
A93	COLLEGE STREET	From junction Bridge Street/Guild Street to junction Wellington Place	1
A93	GREAT WESTERN ROAD	From junction A9013 Holburn Street to junction Craigton Road	1
A93	GUILD STREET	From junction Market Street to junction College Street/Bridge Street	1
A93	NORTH DEESIDE ROAD	From junction Springfield Road to 100m west of Baillieswells Road Junction	1
A93	SPRINGBANK TERRACE	From junction Crown Street to junction Albury Road	1
A93	ST JOHNS TERRACE	From junction Craigton Road to junction Springfield Road	1
A93	WELLINGTON PLACE	From junction College Street to junction Crown Street	1
A93	WILLOWBANK ROAD	From junction Albury Road to junction A9013 Holburn Street	1
A944	HUTCHEON STREET	From junction A96 at Mounthooly Roundabout to junction Berryden Road	1
A944	LANG STRACHT	From junction A90(T) North Anderson Drive to junction A944 'Skene Road'	1
A944	SKENE ROAD	From Jcn A944 Lang Stracht - Gordon Division Boundary West of Westhill Rbt	2
A944	WESTBURN ROAD	From junction B986 Berryden Road to junction A90(T) North Anderson Drive	1
A945	RIVERSIDE DRIVE / PLACE	From B9077 Great Southern Road Roundabout - A9013 Holburn Street	1

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeen City Council			
A945	RIVERSIDE DRIVE	From B9077 Great Southern Road Roundabout eastwards for 60m	1
A945	RIVERSIDE DRIVE	From A956 North Esplanande West Roundabout westwards to Great Southern Road Roundabout	1
A947	OLD MELDRUM ROAD	Riverview Drive (North end) Roundabout – Aberdeenshire boundary	1
A947	OLD MELDRUM ROAD	From junction A96(T) Auchmill Road to junction Mugiemoss Road	1
A947	STONEYWOOD ROAD	From Jcn A96(T) Bucksburn Roundabout - Riverview Drive Roundabout, Dyce	1
A947	VICTORIA STREET (DYCE)	40m north and south of Pitmedden Road Junction	1
A947	VICTORIA STREET (DYCE)	From Traffic Signals at Farburn Terrace, Dyce north and southwards for 100m	1
A947	VICTORIA STREET (DYCE)	Riverview Drive (South end) Roundabout northwards for 40m	1
A947	VICTORIA STREET (DYCE)	Riverview Drive (North end) Roundabout southwards for 40m	1
A956	COMMERCE STREET	From junction A956 Virginia Street to East North Street Roundabout	1
A956	EAST NORTH STREET	From junction A956 Commerce Street Roundabout to junction A9013 King Street	1
A956	KING STREET	From junction A96 West North Street to junction Beach Esplanade	1
A956	ELLON ROAD	From junction Beach Esplanade – A90(T) Parkway Roundabout	3
A956	MARKET STREET (CITY CENTRE)	North Esplanade West Roundabout - Guild Street/Market Street Roundabout	1
A956	NORTH ESPLANADE WEST	From A956 Market Street Roundabout to South College Street Roundabout	1
A956	QUEEN ELIZABETH BRIDGE	Queen Elizabeth Bridge Roundabout - South College Street Roundabout	1
A956	TRINITY QUAY	From A956 Market Street Roundabout eastwards to A956 Virginia Street	1
A956	VIRGINIA STREET	From Traffic Signals at A956 Commerce Street westwards to A956 Trinity Quay	1
A956	WELLINGTON ROAD	A90(T) Charlestown Flyover to Queen Elizabeth Bridge Roundabout	1
A96	CAUSEWAYEND	From A96 Powis Place to A96 Mounthooly Roundabout	1
A96	GREAT NORTHERN ROAD	From junction Clifton Road to A90(T) North Anderson Drive Roundabout	1
A96	MOUNTHOOLY ROUNDABOUT	Mounthooly Roundabout	1
A96	POWIS PLACE	From Traffic Signals at A96 Powis Terrace to A96 Causewayend	1
A96	POWIS TERRACE	From junction George Street/Powis Place to junction Clifton Road	1
A978	ALBERT STREET	From Traffic Signals at B9119 Carden Place junction north and south for 50m	1
A978	ALBERT STREET	From Traffic Signals at Whitehall Place junction southwards for 100m	1
A978	ALFORD PLACE	From Traffic Signals at A9013 Union Street to junction A978 Victoria Street	1
A978	ARGYLL PLACE	From Traffic Signals at B983 Rosemount Place Junction northwards for 100m	1
A978	ARGYLL PLACE	From Traffic Signals at A944 Westburn Road junction southwards for 100m	1
A978	CRAIGIE LOANINGS	From Traffic Signals at Whitehall Place Junction northwards for 100m	1
A978	HILTON STREET	From Traffic Signals at Clifton Road Junction westwards for 100m	1
A978	HILTON STREET	From A978 Westburn Drive Six Road Roundabout eastwards for 100m	1
A978	LESLIE ROAD	From junction B986 Clifton Road to A96 Great Northern Road Roundabout	1
A978	ST MACHAR DRIVE	From A956 King Street Roundabout westwards for 100m	1
A978	ST MACHAR DRIVE	From B991 Bedford Road Roundabout west and eastwards for 60m	1
A978	ST MACHAR DRIVE	From Roundabout at A96 Great Northern Road eastwards for 100m	1
A978	WESTBURN DRIVE	From A956 Westburn Drive Six Road Roundabout southwards for 100m	1
A978	WESTBURN DRIVE	From Traffic Signals at A9011 Ashgrove Road West junction north and southwards for 100m	1
A978	WESTBURN DRIVE	From Traffic Signals at A944 Westburn Road Junction northwards for 100m	1
A978	WESTFIELD ROAD	From Traffic Signals at B983 Rosemount Place Junction south for 100m	1
B9077	GREAT SOUTHERN ROAD	From Whinhill Road Roundabout northwards and southwards for 100m	1
B9077	GREAT SOUTHERN ROAD	From A9013 Holburn Street Roundabout south-eastwards for 100m	1
B9077	GREAT SOUTHERN ROAD	From junction Allenvale Road to junction A90 Bridge of Dee Roundabout	1
B9077	LEGGART TERRACE	From A90 Bridge of Dee Roundabout westwards for 40m	1
B9119	CARDEN PLACE	From junction Albert Street - Queen's Cross Roundabout	1
B9119	QUEENS ROAD	From Queen's Cross Roundabout to junction Groats Road	1
B9119	ROSEMOUNT VIADUCT	From junction Schoolhill to junction Skene Street	1
B9119	SKENE ROAD	From junction Groats Road to junction A944 at Jessiefield	1
B9119	SKENE STREET	From New Woolmanhill Roundabout to junction Albert Street	1
B983	BRIDGE STREET	From junction A9013 Union Street to junction A93 Guild Street	1

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeen City Council			
B983	MID STOCKET ROAD	From Traffic Signals at A90 North Anderson Drive Junction eastwards for 50m	1
B983	MID STOCKET ROAD	40m north of Raeden Park Road Jcn to 40m south of Cairnaquheen Gardens junction	1
B983	MID STOCKET ROAD	From Beechgrove Terrace Junction northwards for 60m	1
B983	ROSEMOUNT PLACE	From junction A978 Argyll Terrace to junction Mount Street/South Mount Street	1
B983	ROSEMOUNT VIADUCT	From junction Baker Street - to junction Union Terrace	1
B983	SOUTH MOUNT STREET	From junction Rosemount Place to junction Baker Street	1
B983	UNION TERRACE	From junction B9119 Rosemount Viaduct to junction A9013 Union Street	1
B984	SPRINGHILL ROAD	From A944 Lang Stracht Junction northwards for 20m	1
B985	ESSLEMONT AVENUE	From Traffic Signals at B983 Rosemount Place Junction southwards for 50m	1
B985	ESSLEMONT AVENUE	From Traffic Signals at B9119 Skene Street Junction northwards for 50m	1
B985	ROSE STREET	From Traffic Signals at B9119 Skene Street Junction southwards for 50m	1
B985	WATSON STREET	From Traffic Signals at A944 Westburn Road Junction southwards for 50m	1
B985	WATSON STREET	From B983 Rosemount Place Junction northwards for 20m	1
B986	BELMONT ROAD	From Traffic Signals at A96 Powis Terrace Junction to A986 Berryden Road	1
B986	BERRYDEN ROAD	From Traffic Signals at A944 Hutcheon Street Junction to A986 Belmont Road	1
B986	BLACKFRIARS STREET	From Mini Roundabout at Schoolhill Junction to St Andrew Street	1
B986	CAROLINE PLACE	From Traffic Signals at A944 Hutcheon Street Junction southwards to Skene Square	1
B986	SKENE SQUARE	From Woolmanhill Roundabout at Old Royal Infirmary northwards to Caroline Place	1
B986	WOOLMANHILL ROUNDABOUT	All Woolmanhill Roundabout	1
B990	NELSON STREET	From A96 Mounthooly Roundabout eastwards for 60m	1
B991	BEDFORD ROAD	From A978 St Machar Drive Roundabout southwards for 50m	1
B991	BEDFORD ROAD	From Traffic Signals at A96 Powis Terrace Junction eastwards for 50m	1
B997	BALGOWNIE ROAD	From junction A956 Ellon Road to junction B997 Scotstown Road/C20C Balgownie Road	1
B997	SCOTSTOWN ROAD	From A90(T) The Parkway Roundabout to 100m north of Traffic Signals at junction Jesmond Drive	1
B997	SCOTSTOWN ROAD	From A90(T) The Parkway Roundabout 60m south	1
B999	MURCAR - WHITECAIRNS - PITMEDDEN - KEITHFIELD ROAD	From A90(T) Murcar Roundabout north-westwards for 60m	1
C127C	COUNTESSWELLS ROAD	From Traffic Signals at Springfield Road Junction east and west for 50m	1
C127C	CROMWELL ROAD	From Forest Avenue Roundabout westwards for 60m	1
C127C	CROMWELL ROAD	From A90 South Anderson Drive Roundabout eastwards for 60m	1
C127C	SEAFIELD ROAD	From A90 South Anderson Drive Roundabout westwards for 60m	1
C127C	UNION GROVE	From Forest Avenue Roundabout eastwards for 60m	1
C127C	UNION GROVE	From Traffic Lights at St Swithin Street Junction west and eastwards for 100m	1
C127C	UNION GROVE	From A9013 Holburn Street Junction westwards for 40m	1
C128C	CULTS - KINGSHILL ROAD (KIRK BRAE, CULTS)	From A944 Kingswells Roundabout southwards for 100m	1
C154C	SOUTH COLLEGE STREET	South College Street Roundabout to junction A93 Wellington Place	1
C154C	VICTORIA BRIDGE & VICTORIA ROAD	A956 Market Street Roundabout to 100m South of Menzies Road	1
C155C	ALBYN PLACE	From Queen's Cross Roundabout eastwards for 100m	1
C156C	BACK HILTON ROAD	From A978 Westburn Drive Roundabout eastwards for 60m	1
C156C	GEORGE STREET	From Traffic Signals at A96 Powis Terrace Junction to junction St. Andrews Street	1
C157C	BROAD STREET	From junction Gallowgate/Upperkirkgate to junction A9013 Union Street	1
C157C	GALLOWGATE	From A96 Mounthooly Roundabout southwards to 40m south of Spring Garden	1
C157C	GALLOWGATE	From 100m north of Berry Street to junction Broad Street/Upperkirkgate	1
C157C	KINGS CRESCENT	From A96 Mounthooly Roundabout to 40m northeast of Kings Crescent	1
C159C	BEECHGROVE TERRACE	From junction B983 Mid Stocket Road - junction Gordondale Road	1
C159C	KINGS GATE	From junction Gordondale Road - junction A90(T) North Anderson Drive Roundabout	1
C159C	KINGS GATE	From junction A90 North Anderson Drive Roundabout to junction B9119 Hazlehead Roundabout	1

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeen City Council			
C20C	BALGOWNIE ROAD	From A90 The Parkway junction southwards for 60m	1
C89C	CHAPEL OF STONEYWOOD - FAIRLEY ROAD	From A944 Kingswells Roundabout to 50m north of Fairley Road, Kingswells	1

TRAFFIC SENSITIVE ROADS

Road Number	Street Name	Location	Road Status
Aberdeenshire Council			
A93	North Deeside Road	Aberdeen City Boundary at Peterculter to junction with C4K, West of Banchory	10
A944	Aberdeen – Alford – Strathdon Road	Aberdeen City Boundary East of Westhill to Junction with B979 to Kirkton of Skene	10
A947	Aberdeen – Oldmeldrum – Turrif Road	Aberdeen City Boundary at Parkhill, North of Dyce to Junction with B979 North of Newmachar	10
B977	Parkhill – Belhelvie – Balmedie Road	Junction with A947at Parkhill North of Dyce to Junction with B997 at Corsehill	10
B979	Netherley Road	Aberdeen City Boundary at Maryculter Bridge to Junction with B9077 near Mill Inn, Maryculter	10
B979	Peterculter to Kirkton of Skene Road	Aberdeen City Boundary at Silverburn to Junction with A944 West of Westhill	10
B997	Parkhill – Bridge of Don Road	Aberdeen City Boundary at Fowlershill to Junction with B977 at Corsehill	10
B999	Bridge of Don – Whitecairns – Pitmedden Road	Aberdeen City Boundary at Potterton to Junction with B979 at Craigie	10
B9077	South Deeside Road	Aberdeen City Boundary West of Kincorth to Junction with B979 (to Stonehaven) at Kirkton of Maryculter	10
B9119	Kingswells – Echt – Tarland Road	Aberdeen City Boundary East of Westhill to Junction with B9125 at Garlogie	10
A93	North Deeside Road	Invercauld Bridge La-by at Rinabaith	5
A976	South Deeside Road	From Junction with A93 in Crathes Village to Abergeldie Castle Junction	5
Road Number	**Street Name**	**Location**	**Classification**
Moray Council			
A941 (W)	Bishopmill Brae, Elgin	From Cumming Street to North Street	1
A941(W)	Cumming Street, Elgin	From roundabout at A96(T) Alexandra Road to Bishopmill Brae	1
A941(W)	Lossiemouth Road, Elgin	From North Street to Elgin Derestriction Signs	1
A941(W)	Main Street, Elgin	From roundabout at Thornehill Road to New Elgin Road	1
A941(W)	New Elgin Road, Elgin	From Main Street to roundabout at Station Road	1
A941(W)	North Street, Elgin	From Bishopmill Brae to Lossiemouth Road	1
A941(W)	Clifton Road, Lossiemouth	From Seatown Road to Pitgaveny	1
B9011	Bridge Street, Forres	From High Street to Roundabout at A940 St Catherines Road	1

Roads Status Key

1. Restricted on Weekdays from 0730 to 0915 from 1600 to 1800 hours.
2. Restricted on Weekdays from 0630 to 0915 towards Aberdeen and from 1530 to 1830 away from Aberdeen.
3. Restricted on Weekdays from 0630 to 0915 and from 1530 to 1830.
4. Restricted from 0700 to 2030 on Thursday and from 0700 to 1830 on other weekdays and Saturdays.
5. Restricted when the Royal Family are in residence at Balmoral Castle.
6. Strategic Trunk Road Route – Advance consultation required for all works.
7. Restricted on weekdays and Saturdays from 0900 to 1730.
8. Restricted from 0900 to 2000 on Thursdays and from 0900 to 1730 on other weekdays and Saturdays.
9. Restricted on First Team Matchdays from 1300 to 1715 or 1800 to 2130 as appropriate.
10. Restricted on Weekdays from 0730 to 0900 from 1630 to 1800 hours

SPECIFICATION

TRAFFIC SENSITIVE FOOTWAYS

Road Number	Street Name	Location	Classification
Aberdeen City Council			
A9013	Union Street, Aberdeen	From junction A9013 King Street to junction A9013 Holburn Street	
A9013	Holburn Street, Aberdeen (part)	From junction A9013 Union Street to junction A93 Great Western Road	
B983	Bridge Street, Aberdeen	From junction A9013 Union Street to A93 Guild Street Roundabout	
B983	Union Terrace, Aberdeen	From junction A9013 Union Street to junction B983 Rosemount Viaduct	
B983	Rosemount Place, Aberdeen	From junction A978 Argyll Place to junction B983 South Mount Street	
B985	Rose Street, Aberdeen (part)	From junction A9013 Union Street to junction Thistle Street	
C154C	Market Street, Aberdeen (part)	From junction A9013 Union Street to junction Hadden Street	
C156C	George Street, Aberdeen (part)	Bon-Accord Shopping Centre to junction Spring Garden	
	Back Wynd, Aberdeen	From junction A9013 Union Street to junction Schoolhill	
	Belmont Street, Aberdeen	From junction A9013 Union Street to junction Schoolhill	
	Chapel Street, Aberdeen (part)	From junction A9013 Union Street to junction Thistle Street	
	Merkland Lane, Aberdeen	From junction Pittodrie Street to junction Merkland Road East	
	Merkland Road East, Aberdeen	From junction A956 King Street to junction Stadium	
	Pittodrie Street, Aberdeen	From junction A956 King Street to junction Golf Road	
	St Nicholas Street, Aberdeen	From junction A9013 Union Street to St Nicholas Shopping Centre	
	Upperkirkgate, Aberdeen	From junction Flourmill Lane to junction Back Wynd	
Working restrictions on the above traffic sensitive footways in Aberdeen City will be specified individually in each contract			

TRAFFIC SENSITIVE FOOTWAYS

Road Number	Street Name	Location	Classification
Aberdeenshire Council			
A98	High Street, Banff	From junction C40L Boyndie Street to Junction A97 Sandyhill Road	
A98	Castle Street, Banff	From junction C40L Boyndie Street to junction A98(T) Seafield Street	
B9142	Low Street, Banff	St Mary's Car Park to junction B9142 Carmelite Street	
B9142	Carmelite Street, Banff	Junction B9142 Low Street to junction High Shore	
A98	High Street, Fraserburgh	From junction A98 Broad Street to junction Caroline Place	
A98	Broad Street, Fraserburgh	From junction Firthside Street to A98(T) High Street	
	Saltoun Square, Fraserburgh	Perimeter of square	
A98	Shore Street, Macduff	From junction Nicol's Brae to junction Hutcheon Street	
B9026	Duff Street, Macduff	From junction A98(T) Shore Street to junction Market Street	
A98	Seafield Street, Portsoy	From junction B9019 Church Street to junction C109L South High Street	
C38B	Queen Street, Peterhead	From junction C38B Chapel Street to junction C38B St Peter Street	
C38B	Chapel Street, Peterhead	From junction C48B Marischal Street to junction C38B Queen Street	
C48B	Erroll Street, Peterhead	From junction C38B St Peter Street to junction Love Lane	
C48B	Broad Street, Peterhead	From junction C48B Union Street to junction C48B Marischal Street	
C48B	Marischal Street, Peterhead	From junction C48B Broad Street to junction C48B Erroll Street	
	Thistle Street, Peterhead	From junction Back street to junction C48B Marischal Streett	
B9005	Bridge Street, Ellon	From junction A920 Market Street to junction B9005 Station Road	
A920	Market Street, Ellon	From junction B9005 Bridge Street to junction A920 Castle Road	
C21S	High Street, Turriff	From junction A947 Cross Street to junction C21S Balmellie Street	
C21S	Main Street, Turriff	From junction C21S Balmellie Street to junction A947 Fife Street	
C21S	The Square, Turriff	From junction C21S Main Street to junction A947 Fife Street	
B9001	High Street, Inverurie	From junction B9001 High Street to junction B993 Keithhall Road	
	Station Road, Inverurie	From junction Burn Lane to junction B9001 Market Place	
B9170	West High Street, Inverurie	From junction B9001 Market Place to junction C120C North Street	
B9001	Market Place, Inverurie	From junction B9001 High Street to B9001 Market Place Roundabout	
	Burn Lane, Inverurie	From junction B9001 Constitution Street to junction Station Road	
A92	King Street, Inverbervie	From junction C14K Aberdour Place to junction Cowgate	
A937	High Street, Laurencekirk	From junction Charter Lane to junction B9120 Alma Place	
A957	Market Square, Stonehave	From Jnction B979 Allardice Street to junction A957 Evan Street	
C3KS	Market Square, Stonehaven	From junction Margaret Street to junction A957 Evan Street	
	Market Square, Stonehaven	From junction B979 Allardice Street to junction Margaret Street	
	Margaret Street, Stonehaven	From junction B979 Allardice Street to junction Ann Street	
A957	Evan Street, Stonehaven	From junction A957 Market Square to junction Robert Street	
	Mary Street, Stonehaven	From junction B979 Allardice street to junction C3KS Barclay Street	
C3K(S)	Barlcay Street, Stonehaven	From junction Mary Street to junction C3KS Market Square	
C3KS	Barclay Street, Stonehaven	From junction C3KS Market Square to junction C3KS Cameron Street	
A957	Allardice Street, Stonehaven	From junction A957 Market Square to junction C3KS Cameron Street	
B979	Allardice Street, Stonehaven	From junction A957 Market Square to junction Rodney Street	
A93	Bridge Street, Ballater	From junction A93 Bridge Square to junction Viewfield Road	
A93	Bridge Square, Balleter	From junction B971 Bridge Street to junction A93 Bridge Street	
	Station Square, Balleter	From junction A93 Bridge Street to junction Monaltrie Road	
A93	High Street, Banchory	From junction A93 Station Road to junction C1KB Kinneskie Road	
B974	Dee Street, Banchory	From junction A93 High Street to junction C1KB Bridge Street	
A97	Gordon Street, Huntly	From A97 The Square to junction Granary Street	
A97	The Square, Huntly	From junction A97 Gordon Street to junction A97 Duke Street	
	The Square, Huntly	From junction A97 Duke Street to junction Castle Street	
A97	Duke Street, Huntly	From A97 The Square to junction Stewart Lane	
A920	Deveron Street, Huntly	A97 The Square to junction C128S King Street	

The above traffic sensitive footways in Aberdeenshire shall be restricted on weekdays and Saturdays from 0900 to 1730

Issue Date : 25 April 2011 **Revision : Original Issue**

TRAFFIC SENSITIVE FOOTWAYS

Road Number	Street Name	Location	Classification
Moray Council			
C43L	East Church Street , Buckie	(part), From junction A942 High Street to junction Harbour Street	
A942	High Street, Buckie	(part), From junction East Church Street to junction East Cathcart Street	
C31L	West Church Street, Buckie	(part), From junction A942 High Street to junction South Pringle Street	
A98	Seafield Street, Cullen	From junction Seafield Place to A98 Bayview Road	
U171E	Batchen Street, Elgin	From junction High Street to junction South Street	
U171E	Commerce Street, Elgin	From High Street to junction South Street	
C39E	High Street, Elgin	From junction A96(T) Alexandra Road to junction A96(T) South College Street	
C30E	South Street, Elgin	(part), From junction A96(T) Northfield Terrace to junction Moss Street	
B9011	High Street, Forres	(part), From junction South Street to junction A940 at St Catherine's Road	
B9010	Tolbooth Street, Forres	(part), From junction High Street to junction Fulton Road	
C117H	Mid Street, Keith	(part), From junction A96(t) Church Street to junction Reidhaven Square	
A941(W)	Pitgaveny Street, Lossiemouth	(part), From Seatown Road to junction Commerce Street	
B9040	Queen Street, Lossiemouth	(part), From junction A941 Pitgaveny Street to junction Argyle Street	
The above traffic sensitive footways in Moray shall be restricted on weekdays and Saturdays from 0900 to 1730			

Level of Detail Required in Programme

3. The level of detail should not be less than the following:

4. Within 14 days after the acceptance of Tender and any subsequent revision

(i) Roadworks

(a) Traffic Management measures including provision for pedestrians and operation of site access
(b) Site Clearance
(c) Drainage
(d) Excavation / Milling
(e) Sub-base
(f) Base
(g) Surfacing
(h) Road Markings

(i) Footways

(a) Traffic Management measures including provision for pedestrians and operation of site access
(b) Site Clearance
(c) Drainage
(d) Excavation
(e) Sub-base
(f) Surfacing

APPENDIX 1/14: PAYMENT APPLICATIONS

1. The payment applications submitted to the Overseeing organisation in accordance with the Conditions of Contract by the Contractor shall, whenever dealing with matters covered by the Bill of Quantities, be set out under Part and Section headings similar to those in the Bill of Quantities and shall separately identify each item and specify quantity, unit, rate and value. Items not described in Bills of Quantities but appropriate for inclusion as measured work shall be shown at the end of the relevant section or under section headings as appropriate indicating quantity, unit rate and value. In respect of all other matters referred to in the Conditions of Contract the Contractor shall separately show in the statement quantities, units and rates of goods and/or materials and also details of any other matters to which he considers himself entitled. The Contractor shall allow the Overseeing Organisation to inspect invoices for goods or materials included in the statement as may be required.

2. The Conractor shall prepare and submit the final Account in accordance with the requirements of Clause 7.6 in a form similar to that of the Bill of Quantities with the inclusion of any Variation Orders which may have been issued during the Contract. The Contractor shall submit two copies of he Final Account to the Engineer in addition to those he may wish to be returned to him.

APPENDIX 1/15: ACCOMMODATION WORKS

Accommodation Works generally

1. The Contractor will be responsible for making all necessary arrangements with the owners and occupiers for carrying out the Accommodation Works, including where necessary arrangements for entry and access across private land.

2. The Contractor will be responsible for agreeing a programme of works with the landowners and keeping the Overseeing Organisation informed of any amendments to his programme.

APPENDIX 1/16: PRIVATELY AND PUBLICLY OWNED SERVICES AND SUPPLIES

1. This Appendix contains details of services and supplies affected by the Works, details of preliminary arrangements that have been made with Statutory Undertakers and others for the alteration of services and supplies affected by the Works, and details of any orders already placed.

Work For Statutory Bodies – General Requirements

2. The contractor shall make arrangements with the Statutory Undertakers and others concerned, for the co-ordination of his work with all the work that needs to be done by them or their contractors concurrently with the Works. Compliance with the periods of notice given in this Appendix does not relieve the Contractor of his obligations.

3. Private services to individual properties have not generally been listed or shown on the drawings. The Contractor shall make arrangements with the Statutory Undertakers and others concerned with the phasing of all necessary disconnections and diversions of private services affected by the Works.

4. Disconnected apparatus shall be removed by the Contractor only with the prior consent of the Authority concerned.

5. Unless otherwise described in the Contract, trench work for service ducts, cables, mains and pipes shall be executed in accordance with the requirements of the Series 500 section of the Specification.

6. Where the Contractor is required to install service plant for the Statutory Bodies, all installation work shall be in accordance with the special requirements of the relevant Statutory Bodies as described elsewhere in the Contract.

Programming

7. The Contractor shall be responsible for informing Statutory Bodies and Others of the Works programme and of all updates of the works programme and for the giving of all advance notices as described in the Contractor or as subsequently amended during the execution of the work.

8. The Contractor shall confirm all programming matters with the utility involved in writing

9. The Contractor shall keep the Overseeing Organisation informed of all proposed discussions with Statutory Bodies and Others in order that the Overseeing Organisation or his representative may be present. A copy of all correspondence shall be sent to the Overseeing Organisation for his information.

10. If the Contractor requires to amend the current Works Programme, any proposed amendment which might affect the timing or method or sequence of execution of work due to be carried out by the Statutory Bodies or Others shall be discussed with the relevant Overseeing Organisation and shall only be incorporated into the current Works programme with the approval of the Overseeing Organisation.

Trial Holes

11. Prior to starting an excavation, the Contractor shall excavate inspection pits (pilot holes) by hand to locate existing services shown on the contract Drawings to be in the vicinity of the proposed excavation.

STATUTORY UNDERTAKERS : LIST OF CONTACTS

The names, addresses and telephone numbers of the authorities serving in the locality are included in the Tender Document.

Services and Supplies Affected by the Works

Details of Services and Supplies affected by the Works and works required are included in the Tender Document.

Replacement of Defective Scotland Gas Networks Ironwork (Aberdeen City Only)

12. National Grid Transco will supply replacement valve covers free of charge, **prior** to resurfacing work (footway or carriageway) being carried out, if agreement is reached before hand that the cover was defective.

The Contractor should contact the person at the number listed in the above table to arrange a joint inspection and agreement should be reached regarding the replacement of damaged or defective covers.

Replacement of Defective Scottish Water (Aberdeen City Only)

13. The following procedure should be followed, prior to any Scottish Water ironwork being replaced under this contract.

Scottish Water require at least four weeks advance notification for the supply of replacement covers. Contractors should carry out a joint inspection with a Scottish Water Inspector and agree which covers, if any, need to be replaced. In this instance covers are defined as manhole covers or valve tobies. The Overseeing Organisation will also be advised of these inspections so that a representative may attend.

Responsibility for the covers uplifted from Scottish Water lies with the Contractor who should be satisfied with the quality of the material before signing for it.

Scottish Water can be contacted on 08457 437437 where inspections can be arranged and covers uplifted.

Replacement covers issued or bought from another source other than Scottish Water will only be permitted if written approval is given by the Overseeing Organisation.

Replacement of British Telecom Box Covers and Frames (Aberdeen City Only)

14. British Telecom will supply replacement covers and frames free of charge, **prior** to resurfacing work (footway or carriageway) being carried out, if agreement is reached before hand that the cover and/or frame was defective.

The Plant Protection Officer (PPO) for BT should be contacted before work begins on site and agreement reached on the number and type of covers and frames to be replaced.

APPENDIX 1/17: TRAFFIC SAFETY AND MANAGEMENT

Traffic Safety and Management

1. All Traffic Management shall comply with the Requirements of Chapter 8 of the Traffic Signs Manual unless otherwise detailed in this Appendix..

Contractor's Method Statement

2. The Contractor shall submit to the Overseeing Organisation, **A MINIMUM OF 7 DAYS BEFORE THE COMMENCEMENT OF WORK**, a detailed project specific method statement for the implementation, maintenance and removal of the detailed Traffic Management arrangements. This requirement shall also apply to substantial alterations to traffic management systems in the course of the Works.

   (i) Drawings showing traffic management layout shall include as appropriate:-

   (ii) phasing of the operations.

   (iii) position of any traffic signals.

   (iv) width of lanes.

   (v) working area.

   (vi) safety zone.

   (vii) provisions for pedestrians and other non-motorised road users

   (viii) cross overs.

   (ix) signing.

   (x) timing of operations.

   (xi) road lighting requirements.

   The Contractor's attention is drawn to the need to assess the risks and develop and operate safe working practices when vehicles and plant are reversing on Site, whether or not they are on part of the road. Rule 129 of The Highway Code 1993 is relevant but the Contractor's practices and procedures should take account of the different conditions, which will obtain on Site.

Maintenance Requirements

3. The Contractor shall maintain to the satisfaction of the Overseeing Organisation, and until the commencement of the Period of Maintenance, the carriageway, footways, verges and drainage system of the existing public roads within the boundaries of the Site.

4. Where earthworks for any section of works cause an obstruction to the drainage flow on the existing carriageway, the Contractor shall temporarily extend the existing road drainage system sufficiently to avoid ponding of water on or adjacent to the site.

5. Potholes and other defects shall have immediate attention, be neatly cut out and repaired with approved close graded bituminous material surface. No uncoated materials shall be allowed in the repair of the surface of the carriageway.

6. Any road which is part of the works and is being used by Traffic, shall be kept clean and clear of all dirt, mud and stones, etc., dropped from vehicles or tyres, to the satisfaction of the

Overseeing Organisation. Sites shall be cleared of all materials and debris and cleared of dirt once works are completed before the Contractor leaves the site.

7. The Contractor shall provide, maintain and use, as directed by the Overseeing Organisation, suitable cleaning equipment, including mechanical road sweepers, throughout the course of the Contract.

8. Temporary reinstatement (in accordance with the requirements of Appendix 7/2) shall be provided where Traffic is required to run over a track, either in advance of carrying out the permanent reinstatement or if the tracks are in sections of the existing road which are to be reconstructed at a later date. This work to be considered as part of the Contractors general obligations for the maintenance of the highway.

Notice Requirements

9. The contractor shall give 28 days notice to the Overseeing Organisation in order to arrange for:-

   (i) amending or making traffic orders

   (ii) authorising of non-prescribed signs

   (iii) authorising temporary traffic signals

   (iv) moving signs to be compatible with state of the works as described in sub-Clause 117.11.

10. Charges for orders, where necessary for the completion of contracts, will normally be waived.

Details of Events that could have a Bearing on the Works

11. From time to time there will be events (e.g. other Works, sporting events, festivals, exhibitions etc..) occurring which will preclude the use of Traffic Management for planned works. The Contractor shall make allowance for dealing with any such identified restrictions in his method statement for traffic management for the Works.

Details of events planned for the contract period together with the consequent restrictions on traffic management are included in the Tender Document.

High Visibility Clothing and Helmets

12. Every employee, whilst engaged on the works on or near a road, shall wear high visibility reflective/fluorescent clothing of a type conforming to the requirements of Clause 117(18).

Responsibility for Traffic Management Measures

13. The Contractor is responsible for the provision, maintenance and surveillance of all traffic management measures associated with the Works.

14. The Contractor shall take particular care with the siting of all huts, plant, equipment, materials, stacks or heaps within the public road, in order that no danger or limitation of sign lines is caused.

Temporary Signing of the Works

15. Traffic signing shall generally be in accordance with Chapter 8 of the Traffic Signs Manual (2006) amended by Table 17/1. The Contractor's attention is also drawn to "Safety at Street Works and Road Works" published by The Stationary Office.

Table 17/1

CONE AND SIGN SIZES	Minimum height of Cone	Minimum height of Sign
All-purpose single carriageway (30 mph or less)	600mm	600mm
All-purpose single carriageway (40 mph or greater)	750mm	750mm
All-purpose A or B class single carriageway (50mph or more	750mm	900mm
All-purpose dual carriageway (40 mph or less)	750mm	900mm
All-purpose dual carriageway	1000mm	1200mm

All reflective material shall be Class 1.

16. Where the Contractor proposes a reduction in the prescribed minimum sign size in Table 17/1, due to insufficient verge width to accommodate the sign, such proposal shall be submitted to the Overseeing Organisation for approval prior to erection of the signs.

17. Where sharp deviations of routes are required the cones shall be positioned in such a manner as to form a "wall".

18. Where the verge or kerbing has been removed, cones or other similar methods must be used to clearly define the edge of the carriageway.

19. Adequate temporary lighting shall be provided by the Contractor at all cross overs or sharp deviations of route.

20. The temporary signing of the Works shall be checked by the contractor at least once a day including holiday periods and a record of this passed to the Overseeing Organisation.

Police Involvement

21. The Police shall be kept involved in the traffic management proposals of the Contractor as described below. When required by the Overseeing Organisation he shall convene a series of regular meetings between the Contractor, the Overseeing Organisation and the Police. (This meeting to be addition to regular progress meetings between the Contractor and the Overseeing Organisation).

    (i) All-purpose single carriageway (30 mph or less).

    The police shall not normally require to be involved except when a temporary traffic order is required.

    (ii) All-purpose single carriageway (40 mph or greater) or dual carriageway (30, 40 mph or greater).

    The police shall be kept informed of the traffic management proposals by the Contractor. He shall convene a meeting between the Contractor, the Overseeing Organisation and the Police, in addition to regular progress meetings between the Contractor and the Overseeing Organisation. The Contractor shall arrange this meeting within two weeks of acceptance of tender.

Convoy System

22. Where required by the Overseeing Organisation a convoy system of single line traffic operation shall be carried out by the Contractor. The system shall be operated in accordance with Chapter 8 of the Traffic Signs Manual. Alternative signing to that specified will not be permitted without special authorisation.

23. A mandatory 10 mph speed limit shall be imposed throughout the Works which are subject to convoy working. Approval of the temporary speed restriction will be arranged by the Overseeing Organisation. (No charge will be made to the Contractor).

24. Single file operation shall not exceed 500 metres unless otherwise directed by the Overseeing Organisation.

Colour of Vehicles Type C Works

25. All vehicles used in mobile lane closures as defined in Chapter 8 and vehicles used for setting out traffic management at roadworks shall be in compliance with the requirements of Chapter 8 of the Traffic Signs Manual and shall be non reflective yellow (Colour No 355, BS 381C) in colour. All other vehicles shall be generally light in colour.

26. Contractors are reminded of the requirements of Chapter 8 regarding roof beacons.

APPENDIX 1/18: TEMPORARY DIVERSIONS OF TRAFFIC

Temporary Diversions of Traffic Specified by the Overseeing Organisation

1. Roads open to Vehicles

   Details of temporary diversions of traffic specified by the Overseeing Organisation are included in the Tender Document.

2. Other Roads and Private Rights of Way

   (i) All diversions of public roads to be surfaced with bitmac. Minimum construction to be 200m Dry bound Macadam Road Base (40 to 20mm aggregate) and 75mm bituminous macadam.

   (ii) Temporary diversion to be maintained by the Contractor to the specification of the Overseeing Organisation.

   (iii) Reasonable vehicular access will be maintained to properties affected by the Works. Pedestrian access will be maintained at all times required to premises / property fronting the works. The Contractor to be responsible for keeping the proprietors of these properties informed of his programme for the Works and for keeping to a minimum the disruption to these premises during the course of the Contract.

   (iv) The Contractor shall ensure his plant, labour, materials do not damage in any way un-maintained sections of carriageway or footway, nor shall they deposit materials, plant in such a manner so as to deny access to any privately maintained carriageway or footway.

   (v) The Contractor shall seek the permission of the proprietor before carrying out any accommodation works within the proprietors property.

Temporary Diversions Proposed by the Contractor

3. Notice Requirements

   The Contractor is required to notify the Overseeing Organisation a minimum of 2 weeks before he carries out any temporary diversion of traffic. The Contractor is also referred to the requirements of Appendix 1/17 should a temporary traffic order be required.

1/70: MANAGEMENT OF SITE WASTE

1. For the purposes of this Appendix all materials moved off the Site shall be treated as Waste.

2. The Contractor shall minimise waste generation form the site and wherever possible recycle waste materials.

3. Where waste material is disposed off site all disposal from the Works shall be to a site authorised in writing by the approved Waste Disposal Licensing Authority.

4. The Contractor shall ensure that he, and any firm he may employ to transport waste materials, is registered in accordance with the requirements of the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 as a carrier of waste and that such registration is made with the area office of the Scottish Environment Protection Agency for the area in which his principal compound is located.

5. The Contractor shall maintain a record of all waste movements from the site recording, for each waste movement, as a minimum :-

   (i) Type of waste – Inert / non-hazardous / hazardous
   (ii) Quantity of waste
   (iii) End Use – Reused / Recycled / Disposed of
   (iv) Destination including details of permits and licenses for the site
   (v) Identity of firm transporting the waste including waste registration number
   (vi) Waste Transfer Note reference

   This record shall be available for inspection by the Engineer and shall be delivered, together with copies of all Waste Transfer Notes, to the Engineer on completion of the Works

6. Before commencing any disposal operations the Contractor shall supply to the Engineer :-

   (i) details of the disposal site;
   (ii) a copy of the approval for disposal, and;
   (iii) proof of registration

7. Where waste is to be stored either on or off site the Contractor shall provide details of the location and the method of storage.

APPENDIX 2/3: RETENTION OF MATERIAL ARISING FROM SITE CLEARANCE (ABERDEEN CITY ONLY)

1. The following gives direction to the Contractor as to the requirements of the Overseeing Organisation for the more common materials arising from site clearance.

Description	Location	Delivered to:	Requirements
Stone kerbs	As per contract specific documents	Aberdeen City Council – Mundurno Tip	Kerbs should be cleaned and separated from other material arising from site clearance and stored in kerb stockpile.
Granite paving slabs		Aberdeen City Council – Mundurno Tip	Paving slabs should be cleaned and separated from other material arising from site clearance and stored in granite paving slab stockpile.
Granite setts		Aberdeen City Council – Mundurno Tip	Granite setts should be cleaned and separated from other material arising from site clearance and stored in granite sett stockpile.

Unless stated otherwise in the contract specific document the Contractor should dispose of all other materials arising from site clearance in accordance with the requirements of Appendix 1/70

APPENDIX 3/1 : FENCING, GATES AND STILES

General

1. The layout of fences and gates will be described in the Contract Drawings.

2. Fencing and gates shall generally comply with the requirements of BS 1722 and BS 3470 respectively and with the Highway Construction Details.

Temporary Fencing

3. Stated temporary fencing shall be Types 1, 2, 3 and 4 as described in the Highway Construction Details H1 and H2 or as otherwise described in the Contract.

Permanent Fencing - General

4. Permanent fencing shall comply with the following requirements:-

   (i) Fencing shall be in accordance with BS 1722 and the Highway Construction Details.
   (ii) All plain wire to be 4mm dia., barbed wire to be 2.5mm dia. four point.

Strained Wire, Chain Link and Woven Wire Fencing.

5. Strained wire, chain link and woven wire fencing details are shown on Tables 3A and 3B.

Table 3A : Strained Wire, Chain Link and Woven Wire Fencing up to 1.2m

Post Details							
Straining Posts and Turning Posts		Struts			Intermediate Posts (Middle)		
		Sawn	Round				
180mm dia.		75mm x 75mm	75mm dia.		75mm x 75mm		
Fence Types							
Fence Type	Height (mm)	Description	Drawing No.	BS Ref. (mesh)	Max. Post Strainers	Max. Spacing Interval	
F1	1150	Strained 7W	H13		150m	2m.	
F2	1150	Strained 6W	H13		150m	2m.	
F3	1150	Strained 4W	H13		150m	2m.	
F4	900	Chain Link	H11	60W 90A	150m	2m.	
F5	975	W/W Mesh	H12	6/90/30	150m	2m.	
F6	1150	W/W Mesh	H76	B/832/6	150m	2m.	
F7	1150	Strained 6W	H77		150m	2m.	
Wire Height (From Ground Level in mm.)(* indicates barbed wire)							
F1	1075	815*	630	475	325	200	75
F2	1075*	825	575*	350	225	100	
F3	825	600	375	150			
F4	825	400	30				
F5	900	400	30				

Table 3A : Strained Wire, Chain Link and Woven Wire Fencing up to 1.2m							
F6	1050*	850	435	60*			
F7	1075*	825	575*	350	225	100	

Table 3B : Strained Wire (Height up to 2.1 metres)						
Post Details						
Straining Posts and	Struts				Intermediate Posts	
Turning Posts	Sawn		Round		(Middle)	
180mm dia.	100mm x 100mm		100mm dia.		100mm x 100mm	
Fence Types						
Fence Type	Height (mm)	Description	Drawing No.	BS Ref. (mesh)	Max. Post Strainers	Spacing Interval
F8	1800	Strained 11W	H13		150m	2m.

Wire Height (From Ground Level in mm.)(* indicates barbed wire)										
F8	1700*	1475	1250	1050*	875	700	525	375	225*	100

Post and Rail Fencing

6. Details of Post and Rail Fencing are shown in Table 3C.

Table 3C : Post and Rail Fencing				
Fence Type	Description	Drawing No.	Posts	Rails
F9	Post and 5 rail	H3	See Drawings	See Drawings
F10	Post and 3 rail	H15	75mm x 150mm	38mm x 87mm
F11	Post and 5 rail (Agricultural)	H75	See Drawings	See Drawings

Field Gates - Steel

7. Details of steel gates are shown in Table 3D.

(i) Field gates shall generally be in accordance with BS 3470 and with the Highway Construction Details,

(ii) Protective system to be Hot Dip galvanising to BS EN 1461

Table 3D : Field Gates (Steel)			
Gate Type	Width (mm) (Dimension (a) - See Drawing)	Description	Drawing No.
GS1	(a) 3600	Steel Field Gate	H17
GS2	(a) 4500	Steel Field Gate	H17
GS3	(a) 3600	Steel Half Mesh Field Gate	H18
GS4	(a) 4500	Steel Half Mesh Field Gate	H18

Table 3D : Field Gates (Steel)			
GS5	4880	Extra Wide Field Gate	H19
GS6	4820	Steel Double Field Gate	H20
GS7	9600	Steel Double Field Gate Non Standard (2 No. 4800 Gates)	H20 (Amended width)

Field Gates - Wooden

8. Details of wooded field gates are shown in Table 3E.

(i) Field gates shall generally be in accordance with the Highway Construction Details.

Table 3E : Wooden Field Gates			
Gate Type	Width (mm)	Description	Drawing No.
GW1	3000	Single Timber Field Gate	H21
GW2	3600	Single Timber Field Gate	H21
GW3	3000	Double Timber Field Gate	H22
GW4	3600	Double Timber Field Gate	H22

APPENDIX 5/1: DRAINAGE REQUIREMENTS

Surface Water Drains - Materials

1. The following pipes meeting the requirements of Table 5/1 will be permitted.

   (i) Vitrified clay
   (ii) Precast concrete
   (iii) Unplasticised P.V.C.
   (iv) Ductile iron
   (v) Polypropylene (with BBA Roads and Bridges Certificate)

2. For plastic pipes the Ultimate Pipe Stiffness when tested in accordance with BS 4962 shall be 1400 N/m^2 and resistance to impact to comply with BS 4962 using a striker drawing a mass of 1 kg and a hemispherical radius of 25mm.

Surface Water Drains - Bedding

3. With reference to Drawing F1 bed types A,B,F,N, and S are for use with rigid pipes and S and T with flexible pipes.

Filter Drains

4. The material meeting the requirements for (1) above will be acceptable as listed below in Table 5/1 below:-

TABLE 5/1:Filter Drains		
Drain Design Group	Group Cross section type Refer to HCD Drawing F2	Special Requirements
1	G, H, I	N/A
2	J,K	N/A
3	L, M	N/A

   (i) Groups 4, 5 and 6 as per Groups 1, 2 and 3 but with pipe lengths to suit radii of less than 40 metres.

   (ii) Group 7 as per Group 1 except that the Type B material above sub-base shall be replaced with Type A material.

   (iii) Group 8 Agriculture field drain.

Polythene Wrap

5. Where the design group has the suffix A or B the drain shall have a Polythene surround as detailed in Drawing F86.

Geotextile Wrap

6. Where the design group has the suffix C or D the drain shall have a Geotextile ‘wrap’ as per Drawing F86.

Gully Connections

7. In addition to material meeting 1 above, the use of flexible corrugated plastic pipes will only be permitted if approval in writing is given by the Overseeing Organisation and provided it is surrounded with 150mm ST2 concrete.

Manholes

8. All manholes rings will require to be sealed with 'Toxstrip' or equivalent.

9. All manhole covers shall open such that an operative will have an unobscured view of the oncoming traffic when entering or leaving the manhole.

10. Chamber covers and frames shall be to BS EN 124 and in accordance with the design and certification requirements of DMRB HA 104/09.

Cover of Pipes

11. All pipes with less than 900mm cover to formation to be surrounded in concrete.

APPENDIX 5/2: SERVICE DUCT REQUIREMENTS

General

1. Ducts for Street Lighting, Illuminated Traffic signs and Traffic Signals will be 100mm U.P.V.C. laid on a bed type T as shown on H.C.D. Drawing No F1.

2. Unless otherwise indicated in the Contract, ducts for British Telecom and Scottish & Southern Energy shall be bedded on a bed Type T as shown on H.C.D. Drawing No I70 /I71 or similar. Details of the supply of the duct shall be as indicated in Appendix 1/16.

3. The appropriate marking tape shall be placed 150mm above all cables and ducts laid for services.

Protection Requirements

4. Where shown on the drawings or as directed by the Overseeing Organisation existing services affected by the works shall be protected by either covering with a minimum of 150mm of ST2 concrete or to the requirements of the appropriate authority prior to backfilling.

Colour of Ducts / Pipes

5. The colour of ducts will generally be as required by the authority. The following shall apply unless otherwise stated:-

(i)	Road Lighting including Traffic Bollards and Signs	Purple
(ii)	Traffic Signals	Orange
(iii)	British Telecom	Grey
(iv)	Scottish & Southern Energy	Black
(v)	Scottish Water	Blue
(vi)	Transco	Yellow
(vii)	Atlantic Telecom	Green
(viii)	Cable & Wireless	White
(ix)	CCTV	Green
(x)	Private Apparatus	Various Colours

APPENDIX 5/5: COMBINED DRAINAGE AND KERB SYSTEMS

General Requirements

1. A schematic plan of the proposed drainage layout shall be provided by the Overseeing Organisation.

2. Blocks shall generally comply with the above and the following requirements:-

   (i) Water inlet slots shall be either continuous slots, or discrete apertures with entry areas (measure in the vertical plane) of not less than 0.0075m² and not less than 0.015m²/m length.

   (ii) Minimum Waterway Areas shall be 0.075m² for each block.

   (iii) Discharge openings shall be circular and of a 225mm minimum diameter or shall be elliptical of minimum area 0.05m².

   (iv) The typical kerb upstand shall be 100mm high and have a half battered profile.

3. The junctions, accesses and other fittings completing the drainage block system shall be as required in the Contract and be to the approval of the Overseeing Organisation.

4. The blocks shall be laid as described in the Contract and in accordance with Series 1100. Vertical joint faces shall be sealed with approved trowel applied mastic sealing compound.

5. Class D strength units shall be used where kerb systems are laid adjacent to live traffic flows.

6. Concrete kerb haunch and log to be ST1 concrete.

APPENDIX 5/6: LINEAR DRAINAGE CHANNEL SYSTEMS

General Requirements

1. Typical details of Linear Drainage Channel Systems are indicated on Drawings No F87, F88, and F89.

2. Channel systems shall generally comply with the above or as otherwise indicated in the Contract.

3. The channels shall be laid as described in the Contract and in accordance with Series 1100.

4. Class of concrete bedding / surround are as indicated on Drawings No. F87 and F88. For proprietary Footway Crossing as detailed on Drawing No. F89 the bedding shall be 100mm deep concrete ST1 under the area of the channel.

5. Any special fittings required to complete the Linear Drainage Channel System shall be as required in the Contract and be to the approval of the Overseeing Organisation.

APPENDIX 6/1: REQUIREMENT FOR ACCEPTABILITY OF TESTING ETC. OF EARTHWORKS MATERIALS

Permitted Classes of Material

1. General Fill - Imported: Class 1A

2. The Contractor shall demonstrate to the satisfaction of the Overseeing Organisation the acceptability of both imported fill material and fill material arising from, and for use in, the site. The Contractor shall submit test results, the relevant tests being listed in Appendix 1/5, to the Overseeing Organisation for approval of the material prior to incorporating the material into the Works .

3. The MCV of acceptable material shall be > 8.5.

APPENDIX 6/2 : REQUIREMENTS FOR DEALING WITH CLASS U1B & U2 UNACCEPTABLE MATERIAL

1. Disposal of all surplus material from the excavations shall be to a site authorised in writing by the approved Waste Disposal Licensing Authority.

2. The Contractor shall ensure that he is registered in accordance with the requirements of the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 as a carrier of waste and that such registration is made with the area office of the Scottish Environment Protection Agency for the area in which his principal compound is located.

3. The Contractor shall supply:-

   (i) details of the disposal site;
   (ii) a copy of the approval for disposal, and;
   (iii) proof of registration,

   to the Engineer before commencing disposal operations.

4. The Contractor shall provide copies of all Waste Transfer Notes and Consignment Notes to the Engineer within 7 days of a transfer taking place.

Class U1B Materials

5. All Class U1B materials shall be taken direct to a licensed tip and disposed of in accordance with the requirements of the relevant legislation.

6. The Contractor shall be responsible for making his own arrangements as to the tipping sites to be used, any charges to be paid, and for ensuring that each site has the necessary licenses or permissions that may be required for the purpose by a statutory body.

7. The Contractor shall provide details of the proposed method of disposal of Class U1B material to the Engineer prior to commencing the disposal operation.

Class U2 Materials

8. If Class U2 material is encountered on site the Contractor shall immediately notify the Engineer and the Scottish Environmental Protection Agency BEFORE any material is removed. The Contractor shall comply with the 1996 Special Waste Regulations at all stages.

APPENDIX 6/7: SUBGRADE AND CAPPING

General

1. The locations and thicknesses of capping layer, where required, shall be as shown on the Contract Drawings

2. Where the Sub-Grade is found to have a CBR of less than 15 the Overseeing Organisation will instruct either the placing of additional capping layer, or and increase in the depth of sub-base, or a combination of both.

APPENDIX 6/8: TOPSOILING

1. Topsoiling shall be carried out at the locations and to the depths specified on the contract drawings

2. Imported topsoil Class 5B shall be permitted if specifically indicated and shall comply with BS 3882:2007, General Purpose Grade.

3. Any materials deemed unsuitable by the Engineer, that are brought to the surface by the spreading, grading and consolidation of topsoil shall be collected up disposed of off site.

4. Topsoiled areas shall not be traversed by machinery or used for storage purposes.

5. The top 50mm of topsoil shall be reduced to a fine tilth and graded to final levels (after consolidation) 30mm (less the turf thickness where turf used) above top of kerbs, edgings, manhole covers and hard surfaces etc.

APPENDIX 6/9: EARTHWORKS, ENVIRONMENTAL BUNDS, LANDSCAPE AREAS, STRENGTHENED EMBANKMENTS

Landscaped Areas - General

1. Where landscaping is required to be carried out in this Contract details of areas to be landscaped will be indicated on the Contract Drawings.

Topsoiling

2. Depths of topsoiling required in landscaping areas shall be as indicated on the Contract Drawings.

APPENDIX 7/1: PERMITTED PAVEMENT OPTIONS

1. Grid for checking surface levels of pavement course (Clause 702.4).

   Longitudinal dimensions - 10 metres.
   Transverse dimension - 2 metres.

2. Surface regularity (Clause 702.7) - Category A.

3. Texture Depth - Unless specified otherwise all roads not subject to an urban speed limit(i.e. > 30mph) will be deemed to require texture depth as specified below:-

   (i) High speed roads with 85 percentile speed of traffic > 55mph

      (a) For thin surface course systems to Clause 942 with an upper (D) aggregate size of 14mm or less texture depth shall be, ≥ 1.3mm average per 1000m section and, ≥ 1.0 average for a set of 10 measurements

      (b) For chipped hot rolled asphalt, surface dressing and all other surfacings texture depth shall be , ≥ 1.5mm average per 1000m section and, ≥ 1.2 average for a set of 10 measurements

   (ii) Low speed roads with 85 percentile speed of traffic < 55 mph

      (a) Texture depth shall be , ≥ 1.2mm average and, ≥ 1.0 individual

   However where local experience suggests it to be necessary a texture depth for low speed roads may be specified by the Overseeing Organisation.

4. Texture depth shall be measured in accordance with the volumetric patch method described in BS EN 13036-1 and the procedures in BS 594987, Clause 8.2..

5. The requirements of the P.R.D. Test are omitted from this Contract.

6. The compaction of base and surfacing materials shall be carried out in accordance with the appropriate British Standard.

7. The Contractor shall be required to carry out remedial works within a 2 week period if there is any standing water on the carriageway or footway reconstructed or reinstated under this contract.

8. Thin Surfacing Systems proposed for any Contract will require to be submitted for approval by the Overseeing Organisation.

Regulating Course

9.

PAVEMENTS : REGULATING MATERIALS			
FACTORS FOR PERMITTED AGGREGATES			
	Factors for Coarse Aggregate:-		
Material	Granite	Basalt	Limestone
Asphalt Concrete Base/ Binder Course	1.00 per Tonne	0.92 per Tonne	1.00 per Tonne
Rolled Asphalt Base/ Binder Course	1.00 per Tonne	0.92 per Tonne	1.00 per Tonne

Weight Tickets

10. Original weight tickets, a copy of which is to be handed to the Overseeing Organisation, shall accompany each load of coated materials.

    If instructed by the Overseeing Organisation any lorry delivering to site shall proceed to the nearest approved weighbridge for weighing check and verification.

Pavement Options

11. The following Tables detail the Pavement Options applicable to each of Aberdeenshire Council, Aberdeen City Council and Moray Council Contracts :-

Pavement Option – Aberdeenshire

SURFACE COURSE

12. HRA 30/14F surf 40/60 des
    - (i) Reference: EN13108-4
    - (ii) Coated Chippings: Nominal size - 20mm in accordance with Clause 915 and shall conform to BS EN13108-4, taking into account CL915 and the detailed requirements in BSI PD 6691 Annex C Clause C.2.8.2.
      - (a) PSV Category: Strategic and Distributor Roads: PSV_{62} (≥ 62)
      - (b) Residential Roads: PSV_{50} (≥ 50)
      - (c) AAV Category: AAV_{10} (≤ 10)
    - (iii) Minimum Air temperature for laying surface course 0ºC
    - (iv) Minimum delivery temperature 155ºC
    - (v) Wind speed (maximum at any air temperature) 40km/h (at 2m height)

13. AC 14 close surf 100/150
    - (i) BS EN 13108-1
    - (ii) AAV Category: AAV_{10} (≤ 10)
    - (iii) PSV Category: PSV_{50} (≥ 50)

14. AC 10 close surf 100/150
    - (i) BS EN 13108-1
    - (ii) AAV Category: AAV_{10} (≤ 10)
    - (iii) PSV Category: PSV_{50} (≥ 50)

15. 20mm Single Course Macadam (Clause 970AR)
    - (i) AAV Category: AAV_{10} (≤ 10)
    - (ii) PSV Category: PSV_{50} (≥ 50)
    - (iii) Pen of binder - 100/150 pen

BINDER COURSE

16. AC 20 HDM bin des 40/60
    - (i) BS EN 13108-1

Pavement Option – Aberdeenshire
BASE
17. AC 32 dense base 100/150 (i) BS EN 13108-1
REGULATING COURSES
18. HRA 0/2 F reg 70/100 (i) BS EN 13108-4 NOTE: Recommended for regulating in layers from 10 to 25mm
19. AC 20 dense bin reg 100/150 (i) BS EN 13108-1
SUB-BASE 20. Type 1 Unbound Mixture (Clause 803) (i) Minimum (C.B.R. - 30%) (ii) Frost Heave in accordance with BS 812: Part 124

Pavement Option – Aberdeen City
SURFACE COURSE
21. HRA 30/14F surf 40/60 des (i) Reference: EN13108-4 (ii) Coated Chippings: Nominal size - 20mm in accordance with Clause 915 and shall conform to BS EN13108-4, taking into account CL915 and the detailed requirements in BSI PD 6691 Annex C Clause C.2.8.2. (a) PSV Category: Strategic and Distributor Roads: PSV62 (≥ 62) (b) Residential Roads: PSV50 (≥ 50) (c) AAV Category: AAV10 (≤ 10) (iii) Minimum Air temperature for laying surface course 0ºC (iv) Minimum delivery temperature 155ºC (v) Wind speed (maximum at any air temperature) 40km/h (at 2m height)
22. AC 14 close surf 100/150 (i) BS EN 13108-1 (ii) AAV Category: AAV10 (≤ 10) (iii) PSV Category: PSV50 (≥ 50)
23. AC 10 close surf 100/150 (i) BS EN 13108-1 (ii) AAV Category: AAV10 (≤ 10) (iii) PSV Category: PSV50 (≥ 50)

Pavement Option – Aberdeen City
24. 20mm Single Course Macadam (Clause 970AR) (i) AAV Category: AAV10 (≤ 10) (ii) PSV Category: PSV50 (≥ 50) (iii) Pen of binder - 100/150 pen
25. Thin Surface Course Systems (Clause 942) (i) AAV Category: AAV10 (≤ 10) (ii) PSV Category: PSV50 (≥ 50) (iii) For specific sites to be designated within individual contracts: PSV62 (≥ 62)
BINDER COURSE
26. AC 20 HDM bin des 40/60 (i) BS EN 13108-1
27. HRA 60/20 bin 40/60 (i) BS EN 13108-4
28. AC 20 HDM bin 40/60 (i) BS EN 13108-1
29. Stone Mastic Asphalt Binder Course and Regulating Course (Clause 937) (i) Material to Clause 937 to suit Base and Surface Course
BASE
30. AC 32 dense base 40/60 (i) BS EN 13108-1 (ii) machine laid only
31. AC 32 dense base 100/150 (i) BS EN 13108-1
32. HRA 60/20 base 70/100 (i) BS EN 13108-4
33. AC 32 HDM base 40/60 (i) BS EN 13108-1
REGULATING COURSES
34. HRA 0/2 F reg 70/100 (i) BS EN 13108-4 NOTE: Recommended for regulating in layers from 10 to 25mm
35. HRA 50/20 reg 70/100 (i) BS EN 13108-4 NOTE: Recommended for regulating in layers from 45 to 80mm

Pavement Option – Aberdeen City
36. AC 20 dense bin reg 100/150 (i) BS EN 13108-1
SUB-BASE
37. Type 1 Unbound Mixture (Clause 803) (i) Minimum (C.B.R. - 30%) (ii) Frost Heave in accordance with BS 812: Part 124

Pavement Option – Moray
SURFACE COURSE
38. HRA 30/14F surf 40/60 des (i) Reference: EN13108-4 (ii) Coated Chippings: Nominal size - 20mm in accordance with Clause 915 and shall conform to BS EN13108-4, taking into account CL915 and the detailed requirements in BSI PD 6691 Annex C Clause C.2.8.2. (a) PSV Category: Strategic and Distributor Roads: PSV62 (≥ 62) (b) Residential Roads: PSV50 (≥ 50) (c) AAV Category: AAV10 (≤ 10) (iii) Minimum Air temperature for laying surface course 0ºC (iv) Minimum delivery temperature 155ºC (v) Wind speed (maximum at any air temperature) 40km/h (at 2m height)
39. AC 14 close surf 100/150 (i) BS EN 13108-1 (ii) AAV Category: AAV10 (≤ 10) (iii) PSV Category: PSV50 (≥ 50)
40. AC 14 close surf 160/220 (i) BS EN 13108-1 (ii) AAV Category: AAV10 (≤ 10) (iii) PSV Category: PSV50 (≥ 50)
41. AC 10 close surf 100/150 (i) BS EN 13108-1 (ii) AAV Category: AAV10 (≤ 10) (iii) PSV Category: PSV50 (≥ 50)
42. AC 10 close surf 160/220 (i) BS EN 13108-1 (ii) AAV Category: AAV10 (≤ 10) (iii) PSV Category: PSV50 (≥ 50)

Pavement Option – Moray
43. 20mm Single Course Macadam (Clause 970AR) (i) AAV Category: AAV10 (≤ 10) (ii) PSV Category: PSV50 (≥ 50) (iii) Pen of binder - 100/150 pen
44. Thin Surface Course Systems (Clause 942) (i) AAV Category: AAV10 (≤ 10) (ii) PSV Category: PSV50 (≥ 50) (iii) For specific sites to be designated within individual contracts: PSV62 (≥ 62)
BINDER COURSE
45. AC 20 HDM bin des 40/60 (i) BS EN 13108-1
46. HRA 60/20 bin 40/60 (i) BS EN 13108-4
47. AC 20 HDM bin 40/60 (i) BS EN 13108-1
BASE
48. AC 32 dense base 100/150 (i) BS EN 13108-1
49. AC 32 dense base 160/220 (i) BS EN 13108-1
50. HRA 60/20 base 70/100 (i) BS EN 13108-4
REGULATING COURSES
51. HRA 0/2 F reg 40/60 (i) BS EN 13108-4 NOTE: Recommended for regulating in layers from 10 to 25mm.
52. HRA 0/2 F reg 70/100 (i) BS EN 13108-4 NOTE: Recommended for regulating in layers from 10 to 25mm.
53. HRA 50/20 reg 70/100 (i) BS EN 13108-4 NOTE: Recommended for regulating in layers from 45 to 80mm
54. AC 20 dense bin reg 100/150 (i) BS EN 13108-1

Pavement Option – Moray
SUB-BASE
55. Type 1 Unbound Mixture (Clause 803) (i) Minimum (C.B.R. - 30%) (ii) Frost Heave in accordance with BS 812: Part 124

APPENDIX 7/2: EXCAVATION, REPAIR AND REINSTATEMENT OF EXISTING SURFACES

General

1. All permanent patching to be carried out by the Contractor once full settlement of the track has taken place.

Temporary Patching

2. Temporary patching shall be provided if traffic is required to run over potholes or tracks either in advance of carrying out the permanent reinstatement, or if the pothole or track is in a section of the existing road which is to be reconstructed at a later date.

3. Temporary patching shall be of a minimum of 50mm dense bitumen macadam surfacing or as described in the contract.

4. The temporary patch must be maintained in a safe condition with an even surface to the satisfaction of the Overseeing Organisation.

Permanent Reinstatement

5. Carriageways - Permanent reinstatement shall consist of either Types 0, 1, 2, 3, 4 or Z as specified in Table 7/2A:-

Table 7/2A: Permanent Reinstatement Types 0, 1, 2, 3, 4 & Z

	Type 0	**Type 1**
Surface Course	40mm Hot Rolled Asphalt	40mm Hot Rolled Asphalt
Base	310mm Asphalt Concrete	260mm
Sub-Base	150mm Type 1 Unbound Mixture	150mm Type 1 Unbound Mixture
	Type 2	**Type 3**
Surface Course	40mm Hot Rolled Asphalt	40mm Hot Rolled Asphalt
Base	210mm Asphalt Concrete	160mm Asphalt Concrete
Sub-Base	200mm Type 1 Unbound Mixture	250mm Type 1 Unbound Mixture
	Type 4	**Type Z**
Surface Course	40mm Hot Rolled Asphalt	-
Base	110mm Asphalt Concrete	260mm Asphalt Concrete
Sub-Base	300mm Type 1 Unbound Mixture	150mm Type 1 Unbound Mixture

The area of existing road excavated by the Contractor shall be the minimum area required to carry out the work.

Verges

6. Where it is not required to replace the turf and where the verge has not been damaged beyond the limit of the trench, the disturbed area shall be brought up to the

level of the area adjoining verge by spreading topsoil to a minimum depth of 150mm. All stones shall be cleared and the area lightly rolled. The area shall be seeded in accordance with Series 3000 of the Specification.

Footways

7. Footways shall be reconstructed with required depth of sub-base and surfaced to match existing in accordance with Appendix 11/1.

Excavation and Reinstatement in the Vicinity of Existing Trees

8. All excavation and reinstatement works adjacent to existing trees shall be carried out in accordance with the "Guidelines for Planning, Installation and Maintenance of Utility Services in Proximity to trees" published by The National Joint Utility Group.

Cutting of Existing Blacktop Surfaces

9. Where the use of "Saw Cutting" is required in the contract, a water spray shall be employed to reduce the effects of dust.

APPENDIX 7/4: BOND COATS, TACK COATS AND OTHER BITUMINOUS SPRAYS

Sheet 1: Information to be supplied by the Compiler

General Requirements

1. Where the Contractor is required to overlay an existing road or at tie-ins Cationic Bitumen Emulsion Type K-160 complying with BS 434 shall be spread evenly over the surface to be overlaid at a rate of 0.4 - 0.45 litres/sq.m.

2. Where the Contractor is laying a single course macadam in accordance with Clause 970AR the tack coat shall be spread evenly over the surface to be overlaid at a rate of 0.33 - 0.55 litres/m^2.'

3. Where the Contractor is laying a material which complies with Clause 942 a tack coat of polymer modified bitumen will be laid prior to surfacing, spread evenly over the surface to be overlaid, at a rate of 0.33 - 0.55 litres / m^2

APPENDIX 7/4: BOND COATS, TACK COATS AND OTHER BITUMINOUS SPRAYS

SHEET 2: Information to be provided by the Contractor

The Contractor shall provide the following information to the engineer prior to the commencement of the Work:

1. The product or products he proposes to use together with their data sheets, product identification data, cohesivity data as specified.

2. For each product, a copy of the BS EN ISO 9001 certificate showing the name of the manufacturer, the name of the certification body and the reference number and date of the certificate.

3. The spraying equipment proposed, and a test certificate.

4. The source or sources of blinding material proposed.

5. Contingency plans in the event of any breakdowns

6. The results of any other tests or other data the Contractor considers would assist the Overseeing Organisation in assessing the technical merit of the treatment such as:

   (i) Tackiness test and/or trafficability time and methods of test.

   (ii) Breaking time test results for different weather conditions and substrates.

   (iii) Test results for bond to newly laid concrete.

   The data supplied should not be more than 6 months old.

APPENDIX 7/4: BOND COATS, TACK COATS AND OTHER BITUMINOUS SPRAYS

Binder Data Sheet – Appendix 7/4	**Bond Coats, Tack Coats and Other Bituminous Sprays**	
Manufacturer of Binder:	Product Name:	
Binder type:	Batch No. (if known):	
Binder Grade (highlight as required) Conventional Intermediate Premium Non-tack Other		
Binder Source ➔ **Test** **↓**	**Recovered Binder** Recovered in accordance with Clause 955	**Recovered Binder after Ageing Test** Aged in accordance with Clause 955
Penetration at 25°C 0, 1 mm (100g and 5 secs)		
Penetration at 5°C 0, 1 mm (200g and 60 secs)		
Vialit pendulum cohesion see Clause 939 maximum peak value J/cm^2	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 957	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 957
Product identification test. **The provision of data for identification and ageing is optional for unmodified bitumen emulsions to BS 434 and for bitumen to BS EN 12591 and cutback bitumen to BS 3690.** Complex shear (stiffness) modulus (G*) and phase angle (δ) data. See Clause 956	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 956	The Contractor shall attach a Report and graphical output to this schedule as specified in Clause 956
Other properties the Contractor considers useful: Minimum Binder Content Binder temperature range for spray application Emulsion Properties and Viscosity Break time Breaking Agent type Weather limits – information from binder manufacturer: road or air temperatures; humidity; wind chill adjustment; tolerance of surface dampness; etc. Temperature max: Temperature min: Other:		

APPENDIX 7/6 : BREAKING UP OR PERFORATION OF EXISTING PAVEMENT

General Requirements

1. Where indicated in the Contract that an existing road is to be covered with a new embankment the existing road shall be broken up to allow the free passage of water and to form a base for the new embankment.

2. This shall be carried out by breaking up the existing surface by means of a ripper tooth or an equivalent method approved by the Overseeing Organisation, the maximum size of the broken material shall be 200mm.

3. Where the Contractor elects to remove rather than break up the hard material it shall be replaced with acceptable material .. Details of the acceptable material shall be submitted to the Overseeing Authority for approval prior to placing.

Perforation

4. Where concrete/clay slabs/blocks are to be laid over an existing road surface, and where indicated on the drawings; the old surfacing shall be perforated to allow drainage of the overlaying layer.

5. Perforation shall be carried out by means of a drill or punch. Holes shall be drilled or punched through the old layers at 200mm centres and shall have a minimum diameter of 18mm and a maximum of 40mm.

6. Where the Contractor elects to remove rather than break up the hard material it shall be replaced with acceptable material .. Details of the acceptable material shall be submitted to the Overseeing Authority for approval prior to placing.

APPENDIX 7/9: COLD-MILLING (PLANING) OF BITUMINOUS BOUND FLEXIBLE PAVEMENT

General

1. Where Cold Milling is required to remove the existing surface it shall be carried out by a machine in a manner such that fumes and dust shall be kept to a minimum.

2. Milling shall be carried out to a minimum depth of 15mm.

3. Existing gullies manholes and other service covers shall not be disturbed by cold milling and where necessary surfacing in the vicinity of such covers shall be removed by pneumatic drills or other hand tools.

APPENDIX 7/70 : PREPARATION FOR SURFACING AND ADJUSTMENT OF IRONWORK

Preparation for Surfacing

1. Prior to laying surfacing material, the existing road surface shall be cleaned, brushed and freed of all loose material, to the satisfaction of the Overseeing Organisation. The surface as a whole shall be dry and be completely free of standing water and any dampness.

Adjustment of Iron Work

2. Adjustment, renewal, etc. of manhole covers, gully frames, surface boxes, and tobies, etc. shall where practicable be carried out immediately prior to laying the surface course or regulating course, otherwise ironwork shall be ramped or protected, where necessary, if the road is open to the public.

3. Manholes, surface boxes, tobies, etc. shall be set flush with the adjoining finished surface. Care shall be taken to remove old mortar and the frames shall be bedded on 2:1 cement mortar on top of additional engineering brick, as necessary, finished in a header course.

4. An epoxy resin mortar of an approved type shall be used where traffic is required to run over the cover within seven days of execution. The use of Polyester type mortars will be permitted, provided the thickness of any layer does not exceed 12mm.

5. Existing iron work shall be wire brushed and coated with hot bitumen prior to surfacing.

6. Gullies shall be set 6mm below the level of the adjoining surface and shall be bedded as above. If it is intended that the road shall be used before the surface course is laid, the Contractor shall leave the gully gratings at a suitable level to permit drainage and shall raise them to their final level at his own expense prior to the surface course being laid. Care shall be taken to seal the space between the gully frame and the kerb with an approved bitumen material, or as directed by the Overseeing Organisation.

7. Adjustment to levels of surface boxes shall be made using standard precast concrete units.

8. Where standard precast rings have been used to form manholes or catchpits, a maximum of five courses of brick (old and new) shall be allowed. Greater adjustment will require the installation of a new precast ring similar to existing rings.

Fire Hydrants

9. The depth between the road/path surface level and the outlet flange shall not exceed 450mm or be less than 300mm if the adjustment of the surface results in alteration to these dimensions. Extension pieces shall be fitted between the tee and the Hydrant where necessary.

10. The Contractor shall ensure that Fire Hydrants are kept clear of all road-building material and that free access is available to the Fire Brigade at all times.

APPENDIX 11/1 : KERBS, FOOTWAYS AND PAVED AREAS

General

1. The Contractor should be aware that as designs for modern road pavement construction are increasing in depth it is not always possible to lay new kerb logs on sub-base.

   Where it is anticipated that this problem will be encountered it will be highlighted in that particular contract document. The Overseeing Organisation shall however, in order to obtain the most economical combination of kerb and pavement construction permit the Contractor to choose the method of kerbing, unless there are sound reasons for specifying a particular construction detail.

2. Account shall be taken by the Overseeing Organisation in the Method of Measurement as to any anticipated additional work associated with this.

3. Where required by local conditions footways may be specified at different widths than those indicated in the Highway Construction Details (1800mm).

4. Precast concrete kerb, channels, edgings and quadrants shall comply with BS EN 1340 Class 3 Table 2.2 and Class 3 Table 4(Hydraulically pressed)

5. Bedding mortar for precast concrete kerbs, channels, edgings and quadrants shall be Class 1 to Clause 2404 not less than 10 mm and not more than 40mm thick.

6. Where kerbs are to be relaid over an existing sound concrete foundation they may be laid and bedded directly in a Grade ST 1 concrete foundation, not exceeding 100mm thick, while it is still plastic.

7. Kerbs may only be laid and bedded directly in a Grade ST 1 foundation while it is still plastic where the length of kerbing does not exceed 10 metres.

8. Detailed requirements for particular types of Footway and Paved Area Constructions are contained in the following Appendices :-

11/70	Footways and Paved Areas (Precast Concrete Paving)
11/71	Footways and Paved Areas (Flexible Construction)
11/72	Footways and Paved Areas (Insitu Concrete Paving)
11/73	Footways and Paved Areas (Concrete Block Paving)
11/74	Footways and Paved Areas (Granolithic Concrete Paving)
11/75	Footways and Paved Areas (Granite Sett Paving – Reclaimed)
11/76	Footways and Paved Areas (Granite Slabbed Paving – Reclaimed)
11/77	Footways and Paved Areas (Racking of Existing Kerbs, Setts and Slabs)

APPENDIX 11/70: FOOTWAYS AND PAVED AREAS (PRECAST CONCRETE PAVING)

General

1. All precast concrete slabs shall be hydraulically pressed complying with BS EN 1339 and shall be laid to BS 7533. Slab shall be bedded on cement/sand mortar on Type 1 Unbound mixture sub-base material to the thickness described.

2. Slabs shall be cut to fit round tobies, cast iron boxes, "S" covers, etc., and to suit the width of the footway or other areas being slabbed.

3. Where appropriate, a narrow strip exceeding 15mm but not exceeding 75mm in width, and not less than the depth of the slab, may be filled with insitu concrete Grade ST2 100mm thick at the rear of the footway or as otherwise approved.

4. Where the cutting of precast concrete slabs is carried out in areas near where the public have access the Contractor is reminded of the need to take measures to minimise the affects of dust.

Precast Concrete Slabs

5. Precast concrete slabs shall be either 600 x 600mm or 600 x 900mm.

6. Slabs shall be laid to the required crossfalls and bedded on a 25mm thick dry 1:3 cement/sand mortar. The slabs shall be laid to a 300mm offset with joints at right angles to the kerb or as otherwise approved.

7. After laying, the joints shall be filled in with a dry 1:3 cement/sand mortar with the surface brushed off and removed.

8. Unless otherwise described in the Contract slabs shall be 65mm thick.

9. On sections of straight footpath only full sized slabs should be used at the front of the footpath. Cutting of slabs should be kept to a minimum and the Contractor's method of working should take this into account.

Small Element Precast Concrete Paving

10. Small element precast concrete slabs shall be either 400mm x 400mm or 450mm x 450mm. They shall be laid with a joint width of 2 to 4mm and to the required crossfalls, they shall be bedded on a 25mm thick compacted layer of medium/course concreting sand. The slab shall be laid to a 200mm minimum offset with joints at right angles to the kerb or as otherwise approved by the Overseeing Organisation.

11. After laying, sand should be spread over the joints and the slabs bedded in using a rubber based vibrating plate and sand swept over the surface until the joints are full.

12. Unless otherwise described in the Contract slabs shall be 65mm thick.

Paving Thickness Schedule

13. Precast concrete slabbed footways shall be designed and constructed in accordance with Table 11/70. unless otherwise indicated in the contract.

Table 11/70 Thickness Schedule Precast Concrete Paving (mm)					
	Pedestrian-only Footways	Light-vehicle Footways	Light-vehicle Footways with Very Occasional Vehicle Overrun (Option 1)	Light-vehicle Footways with Very Occasional Vehicle Overrun (Option 2)	Heavy-vehicle Footways
Base			70		90
Sub-base	100	150	150	200	150

14. Base material shall be AC 32 dense base 40/60 (BS EN 13108-1, or AC 32 HDM base 40/60 (BS EN 13108-1) Crushed Rock Aggregate .

APPENDIX 11/71: FOOTWAYS AND PAVED AREAS (FLEXIBLE CONSTRUCTION)

General

1. The flexible surfacing shall be laid in accordance with Clause 1105 except that it shall be compacted by using a roller of between 1.5 and 3 tonnes weight.

2. The finished depth of the surface course shall not deviate by more than 5mm from the depth specified in the Contract.

3. The finished footway shall not deviate from the specified level more than +/- 6mm.

4. The whole footway surface will be checked for surface regularity and shall have no irregularity exceeding +/-5mm min 3 metres.

5. For checking compliance with the requirement transversely to the kerb on widths less than 3 metres, no irregularities shall exceed +/- 5mm on a straight edge laid across the full width of the new surface.

6. Surfaces out of tolerance shall have the full depth of the layer cut out and replaced with new material. The width shall be the footway width, and the minimum length to be removed shall be 2.0 metres.

Types of Flexible Construction

1. **DESIGN GROUP A – Pedestrian-only Footways**

Single Coat Asphalt Concrete Surfacing (10mm nominal)

(i) Surfacing - Close graded surface course (10mm nominal) Crushed Rock Aggregate. AC 10 close surf 100/150 (BS EN 13108-1) 60mm thick (to be laid in two layers)

(ii) Sub-base – Type 1 Unbound mixture 100mm thick unless otherwise indicated in the Contract.

Two Coat Asphalt Concrete Surfacing.

Surface Course - Dense Surface Course (6mm nominal). Crushed Rock Aggregate

(i) – AC 6 dense surf 100/150 (BS EN 13108-1) 20mm thick or

HRA 15/10F surf 40/60 des (BS EN 13108-4) 20mm thick. After laying 6-10mm coloured stone chippings or other approved shall be rolled into the surface at the rate 0.8 kg/sq.m.

(ii) Binder Course – AC 14 open surf 160/220 (BS EN 13108-1) or AC close surf 160/220 (BS EN 13108-1) 40mm thick

(iii) Sub-base - Type 1 Unbound mixture 100mm thick unless otherwise indicated in the Contract.

2. **DESIGN GROUP B – Light-vehicle Footways**

Single Coat Asphalt Concrete Surfacing (10mm nominal)

(i) Surfacing - Close graded surface course (10mm nominal) Crushed Rock Aggregate. AC 10 close surf 100/150 (BS EN 13108-1) 60mm thick (to be laid in two layers)

(ii) Sub-base - Type 1 Unbound mixture 150mm thick

Two Coat Bitumen Macadam Surfacing.

(i) Surface Course - Dense Surface Course (6mm nominal). Crushed Rock Aggregate – AC 6 dense surf 100/150 (BS EN 13108-1) 20mm thick or

HRA 15/10F surf 40/40 des (BS EN 13108-1) 20mm thick. After laying 6-10mm coloured stone chippings or other approved shall be rolled into the surface at the rate 0.8 kg/sq.m.

(ii) Binder Course – AC 14 open surf 160/220 (BS En 13108-1) or AC 10 close surf 160/220 (BS EN 13108-1) 40mm thick

(iii) Sub-base - Type 1 Unbound mixture 150mm thick

3. **DESIGN GROUP C – Light-vehicle Footways with Very Occasional Vehicle Overrun**

Single Coat Asphalt Concrete Surfacing (10mm nominal)

(i) Surfacing - Close graded surface course (10mm nominal) Crushed Rock Aggregate. AC 10 close surf 100/150 (BS EN 13108-1)70mm thick (to be laid in two layers)

(ii) Sub-base - Type 1 Unbound mixture 200mm thick

Two Coat Bitumen Macadam Surfacing.

(i) Surface Course - Dense Surface Course (6mm nominal). Crushed Rock Aggregate – AC 6 dense surf 100/150 (BS EN 13108-1) 20mm thick or

HRA 15/01F surf 40/60 des (BS EN 13108-4) 20mm thick. After laying 6-10mm coloured stone chippings or other approved shall be rolled into the surface at the rate 0.8 kg/sq.m.

(ii) Binder Course – AC 14 open surf 160/220 (BS EN 13108-1) or AC 10 close surf 160/220 (BS EN 13108-1) 50mm thick

(iii) Sub-base - Type 1 Unbound mixture 200mm thick

4. **DESIGN GROUP D – Heavy-vehicle Footways**

Two Coat Asphalt Concrete Surfacing.

(i) Surface Course - Dense Surface Course (6mm nominal). Crushed Rock Aggregate. AC 6 dense surf 100/150 (BS EN 13108-1) 25mm thick or

HRA 15/10F surf 40/60 des (BS EN 13108-4) 25mm thick. After laying 6-10mm coloured stone chippings or other approved shall be rolled into the surface at the rate 0.8 kg/sq.m.

(ii) Base – AC 32 dense base 40/60 (BS EN 13108-1) or AC 32 HDM base 40/60 (BS EN 13108-1) Crushed Rock Aggregate - 90mm thick

(iii) Sub-base - Type 1 Unbound mixture 150mm thick unless otherwise indicated in the Contract.

APPENDIX 11/72: FOOTWAYS AND PAVED AREAS (INSITU CONCRETE PAVING)

General

3. High strength concrete footways shall consist of C25/30 (PAV1) to BVS EN 206-1 (5% air entrained) laid in a 150mm thick slab, laid on 75mm of sub-base. Prior to laying the concrete, a layer of heavy duty polythene or similar approved material shall be laid over the sub-base to prevent grout loss.

Joints

4. The maximum size of slab shall not exceed 4.5 metres. Flexcell joints or equivalent shall be positioned at the end of each bay.

Finishing and Compacting

5. The concrete shall be compacted using a hand tamping beam or similar approved. After the slab has been compacted and all surplus moisture has disappeared, a wooden float shall be applied to produce a closed hard surface. Two or three trowelling passes shall follow at intervals as further moisture evaporates to produce a final smooth, hard and uniform surface. The surface shall then be rolled with a concrete finishing roller to produce a dimpled finish. Particular attention should be given to all joints and any surplus mortar shall be removed from adjacent bays.

Curing

6. As soon as the slab has been finished, it shall be protected from the effect of strong winds or sunlight and shall be continuously cured by use of a resin curing membrane sprayed on the surface after the moisture has evaporated or after finishing.

7. Where the footway is to be trafficked, the slab shall be protected by the use of 'duck boards' or similar for a period of 7 days.

Surface Tolerances

8. The footway surface shall be checked for surface irregularity and shall have no irregularity exceeding $\pm$ 3mm on a 3 metre straight edge.

APPENDIX 11/73: FOOTWAYS AND PAVED AREAS (CONCRETE BLOCK PAVING)

3. Precast concrete paving blocks shall be chamfered and shall comply with BS EN 1338 Part 1 – Specification for Paving Block and be laid in accordance with BS 7533 Part 3 – Code of Practice for laying. Reference should also be made to the Specification for Precast Concrete Paving Blocks published jointly by the Cement and Concrete Association and the County Surveyors Society and the Interlocking Paving Association. They shall be rectangular and have a minimum thickness of 60mm for footpaths and 80mm elsewhere. They shall be in a colour to be agreed with the Overseeing Organisation.

4. The layout of blocks and details at edges, manholes gullies and other openings shall be agreed with the Overseeing Organisation prior to laying.

5. The sub-base shall be Type 1 Unbound mixture with a C.B.R. of not less than 30%. Type 2 Unbound mixture will not be permitted.

6. The blocks shall be laid in a herring-bone pattern on a laying course with a compacted thickness of 50mm of washed sharp sand containing not more than 3% of silt and clay by weight and not more than 15% retained on a 2.36mm sieve. The sand shall be uniform in both type and moisture content and shall be spread to a smooth level without uneven pre-compaction. Compaction of the blocks shall be by plate vibrator having a plan area not less than 0.25m². Not less than 3 passes shall be given over the whole area. The compactor shall transmit an effective force of 75-100kN per square metre of plate area. The frequency of vibration shall be within the range of 75-100 Hz. After the initial vibration sand or crushed rock fines as specified for the laying course shall be brushed over the surface of the blocks and the whole area vibrated to its final level with the same plate vibrator with not less than 3 passes. Vibration shall be even over the whole area. Thereafter the surplus sand shall be swept up and removed. Until vibration is complete no use of the surface shall be permitted by any plant or machinery.

7. The finished surface level shall be within 6mm of the designed levels and the maximum deviation within the completed surface measured by a 3 metre straight edge shall not exceed 6mm. The level of any two adjacent blocks shall not differ by more than 2mm. Where the finished levels are outwith these tolerances, the blocks shall be lifted and stacked and the sand thoroughly raked and re-screeded at a new level.

APPENDIX 11/74: FOOTWAYS AND PAVED AREAS (GRANOLITHIC CONCRETE PAVING)

General

3. Granolithic concrete footways shall consist of a 20mm granolithic topping cast monolithically with an 80mm base slab to give a minimum thickness of pavement of 100mm laid on 75mm of Type 1 Unbound mixture. Prior to laying the concrete, a layer of heavy duty polythene shall be laid over the sub-base to prevent grout loss.

Materials

4. Cement shall be ordinary Portland Cement complying with BS EN 197-1.

5. Aggregates shall be sound, hard and clean crushed granite complying with BS EN 12620, capable of producing a concrete with a drying shrinkage not greater than 0.045%. The aggregate should be designation 4/10 to BS EN 12620.

6. Sand – Medium Sand Designation 0/4 (MP) to BS EN 12620.

Batching and Mixing

7. All materials should preferably be batched by weight. Where volume batching is permitted by the Overseeing Organisation, the aggregates shall be batched in gauge boxes.

8. The cement, sand and aggregates shall be mixed in the proportion 1:1:2. The water content shall be the minimum to enable full compaction to be achieved.

Laying of Topping

9. The topping shall be laid monolithically with the base slab within 3 hours of finishing base slab. Surplus water on the base slab shall have evaporated or have been removed before the topping is placed.

Base Concrete

10. The base concrete shall be Grade ST5.

Joints

11. The maximum size of slab shall not exceed 4.5 metres. An approved construction joint shall be positioned at the end of each bay.

Finishing and Compacting

12. The concrete shall be compacted using a hand tamping beam or similar approved. After the topping has been compacted, and all surplus moisture has disappeared, a wooden float shall be applied to produce a closed and hard surface. Two or three trowelling passes shall follow at interim's as further moisture evaporates to produce a final smooth, hard and uniform surface. The surface shall then be rolled with a concrete finishing roller to produce a dimpled finish. Particular attention shall be given to all joints and any surplus mortar should be removed from adjacent bays.

Curing

13. As soon as the topping has been finished, it shall be protected from the effect of strong winds or sunlight and shall be continuously cured by use of a resin curing membrane sprayed on the surface after the moisture sheen has evaporated or after final trowelling.

14. The topping shall then be protected by the use of 'duck boards' or similar for a period of 7 days.

Surface Tolerances

15. The footway surface shall be checked for surface regularity and shall have no irregularity exceeding ± 3mm on a 3 metre straight edge.

APPENDIX 11/75: FOOTWAYS AND PAVED AREAS (GRANITE SETT PAVING - RECLAIMED)

General

1. Setts shall either be supplied by the Contractor or the Employer as described in the Contract. Before laying setts shall be cleaned of all bituminous material soil, grit or other matter.

Sett Paving

2. GRANITE SETT PAVING DESIGN GROUP 1

   (i) Granite sett paving Group 1 shall be laid on Type 1 Unbound mixture bedded on a 50mm thick 1:3 cement/sand mortar. The setts shall be bonded and every sett shall be individually bedded to give a uniform and even surface laid level or to fall as directed. The maximum allowable gap between adjacent setts shall be 20mm.

   (ii) The joints between the setts shall then be filled with bedding mortar. After the joints are completely sealed all surplus material shall be removed.

3. GRANITE SETT PAVING DESIGN GROUP 2

   (i) Granite sett paving Group 2 shall be laid on Type 1 Unbound mixture bedded on a 50mm thick 1:3 cement/sand mortar. The setts shall be individually bedded to give a uniform and even surface laid level or to falls as directed. The maximum allowable gap between adjacent setts shall be 20mm.

   (ii) The joint between the setts shall be filled with a 6mm nominal size granite chips. Once the chips are packed tightly together the joints shall be sealed to a minimum depth of 30mm with 60/70 pen bitumen filled with limestone dust. After the joints are completely sealed all surplus material shall be removed.

4. GRANITE SETT PAVING DESIGN GROUP 3

   (i) As per Group 2 but with asphaltic concrete Base.

5. Granite Sett Paving Design Groups 2 & 3 should be laid such that existing traffic face is left exposed.

Paving Thickness Schedule

6. The Pavement Thickness Schedule detailing the thickness of Type 1 Unbound mixture and road base for Groups 1, 2 & 3 is listed in Table 11/75 below.

TABLE 11/75: Pavement Thickness Schedule - Granite Sett Paving (mm)

	Group 1	Group 2	Group 3
Road Base	-	-	200
Type 1 Unbound mixture	150	200	200
TOTAL	150	200	400

APPENDIX 11/76: FOOTWAYS AND PAVED AREAS (GRANITE SLABBED PAVING - RECLAIMED)

General

1. Granite slabs shall be laid on Type 1 Unbound mixture 150mm thick unless otherwise indicated in the Contract.

2. Slabs shall be laid to the required crossfalls and bedded on a 1:3 cement / sand mortar, to the depths necessary to accommodate the varying thickness of the slabs, and to provide a minimum thickness of bedding of 50mm. The slabs shall be laid to a random offset with the courses at right angles to the kerb and over the full width of the footway or as otherwise approved. The maximum allowable gap between adjacent slabs shall be 15mm.

3. Slabs shall be selected to fit round tobies, cast iron "S" covers, etc., and to suit the width of the footway or other areas being slabbed. Otherwise, slabs shall be cut as required.

4. Where appropriate, at the rear of the footway, narrow strip not exceeding 75mm in width and not less than 75mm in depth, maybe filled with insitu concrete Grade ST2 100mm thick.

5. After laying, the joints shall be filled in with a wet 1:3 cement/sand mortar so that all joints are completely filled and all surplus mortar removed.

APPENDIX 11/77: FOOTWAYS AND PAVED AREAS (RACKING OF EXISTING KERBS, SETTS AND SLABS)

1. Racking of existing kerbs, setts and slabs is defined as the adjustment insitu of kerbs, setts or slabs by raising the packing.

2. Racking of concrete kerbs and concrete paving slabs shall generally apply to the adjustment of kerbs and slabs adjacent to renewed lengths or areas. The racking of stone kerbs and stone slabs may additionally include complete areas and lengths.

3. The racked lengths or areas should be well packed with a 1:3 cement / sand mortar and beaten to the level or falls directed.

4. The racked areas of setts and slabs shall be grouted with a 1:3 cement / sand mortar so that all joints are completely filled and all surplus mortar brushed off and removed.

APPENDIX 12/1: TRAFFIC SIGNS - GENERAL REQUIREMENT FOR TRAFFIC SIGNS

General Requirements for Traffic Signs

1. The signs and accessories shall conform in all respects with the Traffic Signs Regulations and General Directions, the Traffic Signs Manual, BS EN 12899-1 (Fixed, vertical road traffic signs) and BS 8408 for microprismatic sheeting.

2. The specification and performance criteria for fixed vertical traffic signs shall be in accordance with the National Annex contained in BS EN 12899-1 unless otherwise stated.

3. All sign plates shall be manufactured in accordance with the Traffic Signs Manual Chapter 13 from sheet aluminium of not less than 11 swg or 3mm thickness and with a grey non-reflective finish on the rear.

4. All traffic signs shall be permanently marked on the reverse side with an identifier consisting of the name or code of the Manufacturer, the month and year of manufacture and an identification number supplied by the Overseeing Organisation.

Sign Face Sheeting

5. Microprismatic Reflective Sheeting

   (i) Microprismatic sheeting exceeds the performance requirements of Class Ref 2.

   (ii) The material shall comply with the requirements of BS8408:2005 (and the sign constructed to BS EN 12899-1)

   (iii) The sign face sheeting and coloured overlay films and non-reflective sheeting shall carry a minimum 12 year warranty, be from a single sheeting supplier and supported by the sheeting manufacturer's written traffic sign warranty

6. Class Ref 2 Glass Bead Sheeting

   (i) The material shall comply with the requirements of BS EN 12899-1

   (ii) The sign face sheeting and coloured overlay films and non-reflective sheeting shall carry a minimum 10 year warranty, be from a single sheeting supplier and supported by the sheeting manufacturer's written traffic sign warranty

7. Class Ref 1 Glass Bead Sheeting

   (i) The material shall comply with the requirements of BS EN 12899-1

   (ii) The sign face sheeting and coloured overlay films and non-reflective sheeting shall carry a minimum 7 year warranty, be from a single sheeting supplier and supported by the sheeting manufacturer's written traffic sign warranty

8. Optional Specification for anti-graffiti sign faces

   (i) An approved transparent protective Overlay Film (POF) shall be applied to the surface of the sign face during manufacture. The POF shall allow the easy removal of all types of graffiti including self adhesive paper or vinyl labels after they have weathered, and further shall allow the application and easy removal of a temporary sign face when required.

Framing

9. Sign reinforcement shall be 'Lip-Lok' and shall be spaced as necessary for the sign mounting and support requirements taking account of post spacing, offsets, overhangs etc to ensure compliance with BS EN 12899-1

10. Corners of signs shall have a radius.

Backing Boards

11. Chapter 7 of the Traffic Signs Manual provides guidance on the use of backing boards

12. Where signs on backing boards are back to back the boards shall be the same size.

13. The front of any backing board for signs shall be grey unless otherwise specified yellow for road safety reasons. However use of higher performing fluorescent yellow material should only be considered in exceptional circumstances.

Posts (Supports) and Foundations for Permanent Traffic Signs

14. Guidance for compliance with BS EN 12899-1:2007 is available in the document "Sign Structures Guide: Support Design for UK Traffic Signs" published by the Institute of Highway Incorporated Engineers. Software in accordance with the design requirements is available; however a competent Quality Assured sign manufacturer can also provide appropriate support options and foundation details.

15. Types and sizes of foundations will vary depending on a number of factors including the location, wind loading, sign dimensions, mounting height, support type and ground conditions.

16. On high speed roads supports shall comply with BS EN 12767 (Passive safety of support structures for road equipment).

    (i) Galvanised steel posts that are deemed to comply are grade S355J2H (3.2mm nominal wall thickness) no greater than 89mm diameter.

    (ii) If two posts are required for a single sign and post centres are less than 1500mm, post dimensions should not exceed 76mm diameter.

    (iii) Where post centres are 1500mm or greater, post dimensions shall not exceed 89mm.

17. Details of the proposed sign support and foundations shall be supplied to the Engineer for approval prior to erection of the sign. Any query on suitability of support types shall be referred to the Engineer for clarification.

18. Unless otherwise specified, all illuminated sign assemblies shall be provided with at least one large based post to accommodate the necessary electrical equipment. The electrical housing shall comply with BS EN 12899 and should be of a size suitable for the electrical equipment being used. The base housing compartment may be circular or rectangular in section or alternatively side slung boxes to the electrical equipment may be attached to a standard post. The nominal door opening should be 500mm x 108mm.

19. In the case of illuminated signs particular attention should be given to the siting of the posts. Wherever practicable, the post having the control base housing should be furthest away from the carriageway. Where this is not possible, the control access opening should always face away from the carriageway. Care should also be taken when positioning lanterns on poles so that they do not obstruct the view of the sign from the road.

20. The post lengths specified include the length required to accord with the depths of foundations, sign plate dimensions, mounting heights and to accommodate external luminaires where applicable.

Location and Erection of Permanent Traffic Signs

21. The following is given as guidance to the location and erection of permanent traffic signs however the Overseeing Organisation shall include these details with specific contracts.

22. Attention is drawn to the recommendation of the Traffic Signs Manual Chapter 13 and the advice on positioning of signs given in the Traffic Signs Manual Chapter 1.

23. Direct illumination of permanent traffic signs and types of luminaires shall be constructed to comply with the requirements of BS EN 12899 and CIE 54

Lighting of Signs

24. Guidance on the lighting of traffic signs is given in Schedule 17 of the Traffic Signs Regulations and General Directions 2002.

25. If a sign is externally illuminated the bottom of the light unit must be between 0 to 25mm below the top of the sign.

Clearance of Signs

26. Vertical clearance to all new signs mounted on posts or lighting columns in footways should be a minimum of 2.3 metres. The clearance in verges or central reserves will be dependant on the type of supports used to comply with BS EN 12767

27. Horizontal clearance from the edge of carriageway should be at least 0.5 metres in areas where the speed limit is 40mph or less and 1.2 metres where the speed is greater

Street Name Plates

28. Street Name Plates shall have a white microprismatic background to BS8408 with a blue transparent overlay film and cut out lettering unless otherwise specified.

29. In some environmental areas (where specified) the overlay film may be non-transparent black.

30. The font shall be 88mm Kindersley with letter spacing increased by 60%. On signs with more than one street name (e.g. “leading to” etc) the size of the letters for the follow on streets may be reduced by a maximum of 20% to control the overall size of the sign.

31. Sign plates shall be 11 swg aluminium with minimum 10mm radius corners.

32. The sign shall be erected on 50mm diameter posts so that the top of the sign is no more than 1 metre above the adjacent road, and set between 3 and 5 metres back from the junction line.

Permanent Bollards

33. Details of permanent bollards are shown on Drawing No K73 (Construction Details).

34. Housing for permanent bollards shall conform with BS EN 8442 and shall be constructed of Medium Density Polyethylene (UV stabilised). All permanent bollards shall be the knockdown type, shall be internally illuminated in accordance with BS 873 and shall be provided with a strengthened base constructed of steel which has been hot dipped galvanised.

APPENDIX 12/3: TRAFFIC SIGNS: ROAD MARKINGS AND STUDS

General Requirements

1. The following general requirements shall apply to all work undertaken under this Contract.

Setting Out

2. The Contractor shall be responsible for the correct setting out of all road studs and markings. The Overseeing Organisation will give any advice or provide layout drawings required by the Contractor to enable him to site the markings in their correct position. Unless otherwise directed, on roads having reflecting road studs, intermittent lines shall be laid symmetrically between the studs.

Traffic Safety Measures and Control

3. The contractor shall comply with the Traffic Safety Measures described in Appendix 1/17.

Road Markings

4. Where the contractor is required to lay road markings he shall comply with the following requirements:-

   (i) the Works shall be programmed in order to comply with the following:-

   (ii) Where road markings are removed, all junction markings shall be applied within 24 hours. This requirement may be met initially by the application of temporary markings which must be maintained until the permanent markings are applied.

   (iii) All permanent road markings shall be applied within 2 weeks following any removal of existing road markings.

   (iv) During any period of absence of road markings signs to diagram 7012 of the Traffic Signs Regulations and General Directions 2002 shall be erected and maintained.

   (v) Where a marking is laid on top or partially on top of an existing marking, the Contractor shall be responsible for ensuring that the resulting combined marking complies with the current Traffic signs & General Directions.

5. The works shall be undertaken in accordance with the requirements of BS EN1436 and the following:-

   (i) All loose material shall be removed from the surface before the markings are applied.

   (ii) Road marking materials shall only be applied to surfaces which are dry and clean. Markings shall be free from raggedness at their edges and shall be uniform and free from streaks. Longitudinal road markings shall be laid by approved mechanical means to a regular alignment.

   (iii) Sprayed markings shall be applied by an approved pressure spraying unit to a thickness, exclusive of any surface glass beads, of :-

      (a) 2mm for maintenance works ;
      (b) 3mm on new works; or
      (c) 4mm on surface dressing works.

(iv) Screed markings shall be laid to a thickness not less than 2.0mm and not greater than 5.0mm exclusive of any surface glass beads.

(v) Extruded markings shall be laid to a thickness not less than 3.0mm exclusive of any surface glass beads.

(vi) Immediately following the application of material for any white markings, Class B solid glass beads shall be applied to the surface of the laid thermoplastic.

6. The material used for white markings shall be high performance thermoplastic complying with the requirements of BS EN1436 and the following:-

(i) Retroreflection Class R2
(ii) Luminance Class B2
(iii) Skid Resistance Class S2

7. All permanent road markings other than "High Performance" shall have a skid resistance Class of S1, except for arrows and worded markings having a large surface area which shall be skid resistance Class S2.

Certificate of Compliance

8. The material must be a Kitemark product (or equivalent) and when submitting the Tender an independent Laboratory (UCAS approved) Test Certificate not more than 6 months old shall be included detailing compliance with the requirements of BS EN1436 and with the modifications given in paragraph (i) and (ii).

9. Once approved no substitute materials will be allowed without evidence of compliance with the Specification as detailed above.

Containers

10. The thermoplastic shall be supplied in powder form in low melting point bags to form a composite material when heated (BS EN1436 Part 1 Section 9).

Performance

11. Skid Resistance

(i) Under normal conditions the skid resistance value shall not be less than 50 when measured by the Transport and Road Research Laboratory Portable Skid Resistance Tester (Road Research Note No 27) throughout the marking's guaranteed life.

12. The material used for yellow markings shall be thermoplastic complying with the requirements of BS EN 1436.

13. Yellow thermoplastic road markings shall be non-reflectorised and be coloured "lemon" to BS 381C No 355.

14. Where the Contractor is required to remove existing road markings, this shall be undertaken carefully using hot compressed air. Damage to the road surface shall be avoided.

Road Studs - Reflecting

15. Details of the layout and colour of the reflecting Road Studs are shown on the Contract Drawings.

16. Reflecting road studs shall be either:-

    (i) Self wiping " Cats Eye " type produced by Reflecting Roadstuds Limited.

    (ii) "Stimsonite 948 and 954" produced by Stimsonite Corporation,

    (iii) or equivalent.

17. All centre-line road studs shall have bi-directional white lenses.

Road Studs - Installation

18. "Cats Eyes" - shall be 254mm long, the studs shall be installed using methods described in the "1984" Paving Instructions using the profiling equipment.

    (i) The studs are to be laid true to line and level.

    (ii) The tip of the stud shall be not more than 25mm + (0mm to 3mm) above the adjoining carriageway.

    (iii) The grout fill to the side cavity shall consist of 75% filler of slate or other approved dust, 25% bitumen 60-80 pen.

19. "Stimsonite 948 and 954" - shall be installed in accordance with the manufacturer's instructions. (Simsco documents 291041 and 291041A dated October 1994 including any revisions subsequently issued by the manufacturer)

Road Studs - Non-reflective

20. Studs shall where specified be either white, silver or light grey in colour and shall not be fitted with reflective lenses.

    (i) The studs shall be either circular in shape with a diameter of not more than 110 millimetres or less than 95 millimetres or,
    square in shape with each side being not more than 110 millimetres or less than 95 millimetres.

    (ii) Studs shall not project more than 18 millimetres above the carriageway at its highest point nor more than 6 millimetres at its edges.

21. If made of stainless steel the studs shall conform to BS 873.

Waiting Restrictions

22. Where the Contract indicates that yellow thermoplastic lines are to be provided in waiting restrictions these shall not be laid on site till instructions are received from the Overseeing Organisation in writing confirming that all required Traffic Orders are in place.

APPENDIX 13/1: INFORMATION TO BE PROVIDED WHEN SPECIFYING ROAD LIGHTING COLUMNS AND BRACKETS

General Requirements

1. Road lighting columns and brackets shall be designed so as to be suitable for use in standard form anywhere within the Aberdeen City, Aberdeenshire and Moray Areas.

2. Road lighting columns and brackets shall comply with the requirements of the following standards :-

   BS EN 40-1 Definitions and terms
   BS EN 40-2 General Requirements and Dimensions
   BS EN 40-3-1 Design & Verification – Characteristic Loads
   BS EN 40-3-2 Design & Verification – Verification by Testing
   BS EN 40-3-3 Design & Verification – verification by Calculation
   BS EN 40-5 Requirements for Steel Lighting Columns
   BS EN 40-6 Requirements for Aluminium Columns

3. Weld procedures shall be submitted to the Engineer for perusal prior to fabrication

4. The manufacturer shall inspect and test welds during production and shall provide copies of test results when requested by the Engineer

5. Road lighting columns and brackets shall also comply with the following additional requirements.

6. Series 6000 Aluminium Alloy Columns

   (i) Columns shall have a design life of 50 years.

   (ii) Columns and brackets shall be structurally designed to be capable of accepting lanterns with the following minimum weight and wind loading using the projections and terrain category factors specified:-

Height	Weight	Projection	Wind Loading	Maximum Lantern Surface Area	Terrain Category
4/5 metre (Sign)	10 kg	n/a	Extra Heavy	0.15m²	III
5 metre	10 kg	n/a	Extra Heavy	0.15m²	III
6 metre	10 kg	n/a	Extra Heavy	0.15m²	III
8 metre	14kg	n/a	Extra Heavy	0.25m²	II
10 metre	14kg	n/a	Extra Heavy	0.25m²	II
12 metre	14kg	n/a	Extra Heavy	0.25m²	II

(iii) The design wind loading shall be as BS EN 40-3-1 and PD6457:2004 with A1:2009 except that:

(a) The use of rationalised wind loading factors shall not be permitted
(b) The 10 minute mean wind velocity shall be taken as 27 m/sec
(c) The characteristic wind pressure derived shall be multiplied by a funnelling factor of 1.05
(d) The characteristic wind pressure derived shall be multiplied by a gust factor of 1.10.

(iv) Design of all lighting columns shall allow for the attachment of a sign of 5Kg x 0.30 square metre with a shape coefficient of 1.8 mounted 2500mm above ground level and 300mm eccentrically. Traffic sign columns shall be as lighting columns except that they will require to allow for a sign of 15kg x 1.2m² .

(v) Columns and brackets shall carry a unique identification mark which indicates the name of the manufacturer, the year of production and other design information to enable details of the column and bracket to be determined throughout their design life. This information shall be located at the top of the backboard such that it is clearly visible after installation of the column.

(vi) The identification plate shall also have room for the installation contractor to append his name and the date of erection of the column. Plate metal tags are to be supplied for site fitting.

(vii) Columns shall be manufactured from a 6000 series aluminium alloy to the following specification or equivalent:-

(a)	Alloy to be used:	EN AW – 6063
(b)	Temper:	T4 – T6
(c)	Chemical Symbols:	EN AW – AlMgO, 7Si

(viii) Columns shall be extruded in one piece to form a continuously tapered or conical shape from above the door area, having no welds or joins within the construction and shall be designed such that they can be used with pole-top mounting lanterns using a 76mm spigot

(ix) Columns shall be internally strengthened by suitable means around door openings.

(x) Columns shall have a minimum base tube diameter of 145mm for 3 to 6 metre columns and 165mm for 8 to 12 metre columns.

(xi) Lighting column bases shall comply with the requirements of BS EN 40 and shall have a minimum unrestricted door opening of 600mm High x 100mm Wide.

(xii) Column base compartments shall be fitted with a stainless steel earth stud size M8 x 30 complete with 2 hexagon nuts and 2 plain washers. These shall be fitted to the earth lug with a distinctly marked durable plastic label stating:

"SAFETY – ELECTRICAL CONNECTION – DO NOT REMOVE"

The label and lettering shall be as per BS 7671 Section 514-13-01 and the earth stud shall be located at the lower left-hand side of the door opening.

(xiii) Door openings shall be free from irregularities and burrs and all doors shall have a suitable earthing point on their internal surface

(xiv) Columns shall be supplied with a flush fitting door having upper and lower locking devices which shall be lubricated during assembly and suitably protected against weather ingress for storage periods up to 18 months..

(xv) Keys shall be provided for 10% of all columns supplied. On delivery the door shall be supplied assembled to the column.

(xvi) The column shall be fitted with an internal full length baseboard, of treated hardwood, at least equivalent to the door size. The board shall be securely fixed in the base compartment by two sliding fasteners.

(xvii) There shall be no sharp edges within the columns or spigots which could cause damage to electrical cabling, during installation or in service.

(xviii) The cable inlet hole(s) shall be a minimum size of 175 x 75mm and be fitted with a subterranean cable protection sleeve to prevent cable chaffing.

(xix) The root section shall be protected to the outer and inner surfaces of the column to a height of 250mm above ground level and shall be such that no ground or water course pollution is caused.

(xx) The recommended column planting depth shall be indicated by means of an adhesive label fixed to the column with the following information:-

(a) **Installation:-** Do not damage the column root protection during installation.
(b) **Earthing:-** Column body shall be earthed by means of M8 earthing terminal on the internal mounting rail.
(c) **Lighting Fixture:-** Do not exceed the calculated values for the weight (kg) and projected area (m^2) of the lantern.

(xxi) The base of the column shall have a high-density plastic protector fitted to prevent damage to the root protection during installation. This protector is to remain in position after the column is installed.

(xxii) The planting depth will be as follows :-

Column Height (metres)	**Planting Depth (mm)**
4 & 5	800
6	1000
8	1200
10	1500
12	1700

(xxiii) Columns shall be supplied machine finished and shall have no other exterior coating other than natural, coloured anodising or powder coating where specifically instructed by the Overseeing Organisation.

(xxiv) Columns shall be adequately packed and crated during transport and storage to prevent damage to their finish.

(xxv) Columns shall be as shown on the Construction Drawings.

(xxvi) Specification relating to columns for use with Traffic Signs shall be as for Lighting Columns with the exception that they shall be of a parallel stepped shaft construction with a mounting height of 4 or 5 metres as required.

(xxvii) Third party verification of the calculations shall be submitted by the Contractor if requested by the Overseeing Organisation.

(xxviii) Lighting and traffic sign columns supplied shall meet and maintain the required standards as specified above for a minimum period of 50 years.

7. Raising and Lowering Columns

(i) Raising and lowering columns shall be of tubular steel or aluminium alloy construction and comply in general with the requirements of Clauses 6 or 8 as applicable.

(ii) Raising and lowering of the columns shall be controlled such that free fall of the column is not possible due to human error or accident during operation of the system.

(iii) This control can be by means of an internal damping or jacking system or by the attachment of an external winch or damping/jacking tool

(iv) Hinged columns will be evaluated on the following criteria and the best value option, providing the safest operation, in the opinion of the Overseeing Organisation, selected:-

8. Galvanised Tubular Steel Columns and Brackets

(i) All columns shall have a minimum design life of 30.

(ii) Design of all columns shall allow for the attachment of a sign of 5Kg x 0.30 square metre with a shape coefficient of 1.8 mounted 2500mm above ground level and 300mm eccentrically.

(iii) The columns and brackets shall be manufactured from steel which meets the requirements of BS 5649 Part 3 1983. Columns shall be of tubular steel design and shall be manufactured from the following:

(a) Hot finished circular hollow sections to EN10210 Part 1 Grade S275 JOH or S355 JOH.

(b) Cold formed circular hollow sections without subsequent treatment to the dimensional requirements of EN10219 Part 2 and the chemical and mechanical properties of EN10219 Part 1 Grade S275 JOH or S355 JOH. The hot finished feedstock material shall comply with the yield, tensile and elongation requirements of the required grade specified in BS EN 10025:1993 Table 5.

(iv) Columns and brackets shall carry a unique identification mark which indicates the name of the manufacturer, the year of production and other design information to enable details of the column and bracket to be determined throughout their design life. This information should be located such that it is clearly visible after installation of the column. (i.e. internally in the column base).

(v) Bracket sleeves shall fit over a reduced diameter spigot to maintain the smooth parallel line between the column and the bracket arm. The bracket arm shall be

secured in position using stainless steel socket screws allowing fixing in any one of four 90 degree positions relative to the door opening.

(vi) A means of preventing undesired rotational movement of the bracket once fixed in position on the column shaft shall be incorporated in the column/bracket design.

(vii) Brackets arms shall be of tubular steel, incorporate a welded web, and have an incline of 5 degrees constant rise.

(viii) The column base to shaft joint shall be of hot swaged and welded construction with an internal centralising washer.

(ix) Suitable scale drawings shall be provided detailing the appearance and all dimensional measurements, including outside diameters of the columns and brackets, prior to installation.

(x) Column doors shall be fitted with a locking device suitable for outside use and which is corrosion resistant for a minimum period of 30 years. The door shall be of the clamp style with a "Y" bar locking mechanism. Keys shall be provided to the Overseeing Organisation for 10% of the columns installed.

(xi) Door openings shall be free from irregularities and burrs and all doors shall have a suitable earthing terminal on their internal face.

(xii) All columns shall be provided with a non-ferrous M8 earth terminal within the base compartment positioned near the bottom of the door opening and these shall not be visible on the external face of the column.

(xiii) There shall be no sharp edges within the columns or bracket arms which could cause damage to electrical cables either during installation or whilst in service. An anti-chafe ring shall be welded where cables change direction from the horizontal to vertical within the bracket arm.

(xiv) The column base compartment shall comply with the requirements of BS 5649 Part 5 1982 and shall have a minimum opening of 600mm x 115mm.

(xv) The column shall be fitted with an internal full length baseboard, of treated hardwood, at least equivalent to the door size. The board shall be securely fixed in the base compartment by two fasteners.

(xvi) Manufacturer's recommendations shall be adhered to regarding the methods of off-loading, storing and assembling the columns and brackets and for securing the brackets to the columns.

(xvii) Columns and brackets shall be structurally designed to be capable of accepting lanterns with the following minimum weight and windage using the projections and terrain categories specified :-

Height	Weight	Projection	Wind Loading	Maximum Lantern Surface Area	Terrain Category
4/5 metre (Sign)	10 kg	n/a	Extra Heavy	0.15m²	III
5 metre	10 kg	n/a	Extra Heavy	0.15m²	III
6 metre	10 kg	n/a	Extra Heavy	0.15m²	III

8 metre	14kg	n/a	Extra Heavy	0.25m²	II
10 metre	14kg	n/a	Extra Heavy	0.25m²	II
12 metre	14kg	n/a	Extra Heavy	0.78m²	II

(xviii) Lighting columns shall be constructed to meet the structural design criteria but, in addition, the following minimum tube wall thicknesses shall be required:-

Column Height (metre)	Min Base Tube Wall Thickness (mm)
5, 6 and 8	5.0
10 and 12	6.3

(xix) Columns and brackets shall be galvanised to BS 1461 and shall be free from imperfections including porosity. Galvanising shall be fettled and rasped to remove all spikes and sharp edges and leave a smooth finish prior to paint application.

(xx) Column welding procedures shall be approved in accordance with the requirements of BS EN 288 and all welders shall be approved to the requirements of BS EN 287. Welding shall be carried out in accordance with BS 5135.

(xxi) Columns planting depths shall be indicated by a 25mm white band around the circumference of the column and planting depths will be as follows:-

Column Height (metre)	Planting Depth (mm)
4 & 5	800
6	1000
8	1200
10	1500
12	1700

(xxii) Columns shall have the following finished protection system:-

(a) Pre-treat galvanised internal surface of root to 250mm above ground level and the whole of the external surface with Dacrylate “T” wash ref: 150-23 application to be applied fully in accordance with Dacrylate Technical Data Sheet (Shop applied);

(b) Apply one coat of compliant Vinadac Micaceous Iron Oxide 45 Line to internal/external surface of root to 250mm above ground level, minimum dry film thickness 75 µm grey (Shop applied).

(c) Apply one coat of compliant Vinadac Micaceous Iron Oxide 45 Line to external surface of column, minimum dry film thickness 75 µm grey (Shop applied).

(d) Apply one coat of compliant Vinadac Sheen finish 45 Line to external surface of root and upper section of column, minimum dry film thickness 75 µm colour to BS 10A07 steel grey (Shop applied).

(e) All coatings to external surfaces shall be airless sprayed.

(f) Alternative finishes may be acceptable but prior approval of Overseeing Organisation must be given.

9. Column Data Sheet

(i) A completed column data sheet (See Appendix 13/2) shall be submitted to the Overseeing Organisation prior to commencement of installation of any columns.

(ii) Columns and brackets shall not be erected until the Overseeing Organisation has notified acceptance of the completed data sheet in writing to the Contractor.

10. Installation of Columns

(i) Unless otherwise agreed by the Overseeing Organisation columns shall be erected such that an operator working at the base compartment faces the oncoming traffic except where the column is to be against a wall or fence etc. in which case the door should face outwards to facilitate access.

(ii) Until completion of the erection of the column the temporary transit packaging shall be left in place as far as practicable to protect against damage to the surface protection system.

(iii) Unpacked columns shall not be stored on ground which may cause abrasions and scoring of their surface.

(iv) A layer of concrete mix ST5, 75mm thick, complying with BS EN 206 Part 1 shall be placed and compacted in the bottom of the excavation up to the base of the column.

(v) The cable entry slot shall be temporarily plugged as necessary in order to prevent any ingress of concrete or filling material during the concreting and backfilling operations.

(vi) The hole into which the column is placed shall be backfilled with concrete mix ST5 well compacted by vibration over the full planting depth of the column.

(vii) Columns shall be installed by hand or, where necessary, lifting equipment employing fabric or non-abrasive straps. Chains shall not be used in the erection of the columns.

(viii) Where an obstruction is encountered necessitating a change in the agreed location of a lighting unit the installation shall not commence until approval of the revised location has been given by the Overseeing Organisation.

(ix) Root protection shall be visible for approximately 250mm above finished ground level when column erection is complete.

11. Identification

(i) The Overseeing Organisation shall provide details of identification numbering to be applied by the Contractor once road names have been allocated.

(ii) Self-adhesive vinyl identification numbers, black number on white background 50mm tall, shall be applied by the Contractor to the columns at 2.5 metres above ground.

(iii) Numbers shall be applied such that they are at 45 degrees to, and facing, oncoming traffic.

12. Overhead Power Lines

(i) Contractors shall consult with the Electricity Supply Authority where columns are to be erected in the vicinity of overhead power lines.

(ii) Written confirmation shall be provided to the overseeing Organisation that agreement has been reached with the Electricity Supply Authority to the proximity of columns to overhead lines.

13. Electrical Work – General

(i) Materials equipment and workmanship shall comply with BS 7671:2008 Regulations for Electrical Installations (IEE Wiring Regulations) and the rules and regulations of the Electricity Supply Company.

(ii) The Contractor shall adhere to Engineering Recommendation G39/1 "Model Code of Practice covering Electrical Safety in the Planning, Installation, Commissioning and Maintenance of Public Lighting and Other Street Furniture".

(iii) The Contractor shall also adhere to the requirements of the Electricity at Work Regulations 1989.

(iv) The Contractor shall employ only competent personnel each of whom holds a "Competent Persons Authorisation Certificate" in accordance with the model form in Appendix B of the above document G39/1.

(v) Electrical equipment shall be installed so that levels of radio interference given in BS EN 55014 are not exceeded.

APPENDIX 13/1: LIGHTING COLUMNS AND BRACKETS: SHEET 1

Design Group		
No of Columns		
Nominal Height		
Bracket	Type	
	Projection	
Lantern	Weight	
	Windage	
Lantern Fixing	Dia. mm	
	Length mm	
	Angle	
Exposure Class		
Location Factor	k	
Column	Material	
	Protection	
Base	Type	Planted-no base plate
	Planting	
Door Opening	Min.Size	600 x 115 mm
	No	
Base Tube	Min.Dia.mm	
No of Door Keys		
Cable Entry	Slot Width	

Notes

(i) Earthing Requirements: - Non-ferrous M8 stud in column base. Door to be bonded to column with suitable braided strap equivalent to 10mm² insulated copper conductor.

(ii) Design Criteria :- BS 5649/EN 40 and in compliance with the requirements of Transport Scotland Standard BD 94/07

APPENDIX 13/2: LIGHTING COLUMNS AND BRACKET DATA - SHEET 2

Name of Manufacturer	Column Reference No.	
	Revision No.	
	Date	

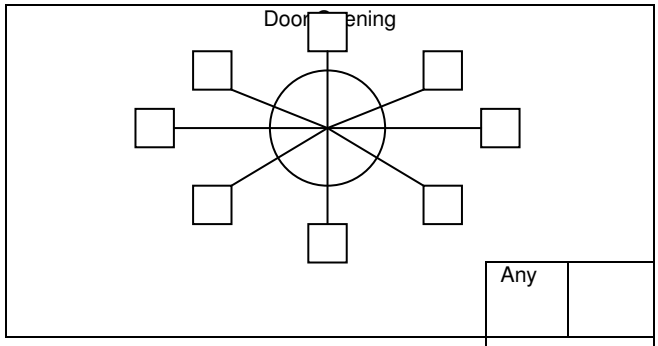
NAME OF CONTRACT

Part A General

Column nominal height	(m)
Column material	
Material design strength	N/mm²)
No. of door openings	
Door opening size - Height	
- Width	(mm)
Cross-section of base Compartment	(mm)

Height (mm)	Width (mm)	Depth (mm)

Acceptable positions of bracket Arms relative to door position



Any	

Manufacturer's drawing ref. No.

Corrosion protection (steel columns only) – basic system type (sub-Clauses 1911.9 and 1911.10	
Reference Wind Velocity $V_{ref.o}$ as defined in BS EN 40-3-1	m/s
Details of signs and attachments allowed for in the design Area (mm²), Eccentricity (mm), Height	

1.1 Part B Foundation Data

Planted base — Planting depth

Standard Soil Type Factor G		
630	390	230

Diameter of concrete surround (if any)

Flange base

Bolt hole centres	Hole diameter	Design load/bolt
(mm)	(mm)	(mm)

Relevant forces and moments at ground level	
Line of action of max. moment relating to door opening	

NOTE:
For flange plate with slotted holes a diagram shall be included with this Data Sheet.

APPENDIX 13/2: TYPICAL LIGHTING COLUMN AND BRACKET DATA - SHEET 3

Part C Acceptable Luminaires

Luminaire Maximum Characteristics

				Terrain Categories as defined in BS EN 40-3-1				
				I	II	III	IV	
			Luminaire Max Wt (kg)	Maximum Windage Area (m^2) for Terrain Categories as defined in BS EN 40-3-1				
	Luminaire Connection							
Post Top Column	Diameter	Length						

Single Arm Bracket Column:

Luminaire Lever Arm (mm)	
Due to wt. of luminaire	Due to windage on luminaire

Bracket Projection (m)	Ref No.	Drawing No.	Material		Luminaire Fixing Angle	Luminaire Connection		Luminaire Maximum Wt (kg)	Maximum Windage Area (m^2) for Terrain Categories as defined in BS EN 40-3-1				
			Grade	Design Strength (N/mm^2)		Diameter (mm)	Length (mm)						

Double Arm Bracket Column:

Luminaire Lever Arm (mm)	
Due to wt. of luminaire	Due to windage on luminaire

Bracket Projection (m)	Ref No.	Drawing No.	Material		Luminaire Fixing Angle	Luminaire Connection		Luminaire Maximum Wt (kg)	Maximum Windage Area (m^2) for Terrain Categories as defined in BS EN 40-3-1				
			Grade	Design Strength (N/mm^2)		Diameter (mm)	Length (mm)						

Part D Certification

It is certified that the information given in this Data Sheet has been obtained in accordance with Departmental Standard BD 94 (DMRB 2.2.1) and the Specifications.

Signed on behalf of the Contractor ..... Date .....

APPENDIX 13/3: ROAD LIGHTING AND BRACKETS DATA SHEET – INSTRUCTIONS FOR COMPLETION

General

1. When information is not required a dash shall be inserted in the appropriate boxes.
2. Where a Data Sheet is amended it shall be given a new revision number with a date.
3. The revision number shall be consecutive letters of the alphabet commencing with "A".
4. The date of the revision shall agree with the date of the Contractor's signature.
5. The column, or bracket material shall be tubular steel
6. The material design strength shall be the minimum specified in the design. Where more than one material is used values for all materials shall be given.
7. All relevant entries shall be made on the Data Sheet before the Contractor certifies the document.

Column Data

8. The column nominal height shall be selected from BS 5649/EN 40 as appropriate.
9. The number of door openings shall agree with the manufacturer's drawing.
10. The cross-section of the base compartment shall be indicated by a dimensional diagram/sketch.
11. The acceptable positions of bracket arms relative to the door position shall be indicated on the diagram. Where all positions are acceptable the box noted "ANY" shall be ticked.
12. Where concrete is necessary around the planted base in accordance with Clause 1305.3 and 1305.4 the minimum diameter shall be entered.
13. For flange bases all forces and moments necessary for the design of the foundations shall be given
14. The corrosion protection system used on the column when new shall be recorded. Where additional steel is provided for sacrificial purposes the amount shall be recorded.
15. The signs and attachments surface area, eccentricity from the centre line of the column to the centre of area of the sigh and height above ground level to the centre of the area of the sign shall be stated

Bracket Data

16. The lantern lever arms, weight and maximum windage area quoted shall be based on the most adverse loading on the bracket when it is attached to any of the columns quoted in the compatible column sections.

    (i) (Note: The lantern lever arms are the horizontal distances from the centre of gravity of the lantern and, if applicable, the centroid of the windage surface area to the end of the bracket joint).

APPENDIX 14/1: SITE RECORDS

1. As built drawings shall be produced by the contractor, on 2 number copies of the Contract Drawings relating to Road Lighting which will be provided be the Overseeing Organisation and shall be in accordance with the requirements of Clause 1402.

APPENDIX 14/2: LOCATION OF LIGHTING UNITS AND FEEDER PILLARS

1. The position and description of Lighting Units and feeder pillars are shown on the Contract Drawings

APPENDIX 14/3: TEMPORARY LIGHTING

1. Where existing lighting units are temporarily taken out of service to facilitate a Contractor's operations then temporary lighting, to a standard to be approved by the Overseeing Organisation shall be provided for the safe passage of vehicles and pedestrians adjacent to the site.

2. The Contractor shall ensure that any temporary lighting he provides does not cause glare to traffic using any road nor annoyance to occupants of surrounding property

APPENDIX 14/4: ELECTRICAL EQUIPMENT FOR ROAD LIGHTING

General

1. All lamps shall conform to the following standards as applicable and have a minimum guaranteed life of 8000 hours:-

A	BS EN 60188	High Pressure Mercury Vapour Lamps
B	BS EN 60192	Low Pressure Sodium Vapour Lamps
C	BS EN 60081	Fluorescent Tubes
D	BS EN 60662	High Pressure Sodium Vapour Lamps

2. All lanterns shall be compatible with the columns and brackets used

3. Lanterns shall comply with BS EN 60598-2.3

4. Lanterns shall have a minimum degree of protection rating IP 65 to BS EN 60529

5. All lanterns shall be of a type incorporating integral electronic lamp control gear mounted on a removable gear tray.

6. Plug-in type gear trays shall be used and shall have a fuse holder adjacent to the terminal block with a cartridge fuse protecting the control gear.

7. Ballasts for maintenance replacement purposes shall be manufactured in accordance with BS EN 60921, BS EN 61347 or BS EN 60923 as appropriate and shall comply with the radio interference limits specified in BS EN 55014.

8. Ignitors, lamps and ballasts for maintenance replacement purposes shall be mutually compatible.

9. Maintenance replacement gear for use with High Pressure Sodium lamps shall be suitable for use with external ignitor lamp.

10. Fluorescent lamp starter switches shall comply with BS EN 60155

11. Capacitors for maintenance replacement purposes shall comply with BS EN 61048 and BS EN 61049 and be complete with sealed-in cable tails or shrouded terminals

12. Capacitors for maintenance replacement purposes shall correct the lamp circuit power factor to not less than 0.90 lagging

13. Ballasts for maintenance replacement purposes shall be of a compact, solid-filled drip-proof or vacuum impregnated construction and have tappings for 220 and 240 volts.

14. Control gear for use with all new installations shall be of a one piece electronic type and be suitable for use in exterior lantern applications.

15. Electronic control gear shall be manufactured in accordance with EN61000-3-2:2000, EN61347-2-12:2005, EN61000-3-3:2001, EN61547:2000.

Installation of Lanterns

16. Lanterns shall be securely fixed to columns or brackets in compliance with manufacturers' instructions

17. Wiring between lanterns and cut-out unit in column base compartment shall be by means of blue sheathed ARTIC grade flexible cable.

18. Wiring conductor size shall be 1.5 sq mm 3 core cable incorporating phase, neutral and earth conductors.

Cable Cut-outs

19. Cut-out enclosures shall be suitable for fixing in a lighting column base compartment and accommodate termination of up to 3 No. PVC/SWA/PVC cables of maximum size 25 sq mm 3 core supplying one or two outgoing 2.5 sq mm maximum lamp circuits, as required, via circuit protection MCB(s).

20. Cut-out units shall incorporate a double-pole switching device configured to isolate all circuits emanating from the cut-out.

21. The cut-out manufacturer shall be accredited to ISO 9001 by an accredited certification body.

22. The design and construction of cut-out units shall ensure that in normal use it will function in a reliable manner and cause no danger to persons or adjacent equipment. It shall be impact resistant and shall be constructed such that it cannot readily be deformed or mechanically damaged allowing contact with live parts.

23. Cut-out units shall allow ease of access to internal terminations with all separable parts having a positive location arrangement. Removable parts shall be such that they cannot be separated from the unit except by use of a key or tool.

24. Cut-out units shall be rated at 240 Volts, 40 Amps and shall comply with BS EN:60947-1 Specification, and when correctly installed shall comply with BS 7671 and provide a degree of protection as specified in BS EN 60529 to category IP 42.

25. Cable entry shall be by means of a removable brass earth plate, of minimum thickness 2.5mm, with three 25mm diameter ferrules to accept armour wires. Armour wires shall be terminated in stainless steel worm drive clamps. The plate shall be complete with one M6 min. earth stud with fitting and locking arrangement to allow connection of crimped terminals on protective and extraneous bonding conductors, both externally and internally.

26. Terminals shall consist of a 40mm X M6 stud suitable for use with compression cable connectors, complete with lock-nuts, washers and spacers sufficient to allow termination of one to three cables as appropriate.

27. Phase, neutral and earth terminals shall be provided and the earth terminal shall be linked to the brass earth plate by a green/yellow conductor equivalent to 10 sq mm tri-rated cable. The unit shall be capable of accommodating an additional terminal block (i.e. 4 No. in total) and capacity for 3 No. MCB's mounted on DIN rail with blanking pieces as necessary where this option has not been taken up.

28. The approximate dimensions of cut-out units shall be as follows:-

Height	390mm
Width	88mm
Depth	92mm

29. All materials used in the construction of the unit shall comply with the relevant British or European Standards and current carrying parts shall be manufactured in brass, copper or phosphor bronze and shall be electroplated.

30. Cable core connections shall be as follows :-

Phase connection	BROWN
Neutral connection	BLUE
Earth connection	GREEN/YELLOW

Installation of Cable Cut-out Units

31. Cut-out units shall be secured to the backboard in the column base compartment such that it will not be fouled by the door locking mechanism

32. After installation it shall be possible to access the cable armour clamps and all cut-out cover screws for maintenance purposes.

33. Completed cut-out after installation shall be as shown on Construction Detail Drawing.

Feeder Pillars

34. Feeder Pillars and internal distribution panels shall be manufactured to comply with BS EN 60439:1999 and tested and certified accordingly.

35. Feeder Pillar shell shall be constructed of hot-dip galvanised or stainless steel, having a minimum wall thickness of 3mm, and shall have dimensions as detailed on the Construction Detail Drawing.

36. Feeder pillar door locking shall be by means of wedge type “O” Ring locks, both of which can be operated by a single key.

37. The pillar door shall be provided with a means of fitting a padlock to prevent unauthorised access.

38. Pillars shall be finished in Dawn Grey (10 A 03 to BS 4800)

39. Distribution panels as detailed on the Construction Detail Drawing shall be fitted in feeder pillars.

Installation of Feeder Pillars

40. Where a feeder pillar is erected on a grass verge an area of hardstanding shall be created at the pillar door using a 900 X 600 paving slab or equivalent.

Underground and Ducted Cables

41. Cables shall have XLPE insulation and XLPE or MDPE sheathing, PURPLE in colour. They shall be 600/1000 Volt grade with steel wire armouring to BS 6346 or BS 5467 and all conductors shall be of equal cross-sectional area. The Contractor shall provide to the Overseeing Organisation evidence that each cable length delivered has been tested at the place of manufacture and complies with the requirements of BS 6346 or BS 5467 according to the cable used.

42. The cable shall have BASEC or HAR approval in all respects other than the oversheath colour which shall be PURPLE.

43. Cables will normally be 3 core in the range 2.5, 6.0, 16.0 and 25.0 sq mm. Cable sheaths shall have meterage marked at 1 metre intervals along their total length.

44. Where a lighting column or feeder pillar is to be joined directly to the Electricity Authority's mains network the service cable shall be to the requirements of the Electricity Authority.

45. Cables shall employ a loop-in/loop-out system between lighting units and no joints shall be permitted on the underground cabling system

46. Lighting cables shall be enclosed in ducts where they are to cross carriageways, access roads or vehicular crossings. Cables will also be enclosed in ducts where they cross paved areas.

47. Ducts shall be 100mm internal diameter UPVC and be PURPLE in colour. They shall be jointed in such a manner as to preclude ingress of solid material.

48. All cables and ducts shall have a suitable marker tape laid directly above them at a position 150mm below ground.

49. Cable marking tape shall be purple heavy gauge PVC or polythene plastic tape, 150mm wide and not less than 0.1mm thick with a tensile strength as follows:-

Machine direction	2200-2400 p.s.i.
Transverse Direction	2000-2200 p.s.i.

The tape shall carry in bold black letter along it's full length, occupying not less than 75% of it's available length and occurring a least at 1 metre intervals, the repeated message:-

CAUTION

STREET LIGHTING CABLE BELOW

Cable Installation

50. Cable trenches shall be excavated to the lines shown on the contract drawings. The depth of excavation shall be such that cables laid under verges, footways or open ground shall have a minimum cover of 500mm and under carriageways a minimum cover of 750mm.

51. Cables shall be laid without sharp bends or kinks and shall not be bent to an internal radius of less than 12 times the external diameter of the cable or less than the radius recommended by the manufacturer, whichever is greater.

52. Sufficient length of cable shall be allowed for it's termination. If termination does not proceed immediately following installation of the cable, it's ends shall be sealed against the ingress of moisture.

53. When duct alignments differ from those of the trench the transition from one to the other shall not exceed 1:30 horizontally or vertically.

54. Cables laid in trench shall be bedded on and covered by a 100mm thickness of lightly compacted graded sand or equivalent material passing a 2mm BS sieve.

55. Where cables are to be laid in ducts the Contractor shall swab through the duct prior to drawing in the cables and a further draw rope. On completion of the cabling, ducts shall be left with a draw rope in place.

56. Backfilling and reinstatement to cable trenches shall comply with the current edition of the New Streets and Road Works Act 1991, Specification for the Reinstatement of Openings in Roads And to the requirements of Appendix 7/2

Photo-Electric Control Units

57. Photo-electric cell units shall be fully electronic incorporating a solid state switching circuit with zero crossover.

58. The classification of the Photo Control, with reference to protection against electric shock, shall be Class 2 and to IP 65 of BS EN 60529.

59. The Photo Controls shall comply with all European directives and regulations on Electro Magnetic interference.

60. All components used in the Photo Control shall be capable of operating within the temperature range of -20°C to + 80°C.

61. Photo-electric cell units shall be of three types as follows:-

    (i) ONE-PART UNIT – in which the photo-electric sensor and the load switching components are housed in the same enclosure, suitable for insertion into a "NEMA" type socket to obtain mechanical and electrical connection.

    (ii) TWO-PART UNIT – in which the photo-electric sensor and the load switching components are housed in separate enclosures. The photo-electric sensor in it's housing shall be suitable for direct mounting to luminaire canopies or other equipment by means of mechanical screwed fixing.

    (iii) ONE-PART MINIATURE – in which the photo-electric sensor and the load switching components are housed in the same enclosure. The enclosure shall be suitable for direct mounting to luminaire canopies or other equipment by means of a 20mm threaded conduit fixing complete with rubber seals, plastic washers, locknuts and cable tails, suitable for hard-wiring to the lamp circuit.

62. One-Part Miniature photo-electric units shall be utilised on all lighting units unless otherwise requested by the Overseeing Organisation, except where the lighting unit is linked to a feeder pillar panel in which case it shall be of the Two-Part type.

63. The cone should have a smooth finish and be shaped such that it is self cleaning. It shall be capable of sustaining the impact test set out in BS EN 60598-2-22:1999 as BS 5972: 1980 refers.

64. Plastic materials used in the Photo Control shall be flame retardant in accordance with BS EN 60598-2-22:1999.

65. The complete Photo Control shall be capable of withstanding shock and vibration as prescribed in BS EN 60068-1:1995.

66. The Photo Control shall be suitable for use on 230V +10% -6% 50Hz. It shall be capable of switching a reactive lighting load of 10 Amperes. The unit shall have no thermal switching components. The average daily power consumption of the Control shall not exceed 1 watt. The switching device shall be capable of performing not less than 3000 operations at rated load under normal operating conditions.

67. In no part of the Control shall material capable of deforming as a result of the working environment be sandwiched between electrical connections.

68. Sockets for one-part Photo controls shall comply in all respects with the requirements of BS EN 12209. A sealing gasket shall be provided between the socket and the lantern enabling the socket to be fitted to the curved surface of the lantern body. Sealing gaskets shall also be provided between the Photo control and the socket providing protection to IPX4 of BS EN 60529. Gaskets shall be of materials which will not deteriorate in normal service. They shall ensure dustproof and waterproof joints between Photo Control and socket and between socket and lantern. The gasket material shall be an EPDM Neoprene Polymer capable of

operating over the temperature range -56° to + 90° with a flammability rating of MVSS-02. Good resistance to weathering, ozone and ultra violet radiation is essential.

69. The sensor shall be either Phot Diode or Photo Transistor and have an MTBF (mean time between failure) of at least 1 million hours and shall be fitted with an optical filter spectrally matched to the CIE photopic curve.

70. Calibration of the unit shall be carried out to provide levels 70 Lux ON and 35 Lux OFF to a measuring accuracy of +/-5% in artificial light. The set switching level shall be maintained over the guaranteed life of the control.

71. The Supplier shall be required to guarantee all controls electrically, mechanically and photometrically for a period of 6 years

72. All PECU's shall indicate the year and month of manufacture and incorporate a simple method of recording the date of installation by the Contractor.

Earthing

73. The brass earth plate on the cable cut-out unit shall be bonded to the earth stud within the column base using a braided copper earth strap. Similarly, the column door shall be bonded to the earth stud in the column base.

74. The braided copper earth straps to be used for this purpose shall be 750mm long and be equivalent to a cable cross-section of 10 sq mm. They shall be sleeved in a green/yellow insulating material and have crimped lugs at each end suitable to fit an 8mm earth stud.

75. All lanterns shall be earthed to the cut-out unit earth terminal via the 3 core ARTIC flex installed within the column.

Safe Working

76. Prior to commencing work on any electrical network, connected with road lighting or traffic signs/bollards, the contractor shall confirm with the Overseeing Organisation, and by test, the origin of the electrical supply to that network.

77. The main switch in the feeder pillar, supplying the network, shall be switched "OFF" and a warning notice, as described in the construction Details Drg. K88, shall be posted at the switch, to the effect that personnel are working on the circuit.

78. The warning notice referred to above, shall be displayed such that it is clearly seen by any persons, on opening the feeder pillar door.

79. "LIVE" working on alterations to existing equipment, or installation of new equipment, shall not be permitted except where live testing is being carried out in compliance with Clause 1424.

80. On completion of work on the network, the Contractor shall physically check the circuit, to ensure that his personnel, and any other parties, are clear, prior to switching on the main switch and removing the warning notice.

Electrical Inspection and Testing

81. The electrical installation and equipment shall be inspected and tested in accordance with Part 6 of BS7671:2008, the IEE Wiring Regulations (17th Edition).

82. The following tests shall be carried out in the sequence indicated and be recorded on the certificate LTG001 contained in this document and submitted to the Overseeing Organisation on completion of the installation:

    (a) Initial verification/visual inspection

(b) Continuity of protective conductors including main and supplementary equipotential bonding
(c) Insulation resistance at a test voltage of 250 Volts to be not less than 0.5 Mohm
(d) Insulation resistance at a test voltage of 500 Volts to be not less than 1.0 Mohm
(e) Insulation of site-built assemblies
(f) Polarity, including the continuity of circuit conductors
(g) Earth fault loop impedance at every cut-out
(h) Earth electrode resistance (where applicable)
(i) Operation of residual current devices (where applicable)
(j) Voltage and/or Volts drop

83. Standard methods of testing are given in the current edition of BS 7671 Requirements for Electrical Installations.

84. Tests for fixed equipment including lighting columns, traffic signs, bollards, pedestrian refuge and/or crossing globes, feeder pillars and any other electrical installations on roads specified by the Overseeing Organisation, shall be as follows:- (a), (b), (c), (e), (f), (g), (h), (I), (j).

85. Tests for cable networks shall be as follows:- (a), (b), (d), (f), (g), (j).

86. Voltage/Volt drop readings on cable networks shall be taken under full load conditions with all equipment energised (and fully “run up”).

87. The contractor shall give not less than 7 days notice to the Overseeing Organisation of his intention to carry out any of the tests specified and the Overseeing Organisation shall be given the opportunity to witness such tests.

Form LTG001

INSTALLATION INSPECTION & TEST CERTIFICATE
Sheet 1

	ITEMS INSPECTED	PASS	FAIL	NOT APPLICABLE
1.	Connections of conductors			
2.	Identification of conductors			
3.	Selection of conductors for current carrying capacity			
4.	Connection of single pole devices in phase conductors only			
5.	Correct connection of lampholders and socket outlets			
6.	Protection against thermal effects			
7.	Methods of protection against direct contact			
8.	Appropriate isolation and switching devices			
9.	Appropriate protective devices			
10.	Labelling of circuits etc.			
11.	Selection of equipment for environmental conditions			
12.	Presence of warning and danger notices where appropriate			
13.	Presence of diagrams, instructions, etc.			
14.	Conditions of flexible cables, switching, plugs and sockets outlets			
	The following shall be tested, in the sequence indicated, and if any test indicates failure to comply, that test and those preceding shall be repeated in the correct sequence, after the fault has been rectified.			
15.	The continuity of protective conductors, including main and supplementary equipotential bonding (Regulation 612.2.1)			
16.	The continuity of final circuit conductors (Regulation 612.2.2)			
17.	Insulation resistance, which should not be less than 1 Megohm for fixed installations and not less than 0.5 Megohm for separate items of apparatus (Regulation 612.3)			
18.	Protection by enclosures, which shall afford a degree of protection not less than IP2X (Regulation 612.4)			
19.	Polarity (Regulation 612.6)			
20.	The earth fault loop impedance, which should be satisfactory for ready operation of protective devices in compliance with regulations 411 (Regulation 612.7) Values of earth loop impedance for each circuit should be noted on Sheet 2 of this certificate.			
21.	The operation of residual current devices tested independently of any facilities incorporated in the device (Regulation 612.11)			

INSTALLATION INSPECTION & TEST CERTIFICATE					
Sheet 2					
Circuit No.	Protective Device	Insulation Resistance	Earth fault loop impedance	Voltage	
				Source	Remote End
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

Comments (if any) and departures from the Wiring Regulations :

This Inspection and Test Certificate is to be signed by the Contractor or other person responsible for carrying out an inspection and test of an installation, or part of an installation, or by a person acting on his behalf.

I certify that the electrical installation at:-

has been inspected and tested in accordance with the requirements of Part 6 of BS7671:2008, the IEE Regulations for Electrical Installations (17th Edition) and that the results are as indicated on Sheets 1 and 2 of this certificate.

Signed:	Date:

For and on behalf of:

Address:

_____

APPENDIX 14/5: ELECTRICAL EQUIPMENT FOR TRAFFIC SIGNS

General

1. Traffic signs shall generally comply with the requirements of appendix 14/1 and 14/4.

2. As soon as the Contract has been awarded the Contractor shall submit to the Overseeing Organisation details of the units he proposes to use for the lighting of the traffic signs.

Lighting of Traffic Signs

3. Signs shall be lit with the following unit as indicated below:-

Warning Signs (900 and 1200mm)	Unit of 1 No. 11 watt PL fluorescent lamp fitted with a reflector. Outreach of unit : 450 - 620mm
Warning Signs (750mm)	Unit of 1 No. 11 watt PL fluorescent lamp fitted with diffusers side by side. Outreach of unit : 450 - 620mm
Warning Signs (1500mm)	2 No. units of 1 No. 11 watt PL fluorescent lamp fitted with a reflector or 1 No. unit of 32 watt PL fluorescent lamp fitted with a reflector. Outreach of unit - 600 - 900mm
Triangular warning sign including Give Way (600mm)	Unit of 1 No. 11 watt PL fluorescent lamp fitted with a diffuser. Outreach of unit : 450mm
Triangular Warning Sign including Give Way (900mm and 1200mm)	Unit of 1 No. 11 watt PL fluorescent lamp fitted with a reflector. Outreach of unit : 450 - 620mm
Give Way (1500mm)	2 No. units of 1 No. 11 watt PL fluorescent lamp fitted with a reflector or 1 No. unit of 32 watt PL fluorescent lamp fitted with a reflector. Outreach of unit - 600 - 900mm
Rectangular and Finger Post Signs (up to 1000 x 900mm)	Unit of 1 No. 11 watt PL fluorescent lamp fitted with a reflector. Outreach : 450 - 620mm
Rectangular and Finger Post Signs (up to 2000 x 1000mm).	2 No. units of 1 No. 11 watt PL fluorescent lamp fitted with a reflector or 1 No. unit of 32 watt PL fluorescent lamp fitted with a reflector. Outreach of unit - 600 - 900mm

Column Base Cable Termination

4. Traffic column base cable terminations shall comply with Appendix 14/4 and be either looped on single circuit, complying with Drawing K83 and K84.

APPENDIX 30/1 GENERAL

SHEET 1: Information to be provided by the Compiler

1. The Contractor shall give the Overseeing Organisation notice of all items in sub-Clause 3001.1

2. Not Used.

3. Pesticides Record Forms, as Sheet 2 of this Appendix, shall to be submitted to the Overseeing Organisation after each application during the Contract Period and the Defects Correction Period for landscaping.

4. The bird nesting season for this contract shall be from the end of March to the end of August. it is an offence under the Wildlife and Countryside Act 1981 (as amended) to:

   (a) kill, injure or take any wild bird;
   (b) take, damage or destroy the nest of any wild bird while that nest is in use or being built;
   (c) take or destroy an egg of any wild bird.

5. Vegetation that is to be removed during the bird nesting season shall be thoroughly checked prior to removal to ensure that no nests are damaged or destroyed.

6. Inspection reports, as Sheet 3 of this Appendix, for maintenance works shall be submitted at the following intervals twice per year in each fifty two week period of the Defects Correction Period.

APPENDIX 30/1 GENERAL (Continued)

SHEET 2: Information to be provided by the Contractor

LANDSCAPE WORKS – PESTICIDES RECORD		
Contract Reference number:		**Date of visit:** .. / .. / ..
Contract Name:		
Name of Contractor:		**Contractor's telephone no:**.....
Operations carried out	**Pesticide Used**	**Locations of Operations**
Total weed control		
Weed control in any waterbody		
Selective herbicide to areas of grass		
Herbicide to cultivated plant beds		
Total herbicide around individual plants in grass		
Other (state purpose)		
Names of operatives on site:		**Qualifications of operatives named:**
Supervisor.....		.....
Storeman		.....
Application by		.....
Signed (for Contractor)		
Contractor's observations on damage by others or any incidents:		
.....		
.....		

APPENDIX 30/1 GENERAL (Continued)

SHEET 3: Information to be provided by the Contractor

LANDSCAPE WORKS – INSPECTION REPORT			
Contract Reference number:		**Date of visit:** .. / .. / ..	
Contract Name:	**A96 Coachford Realignment and Climbing Lane**		
Name of Contractor:		**Contractor's telephone no:**.....	
Operations carried out		**Locations of Operations**	
Names of operatives on site:			
.....		.....	
.....		.....	
.....		.....	
Contractor's observations on damage by others, additional work required or general condition of the works:			
.....			
.....			
Observations of Overseeing Organisation on standard of workmanship, additional work required or general condition of works:			
.....			
.....			
This maintenance visit has been satisfactorily completed.			
SIGNED (for Contractor)			
NAME:		**Date: .. / .. / ..**	
SIGNED (for Overseeing Organisation)			
NAME:		**Date: .. / .. / ..**	

APPENDIX 30/2 WEED CONTROL

1. Weed control for all injurious weed species, including those listed in sub-Clause 3002.1, shall be carried out throughout the Works at sufficient frequency to control their growth during the Contract Period and the Defects Correction Period for landscaping.

2. Total weed control in accordance with sub-Clause 3002.3 shall apply to the following locations:

   (i) The bases of safety fences and fencelines.
   (ii) The bases of columns, posts, signs and roadside furniture.
   (iii) All kerbs, paved areas and hardstandings.

   (iv) The Contractor shall apply herbicides at sufficient frequency to eliminate weed growth throughout the Contract Period and the Defects Correction Period for landscaping.

3. Total weed control by non-residual herbicide in accordance with sub-Clause 3002.4 shall be undertaken in the following locations:

   (i) All landscape areas prior to planting.
   (ii) On all topsoil stockpiles to maintain in a weed free condition.
   (iii) Around all plant stations in woodland and native shrub planting areas throughout the Defects Correction Period for landscaping.

4. A translocated herbicide approved for use in or near water shall be used for weed control in accordance with sub-Clause 3002.5 on all filter drains and other drainage channels associated with the road drainage system at sufficient frequency to eliminate weed growth throughout the Contract Period.

5. Not used.

6. Weed control by spot application of translocated herbicide in accordance with sub-Clause 3002.7 shall be applied as necessary at the following locations:

   (i) All woodland and shrub planting areas.
   (ii) Hedgerow planting areas.

7. Weed control by hand weeding in accordance with sub-Clause 3002.8 shall be carried out in the following locations:

   (i) Groundcover planting where spot application may cause damage.
   (ii) Hedgerow planting where spot application may cause damage.
   (iii) Around planting stations in existing woodland within the Works.

8. Weeds shall be controlled by cutting in accordance with sub-Clause 3002.9 in areas where the extent of growth or type of weed is not effectively controlled by herbicide application.

9. The Contractor shall remove all arisings in accordance with sub-Clause 3002.10 from weed control operations.

APPENDIX 30/4: GROUND PREPARATION

1. All grass and other herbaceous vegetation shall be cut in accordance with sub-Clause 3004.1 in areas to be planted or seeded, prior to treatment with herbicide and/-or final cultivation.

2. All areas to be planted shall be treated with herbicide in accordance with sub-Clause 3004.2, with the exception of areas to be planted in existing woodland within the Works and on rock faces.

3. Subsoil in all planting areas with the exception of rock faces shall be ripped prior to spreading of topsoil to a minimum depth of 300 mm. Areas to be seeded with wildflowers shall not be spread with top-soil.

4. Areas of existing undisturbed arable land to be planted shall be ripped to a minimum depth of 600mm so as to ensure the breaking up of any plough pan or other subsoil compaction.

5. The spacing between tine furrows shall be in accordance with sub-Clause 3004.6.

6. Final preparation of consolidated soils in accordance with sub-Clauses 3004.8 to 3004.11 shall be carried out in all areas to be planted, with the exception of rockcut planting and forestry ploughed areas (sub-Clause 3004.7). Stones larger than 50mm in any dimension shall be removed as Sub-Clause 3004.8.

7. Not Used

APPENDIX 30/5: GRASS SEEDING, WILDFLOWER SEEDING AND TURFING

Grass Seed

1. Grass seed shall be a tested mixture from an approved source and certificates of purity and germination shall be provided. All varieties of grass used shall be dwarf turf type cultivars currently listed by the Sports Turf Research Institute, Bingley. Unless otherwise agreed by the Overseeing Organisation, the mixture shall consist of the mixture described in the Contract as detailed in Table 30/5.

Table 30/5

Type Ref.	Application	Seed Type	Mass (kg)
A	General Roadside Areas	Lorina Perennial Ryegrass (Certified dwarf on National List)	60.
		Logo Slender Creeping Red (Certified dwarf on National List)	35
		Highland Browntop Bent (Certified Dwarf of National List)	5
		British Seed House A22 (or Equivalent)	Total 100kg
B	Verges & Side Slopes In Upland Areas (Peat Soil)	Perennial Ryegrass	10.
		Creeping Red Fescue	70
		Flattened Meadow Grass	5
		White Clover	2.5
		British Seed House A18 (or Equivalent)	Total 100kg

2. Grass seed shall be sown at a rate of 25g/sq.m

3. The application of fertiliser will not normally be required.

4. Sowing of grass seed shall generally be carried out during the season from 1 May to 30 September. The Contractor shall pay due regard to the weather conditions before sowing grass seed and shall take all reasonable measures to promote its growth. Immediately prior to seeding the Contractor shall where required by the Overseeing Organisation treat any undesirable vegetation using a weed-killer specifically formulated to eradicate this vegetation.

5. The Contractor shall carry out measures to ensure the successful establishment and subsequent good condition of all grassed areas throughout the Period for Completion of the Works and the Defects Correction Period. The Contractor will be responsible, if required, for cutting the grass during the Defect Correction period.

6. He shall also arrange for the surface to be sprayed with a Selective Herbicide if instructed to control weed growth during this period.

7. Grassed areas will be accepted as reaching practical completion only when germination has proved satisfactory and the grass is showing an even sward. The Contractor shall remove and replace any areas which are not in a healthy condition.

Turfing

8. Where turf is to be used it shall contain the grass mixture stated in this appendix.

9. Turf shall be supplied to BS 3969 and shall be close textured with uniform density and colour and sufficient fibre to hold each turf together during handling, transportation and laying. All turves shall be weed and disease free and shall be supplied in a mown condition. They shall have an even thickness of 32mm and shall have been established on a stone free loam type soil.

10. Turves shall be laid flat with broken joints (stretcher bond) and shall be butted tightly up to adjoining turves/grass. Any local adjustments needed to produce a level surface shall be made by adding or removing soil below the turf. High spots shall not be eliminated by over compaction / treading down. All turfing shall be carried out using planks to gain access to the working area thus protecting the prepared bed and newly laid turf.

11. Turf laid to the carriageway shall be single thickness 100mm

APPENDIX 30/7: GRASS, BULBS AND WILDFLOWER MAINTENANCE

1. All grass and wildflower areas, shown on the Contract Drawings are to be maintained in accordance with Clause 3007.

2. No cutting shall be carried out within 250 mm of unprotected trees and shrubs (sub-Clause 3007.5).

3. Not Used.

4. Not Used.

5. Not Used.

6. Not Used.

7. All grass areas shall be cut during the Cutting Season as follows :-

   (i) All Areas other than Amenity and Landscaping Areas :- Low Frequency in accordance with Clause 3007..

   (ii) Amenity and Landscaping Areas – Medium Frequency in accordance with Clause 3007.

8. Additional selective cuts in accordance with sub-Clause 3007.19 shall be undertaken along verges to maintain sightlines and a neat appearance to the edge of the carriageway.

9. Additional selective cuts in accordance with sub-Clause 3007.20 shall be undertaken within visibility splays as required to maintain adequate visibility.

10. All banks and ditches are to be cut in accordance with sub-Clause 3007.22 at a frequency of once per year. The cut shall take place in late summer/early autumn after seeding of desirable wildflower species. Arisings from banks and ditches are to be removed off site.

11. All grass in planting areas is to be cut at a minimum of once per year in accordance with sub-Clause 3007.18 to 25 or more frequently if required to maintain control of grass and weed growth. Self seeded trees, shrubs and brambles shall be retained in areas to be planted and on rock cuts.

12. Not Used.

13. All areas seeded with a mix of grass and wildflowers shall be cut according to Clause 3007.26. Arisings shall be removed off site, scarifying of wildflower areas shall occur as detailed in Clause 3007.28 to improve wildflower colonisation.

14. Not Used.

15. Spot herbicide treatment in accordance with sub-Clause 3007.29 shall be carried out in wildflower areas.

16. The Engineer shall identify areas of self-seeded broadleaf plants considered to be desirable for nature conservation during the works (sub-Clause 3007.29).

APPENDIX 30/70: GRASS SEEDING, WILDFLOWER SEEDING AND TURFING (AMENITY AND LANDSCAPED AREAS)

Grass Seed

1. Grass seed shall be a tested mixture from an approved source and certificates of purity and germination shall be provided. All varieties of grass used shall be dwarf turf cultivars currently listed by the Sports Turf Research Institute, Bingley. Unless otherwise agreed by the Overseeing Organisation, the mixture shall consist of the following parts (or equivalent) by mass as specified in Table 30/70.

Table 30/70

Type Ref.	Application	Seed Type	Mass (kg)
C	Amenity and Landscaped Areas	Perennial Rye Grass (made up of four varieties)	40
		Chewings Fescue	20
		Creeping Red Rescue	35
		Brown Top	5
			Total 100kg

2. Grass to be sown at the rate of 40g/sq.m.

Preparation for Sowing

3. Where the ground is required to lie for a period before sowing the Overseeing Organisation may instruct the use of a Glyphosphate chemical weedkiller to kill existing weeds etc.

4. Sowing of grass seed shall generally be carried out during the season from 1 May to 30 September. The Contractor shall pay due regard to the weather conditions before sowing grass seed and shall take all reasonable measures to promote its growth.

5. The ground shall be cultivated to a depth of 150mm removing stones and debris over 25mm in size within the top 50mm of the topsoil. After the completion of the cultivation the Contractor shall produce a seed bed of a fine tilth and even level to act as a seed bed.

6. The seed bed shall be fine, smooth and evenly formed but not over consolidated. All surplus vegetable matter, stones 25mm or over the foreign material shall be collected and removed off site to a tip. The grass seed will be sown evenly over the site; afterwards the seed will be lightly harrowed into the surface. Thereafter, the area will be raked to remove foreign matter, stones over 25mm in size brought up by the harrow. These shall be collected and removed off site to a tip by the Contractor.

7. The Contractor shall carry out measures to ensure the successful establishment and subsequent good condition of all grassed areas throughout the period of the work and the Defects Correction Period, when the grass is 30-40mm long the all surface stones which have a dimension of 25mm or more, together with any foreign material, shall be removed.

8. The Contractor shall spray the area with a Selective Herbicide weedkiller to control weed growth during this period.

Turfing

9. Where turf is to be used it shall contain the grass mixture stated in this appendix.

10. Turf shall be supplied to BS 3969 and shall be close textured with uniform density and colour and sufficient fibre to hold each turf together during handling, transportation and laying. All turves shall be weed and disease free and shall be supplied in a mown condition. They shall have an even thickness of 32mm and shall have been established on a stone free loam type soil.

11. Turves shall be laid flat with broken joints (stretcher bond) and shall be butted tightly up to adjoining turves/grass. Any local adjustments needed to produce a level surface shall be made by adding or removing soil below the turf. High spots shall not be eliminated by over compaction / treading down. All turfing shall be carried out using planks to gain access to the working area thus protecting the prepared bed and newly laid turf.

Grass Cutting

12. When the grass is about 30-40mm long the area shall be inspected by the Contractor and he shall remove all surface stones which have a dimension of 25mm or more, together with any other foreign material.

13. Grassed areas will be accepted as reaching practical completion only when germination has proved satisfactory and is showing an even sward. The Contractor shall remove and replace any areas which are not in a healthy condition.

PREAMBLES TO BILL OF QUANTITIES

General Directions

1 The Bill of Quantities has been prepared in accordance with the Method of Measurement for Highway Works published by The Stationery Office as Section 1 of Volume 4 of the Manual of Contract Documents for Highway Works. The relevant publication date of each page of the Method of Measurement for Highway Works is given in the Schedule of Pages and Relevant Publication Dates.

2 In the Bill of Quantities the sub-headings and item descriptions identify the work covered by the respective items, read in conjunction with the matters listed against the relevant marginal headings "Item coverage" in Chapter IV of the Method of Measurement for Highway Works, these Preambles and the amendments to the Method of Measurement immediately following these Preambles. The nature and extent of the work is to be ascertained by reference to the Drawings, Specification and Conditions of Contract. The rates and prices entered in the Bill of Quantities shall be deemed to be the full inclusive value of the work covered by the several items including the following, unless expressly stated otherwise:

(i) Labour and costs in connection therewith.
(ii) The supply of materials, goods, storage and costs in connection therewith including delivery to Site. Taking delivery of materials and goods supplied by others, unloading, storage, and costs in connection therewith.
(iii) Plant and costs in connection therewith.
(iv) Fixing, erecting, and installing or placing of materials and goods in position.
(v) Temporary Works.
(vi) The effect on the phasing of the Works or any element of the Works to the extent set forth or reasonably implied in the documents on which the tender is based.
(vii) General obligations, liabilities and risks involved in the execution of the Works set forth or reasonably implied in the documents on which the tender is based.
(viii) Establishment charges, overheads and profit.
(ix) Waste.
(x) Testing carried out by the Contractor in accordance with the particular requirements of Appendix 1/5 including supplying results of tests, reports and certificates.
(xi) Supply and delivery of samples to the Overseeing Organisation in accordance with the particular requirements of Appendix 1/6.
(xii) Checking, inspecting, examining, measuring and verifying goods, materials and workmanship including supplying results, reports and certificates.
(xiii) Attendance and transport for sampling and testing carried out by the Overseeing Organisation.
(xiv) Complying with Quality Assurance requirements of the Contract and providing certificates of conformity.
(xv) Preparation and supply of detailed working drawings.
(xvi) Awaiting approvals and or consents.
(xvii) Where stipulated complying with the particular requirements of Appendix 1/17.

METHOD OF MEASUREMENT

Measurement 3. (i) The measurement of work shall be computed net from the dimensions stated in the Contract unless otherwise stated in the Method of Measurement.

(ii) Where the tender documents specify the Type of Pavement to be constructed then the measurement of work shall be based upon the thinnest pavement construction and surfacing over structures permitted by the Contract for that Type of Pavement. Where the tender documents provide for the Contractor to select the type of safety barrier, pavement or buried structure (where the structure is not within Designated Outlines) to be constructed then the measurement of all work in each area so affected shall be based upon the thinnest pavement construction and surfacing over structures permitted by the Contract in that area for the particular type of safety barrier, pavement or buried structure the Contractor has elected to construct.

Pricing of Items 4 Each individual item shall have a rate or price entered against it. Rates and prices shall be expressed to two decimal places.

Alternative Specified Materials, Designs and Options Within Types of Pavement 5 Where in the Contract a choice of alternatives is permitted:

(i) the description billed and the rates and prices inserted shall be deemed to cover any of the permitted alternative materials or designs the Contractor may elect to use;

(ii) and where separate Bills of Quantities are provided within Series 600: Earthworks for each Type of Pavement permitted by the Contract the rates and prices inserted in respect of the earthworks for the particular Type of Pavement shall be deemed to cover the earthworks for any inherent permitted option within the Type of Pavement elected to be constructed by the Contractor;

(iii) and where separate Bills of Quantities are provided within Series 700: Pavements for each Type of Pavement permitted by the Contract the rates and prices inserted in respect of the particular Type of Pavement shall also be deemed to cover any inherent permitted option within the type of Pavement elected to be constructed by the Contractor.

In all cases the rates and prices inserted in all Series of the Bill of Quantities shall be deemed to include for any adjustments of work content, rates, costs and the like occasioned by the choice of alternatives elected to be used or constructed by the Contractor.

Privately and Publicly Owned Services or Supplies 6. The information in the Contract as to the whereabouts of existing services and mains is believed to be correct but the contract shall not be relieved thereby of his obligations under the Contract. The Contractor shall include in his rates and prices for locating and taking measures for the support and full protection of pipes, cables and other apparatus during the progress of the Works, obtaining the written consent of the appropriate authority to interrupt the service or supply and for keeping the Overseeing Organisation informed of all arrangements he makes with the owners of privately owned services or supplies, Statutory Undertakers and Public Authorities as appropriate.

Labours 7. Labours in connection with Nominated Sub-contractors shall include:

(i) in the case of work or services executed – for affording the use of existing working space, access, temporary roads, erected scaffolding, working shelters, staging, ladders, hoists, storage, latrines, messing, welfare and other facilities existing on Site and the provision of protection, water, electricity for lighting and clearing away rubbish and debris arising from the work;

(ii) in the case of goods, materials or services supplied – for taking delivery, unloading, storing, protecting and returning crates, cartons and packing materials.

Roadworks Overall Requirements 8 The Contractor shall allow in his rates and prices for complying with requirements in respect of pavement construction, horizontal alignments, surface levels and surface regularity of pavement courses, dealing with changes in weather conditions, use of surfaces by traffic and construction plant, and general requirements for sub-bases and road bases.

Work Within and Below Non-tidal Open Water or Tidal Water 9. The Contractor shall allow in his rates and prices for taking measures required to execute work within and below non-tidal open water or tidal water. The Contractor shall include in his rates and prices for any investigations to ascertain actual boundaries, surface levels and ranges affected by non-tidal open water or tidal water.

Dealing with Flow 10 The Contractor shall allow in his rates and prices for taking measures to deal with the existing flow of water, sewage and the like.

Reimbursement of Fees, Rates, Taxes and Overseeing Organisation's Telephone Calls 11. The Contractor will be reimbursed the actual price paid by the Contractor in respect of:

(i) fees, rates and taxes – the sums certified as properly repayable to the Contractor in accordance with the Contract;

(ii) Overseeing Organisation's telephone calls – telephone calls charged to the number or numbers allocated to the Overseeing Organisation

Any other cost, charge or expense in respect of these items shall be allowed for in the rates and prices for temporary accommodation.

Site Limitations and Constraints 12. The Contractor shall allow in his rates and prices for complying with any limitations and constraints on the use of the Site

Hard Material 13 For the purposes of the Contract the following are designated as Hard Material in accordance with Chapter 1 Definitions, paragraph 1(h)(i):

(a) ……* strata;
(b) those deposits designated by limits shown on the Drawings;
(c) existing pavements, footways, paved areas (but excluding unbound materials) and foundations in masses in excess of 0.20 cubic metres.

Equivalent Products and Materials 14

Where the Contractor offers an equivalent product or material in place of the one identified or specified, then the rates and prices in the Bill of Quantities shall be deemed to include for all the obligations and costs associated with the incorporation of the equivalent into the Works, including design, provision of data and drawings, certificates, awaiting acceptance, resubmissions and modifications and amendments to the Works.

Unless specifically stated to the contrary in the Contract the measurement of the works affected by the incorporation of the equivalent products and materials shall be based on the Tender documents and not on the Works as amended and completed to incorporate the equivalent products and materials.

Permanent Works Designed by the Contractor 15

Where the contract requires part(s) of the Permanent Works to be designed by the Contractor, the rates and prices in the Bill of Quantities shall include for all the obligations and costs associated with the incorporation of the Contractor's design into the Works, including design, provision of data and drawings, certificates, awaiting approvals, resubmissions and modifications and amendments to the Works.

Additionally the rates and prices in the Bill of Quantities shall include for the costs of testing and sampling to be carried out by the Contractor in respect of workmanship, goods and materials incorporated into the Works or to prove the Contractor's design.

Structures Designed by the Contractor 16

In respect of each priced Bill of Quantities comprising a single item for a structure designed by the Contractor, the Contractor shall prepare a priced schedule of quantities. This priced schedule shall be prepared in accordance with the relevant Chapters and Series of the Method of Measurement and submitted to the Overseeing Organisation.

The quantities, rates and prices in the priced schedule of quantities shall in each case, when extended and totalled, give the amount entered in the priced Bill of Quantities against the item for the relevant structure designed by the Contractor.

The priced schedule of quantities shall only be used for Payment Applications and for the valuation of variations ordered under the Contract in connection with structures designed by the Contractor.

Unless specifically stated to the contrary in the Contract the measurement of the Works affected by the incorporation of the Contractor's design shall be based on the Tender documents and not on the Works as amended and completed to incorporate the Contractor's design.

The parts of the Works included by the Contractor in the priced schedule of quantities shall include all the parts of the Works within the Designated Outline except those designed and scheduled by the Overseeing Organisation as not to be included.

National Alterations for The Overseeing Organisations of Scotland, Wales and Northern Ireland

17 Where a paragraph in Chapter IV of the Method of Measurement for Highway Works (Units and Methods of Measurement) or in the Notes for Guidance on the method of Measurement for Highway Works or in the Library of Standard Item Descriptions for Highway Works is prefixed by # in this indicates that this particular paragraph has a National Alteration for one or more of the Overseeing Organisations of Scotland, Wales or Northern Ireland. The use of national paragraphs is permitted only within the countries to which they specifically apply and they are deemed to replace corresponding paragraphs in the main body of Chapter IV of the Method of Measurement for Highway Works (Units and Methods of Measurement) or in the Notes for Guidance on the Method of Measurement for Highway Works or in the Library of Standard Item Descriptions for Highway Works as appropriate. The National paragraphs correspond to the particular requirements of the National Alterations for the Overseeing Organisations of Scotland, Wales or Northern Ireland contained in Volume 1 of the Manual of Contract Documents for Highway Works. The substitute or additional paragraphs are located at the end of the relevant Series.

Testing

18. Testing as paragraph 2(x) above, is in respect of tests to be carried out by the Contractor to verify workmanship, goods and materials incorporated into the permanent works and testing of the permanent works in order to prove the Overseeing Organisation's design as set out in appendix 1/5.

Checking, inspecting, examining, measuring and verifying goods, materials and workmanship incorporated in the permanent works, as paragraph 2(xii) above, is in respect of other operations set forth or reasonably implied in the Contract to be carried out by the Contractor to demonstrate compliance with the particular requirements of the Contract, or to prove the Overseeing Organisation's design where not separately listed in Appendix 1/5, but excluding trial erection of structural steelwork which shall be measured separately in accordance with Series 1800.

Procedural trials, trial panels and trial areas required to be carried out or constructed as separate operations in advance of the permanent works in order to verify goods, materials and workmanship shall not be measured separately but are included within the item coverage for the relevant Series.

Testing of existing structures and other investigative works shall be individually measured within the relevant Series.

Landscape and Ecology

19. The rates and prices inserted in the Bill of Quantities for new Planting, Seeding and Turfing measured in accordance with Volume 4 – Series 3000 include for all post-planting maintenance work required to be carried out in accordance with the Specification and the relevant Appendices.

In order to properly reflect the scope and duration of planting and post-planting requirements a series of staged payments for the various items of planting, seeding and turfing will be made in accordance with the Staged Payments Schedule.

The Staged Payments Schedule is to be inserted in the Bill of Quantities immediately preceding the collection page for Landscape and Ecology and shall be used for assessing payments due to the Contractor in accordance with the Contract.

Amendments to the Method of Measurement

20. For the purpose of this Contract, the Method of Measurement for Highway Works is amended in accordance with the pages immediately following.

Bills of Quantities for Highway Works
Schedule of Pages and Relevant Publication Dates
Section 1: Method of Measurement for Highway Works

Chapter/Series	Page Number	Publication Date
Contents	1 2 3 4 to 7	November 2004 May 2005 November 2004 May 2005
Chapter I	1 to 3 inclusive	March 1998
Chapter II	1 2	March 1998 May 2001
Chapter III	1 2 3 to 16 inclusive 17 to 19 inclusive	March 1998 May 2001 May 2004 November 2006
Chapter IV	1	March 1998
100	1 to 2 inclusive 3 to 7 inclusive 8 9 to 11 inclusive 12 13 to 15 inclusive	March 1998 May 2001 November 2004 May 2001 November 2004 May 2001
200	1 2 to 3 inclusive 4	May 2001 November 2004 May 2001
300	1 to 5 inclusive	May 2001
400	1 to 2 and 4 to 8 inclusive 3	November 2004 November 2006
500	1 to 5 inclusive 6 7 to 13 inclusive 14 15 16 to 17 inclusive 18 19	May 2001 November 2004 May 2001 May 2005 May 2001 May 2005 May 2001 November 2003
600	1 2 3 4 to 11 inclusive 12 13 to 14 inclusive 15 to 38 inclusive N1 to N3 inclusive	May 2002 May 2001 March 1998 November 2004 May 2002 November 2004 May 2001 May 2002
700	1 2 3 4 to 5 inclusive 6 7 to 9 inclusive 10 11 12 to 13 inclusive 14 15 to 18 inclusive	May 2001 May 2002 May 2001 May 2002 May 2001 May 2002 May 2001 May 2002 May 2001 May 2002 May 2001

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800	)	
900	) Not taken up	
1000	)	
1100	1 2 3 4 to 5 inclusive 6 7 to 8 inclusive	May 2001 November 2004 May 2001 May 2002 May 2001 May 2005
1200	1 to 2 inclusive 3 to 5 inclusive 6 to 11 inclusive	May 2001 March 1998 May 2001
1300	1 to 3 inclusive	November 2003
1400	1 to 2 inclusive 3 4 to 8 inclusive 9	May 2001 May 2005 May 2001 May 2005
1500	1 to 2 inclusive 3 4 to 7 inclusive 8 to 12 inclusive	May 2001 May 2005 February 2003 May 2001
1600	1 to 2 inclusive 3 to 6 inclusive 7 8 to 19 inclusive	March 1998 May 2001 March 1998 May 2001
1700	1 2 3 4 to 11 inclusive	May2004 May2001 May2004 May2001
1800	1 2 to 5 inclusive	March 1998 May 2001
1900	1	May 2003
2000	1 2 to 3 inclusive	May 2002 May 2001
2100	1	March 1998
2200	Not taken up	May 2004
2300	1 to 3 inclusive	March 1998
2400	1 to 3 inclusive 4	May 2001 March 1998
2500	1 to 2 inclusive	May 2001
2600	Not taken up	
2700	1	May 2001
3000	1 to 15 inclusive	May 2001
5000	1 to 2 inclusive	May 2003

SERIES 200: SITE CLEARANCE

Take up or Down and Set Aside for Re-use or Remove to Store off Site.

Units Amendment to paragraph 8.
Add the following:

cast iron rainwater channels and the like linear metre
footway bollards and the like number
street name plates number
street name tiles number

Itemisation Amendment to paragraph 10.
Add the following features to Group II.

Group		Feature
II	13.	Cast iron rainwater channels and the like.
	14.	Footway bollards and the like.
	15.	Street name plates and the like.
	16.	Street name tiles and the like.

SERIES 500: DRAINAGE AND SERVICE DUCTS

Page 3 : Insert additional item into paragraph 16.

reinstatement of paved areas (Series 2900: Reinstatement).
(w) making good the connection to an existing pipe.

Page 9 : Insert additional items into paragraph 38.

k) reinstatement of paved areas (Series 2900: Reinstatement).

Chambers and Gullies

Itemisation Amendment to paragraph 36
Add additional Group V

Group		Feature
V	1.	Connected to existing gully connection

Amendment to paragraph 38.
Add the following:

demolition of redundant gully including backfilling of void
making good the connection to the existing pipe

Drain Or Service Protection (Private And Public)

Add new paragraphs 85, 86, 87 and 88.

Units 85. The units of measurement shall be:-

(i) drain or service protection ..... lin metre

Measurement

86. The measurement of drain or service protection shall be the summation of their individual lengths measured along the centre line of the drain or service.

Itemisation

87. Separate items shall be provided for drain or services protection in accordance with Part II Sections 3 and 4 and the following:-

Group	Feature	
I	1.	Drains or sewers.
	2.	Piped culverts.
	3.	Service ducts.
II	1.	Depths to invert not exceeding 2 metres. The average depth to invert to be stated to the nearest 25mm.
	2.	Depths to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres. The average depth to invert to be stated to the nearest 25mm.

Drain or Service Protection

88. The items for drain or service protection shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item coverage

(a) locating existing sewer, drain, duct, cable, main culvert of supply pipe;

(b) excavation of Class 5A material (as Series 600, paragraph 17);

(c) excavation of acceptable material (as Series 600, paragraph 18);

(d) excavation of unacceptable material (as Series 600, paragraph 19);

(e) excavation of hard material (as Series 600, paragraph 23);

(f) stripping turf and reserving for re-use, or, if surplus to requirements, haulage and deposition to tips off Site provided by the Contractor;

(g) protecting the drain, duct, cable, main, culvert or supply pipe before and during operations;

(h) hangers, stools and discrete supports;

(i) reinstatement or connecting into severed land drain disturbed or damaged by the work, including sealing off down stream head;

(j) laying and compacting pipe bedding, haunching and surround material under and around existing pipe;

(k) reinstating damage caused by operations;

(l) vacating track as requested by Statutory undertakers;

(m) allowance for attendance on Statutory Undertakers and for delay during his operations on site;

(n) reinforcing, pouring and compacting any concrete structural raft;

(o) formwork (as Series 1700, paragraph 15);

(p) backfilling with suitable material from any source and compaction;

(q) disposal (as Series 600, paragraph 39) of unacceptable material and surplus suitable material;

(r) movement joints to concrete bed and surrounds to flexible jointed pipes;

(s) reinstatement of topsoil and turf;

(t) cleaning;

(u) recording, staking and labelling of junctions and terminations;

(v) in the case of ducts fixing draw ropes, removable stoppers, marker blocks and posts;

(w) rodding drains and ducts;

(x) any special conditions of Statutory Undertakers;

(y) removal of cables being indicated as temporary (including reinstatement).

Rodding Eyes

Add new paragraphs 89, 90, 91 and 92.

Units 89. The units of measurement shall be:-

(i) rodding eyes ..... number.

Measurement 90. The measurement shall be of the complete rodding eye (See Construction detail F84).

Itemisation 91. Separate items shall be provided for rodding eyes in accordance with Part II, paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Rodding eye.
II	1.	Particular designs stated in contract.
III	1.	Depths to invert not exceeding 2 metres.
	2.	Depth to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres.

Rodding Eyes 92. The items for rodding eyes shall be in accordance with the Preamble to Bill of Quantities General Directions include for:-

Item Coverage (a) excavation of Class 5A material (as Series 600, paragraph 17);

(b) excavation of acceptable material (as Series 600, paragraph 18);

(c) excavation of hard material (as Series 600, paragraph 23);

(d) excavation of unacceptable material (as Series 600, paragraph 19);

(e) locating existing sewers and drains;

(f) connecting existing sewers and drains including dealing with flow;

(g) backfilling with insitu concrete (as Section 1700, paragraph 4) or suitable material and compaction;

(h) concrete surround.

(i) disposal of material (as Series 600, paragraph 39);

(j) reinstatement of paved areas (as Series 1100, paragraph 31 to 35).

Soakaways

Add new paragraphs 93, 94, 95 and 96.

Units 93. The units of measurement shall be:-

(i) soakaways ..... number.

Measurement 94. The measurement shall be of the complete soakaway.

The depth of the soakaway shall be the distance between the existing ground level and the base.

Itemisation 95. Separate items shall be provided for soakaways in accordance with Part II, paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Soakaway.
II	1.	Particular designs stated in contract.

Soakaways 96. The items for soakaways shall in accordance with the Preamble to Bill of Quantities General Directions include for:-

Item Coverage (a) excavation of class 5A material (as Series 600, paragraph 17 and 18);

(b) excavation of acceptable material (as Series 600, paragraph 18);

(c) excavation of hard material (as Series 600, paragraph 23);

(d) excavation of unacceptable material (as Series 600, paragraph 19);

(e) disposal of material (as Series 600, paragraph 39);

(f) reinstatement of surface with suitable material;

(g) locating existing sewers and drains;

(h) construction of soakaway including cleaning;

(i) backfilling with suitable material and compaction;

(j) connection to existing sewers and drains including dealing with flow.

Downpipe Hopper

Add new paragraphs 97, 98, 99 and 100.

Units 97. The units of measurement shall be:-

(i). Downpipe hopper ..... number.

Measurement 98. The measurement shall be of the complete downpipe hopper (See Construction Detail F81).

Itemisation 99. Separate items shall be provided for downpipe hoppers in accordance with Part II, paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Downpipe hopper.
II	2.	Particular design stated in contract.

Downpipe Hoppers 100. The items for downpipe hoppers shall in accordance with the Preamble to Bill of Quantities General Directions include for:-

Item Coverage (a) excavation of acceptable material (as Series 600 paragraph 18).

(b) excavation of unacceptable material (as Series 600, paragraph 19);

(c) excavation of hard material (as Series 600, paragraph 23);

(d) disposal of material (as Series 600 paragraph 39);

(e) locating existing sewers and drains;

(f) concrete surround;

(g) connection to rainwater downpipe, including adjustment to fit drainage inlet where necessary);

(h) reinstatement of paved areas (as Series 1100 paragraph 31 to 35).

Hit and Miss Plate

Add new paragraphs 101, 102, 103 and 104.

Units 101. The units of measurement shall be:-

(i). Hit and miss plates ..... number.

Measurement 102. The measurement shall be of the complete hit and miss plate.

Itemisation 103. Separate items shall be provided for hit and miss plates in accordance with Part II, paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Hit and Miss Plate.
II	1.	Particular designs stated in contract.

Hit and Miss Plates 104. The items for hit and miss plates shall in accordance with the Preamble to Bill of Quantities General Directions include for:-

Item Coverage
(a) excavation of unacceptable material (as Series 600, paragraph 18);
(b) disposal of unacceptable material (as Series 600, paragraph 39);
(c) excavation of hard material (as Series 600, paragraph 23);
(d) cleaning;
(e) reinstatement of paved areas (as Series 1100, paragraph 31 to 35).

Drainage Offlets

Add new paragraphs 105, 106, 107 and 108.

Units 105. The units of measurement shall be:-

(i). Drainage offlets ..... lin metre

Measurement 106. The measurement shall be the length of the offlet at the instructed width by the Overseeing Organisation.

Itemisation 107. Separate items shall be provided for drainage offlets in accordance with Chapter 11, paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Drainage offlets.
II	1.	Re-cut existing offlet.
	2.	Cut new offlet.
III	1.	Different widths.

Drainage Offlet 108. The items for drainage offlets shall be in accordance with the Preamble to Bill of Quantities General directions include for:-

Item Coverage
(a) excavation up to 300mm deep;
(b) spreading and levelling of excavated material;
(c) trimming sides and grading bottoms;
(d) maintaining existing outfalls;
(e) working around or over buried services.

Extra Over For Supply Of Stopcocks, Hydrant Boxes And Similar Sized Covers, Manhole Covers And Frames, Public Utility Box Cover And Frames And Gully Gratings And Frames

Add new paragraphs 109,110, 111 and 112.

Unit

109. The unit of measurement shall be:-

(i). Extra over for supply of stopcocks, hydrant boxes and similar sized covers, manhole covers and frames, public utility covers and frames and gully gratings and frames..... number.

Measurement

110. The measurement for extra over for of supply of stopcocks, hydrant boxes and similar sized covers, manhole covers and frames, public utility box cover and frame and gully gratings and frames shall be for the supply of each item.

Itemisation

111. Separate items shall be provided for extra over for the supply of stopcocks, hydrant boxes and similar sized covers, manhole covers and frames, public utility covers and frames and gully gratings and frames in accordance with Chapter II paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	Supply of stopcocks, hydrant boxes and similar sized covers.
	2.	Supply of manhole covers and frames.
	3.	Supply of public utility covers and frames.
	4.	Supply of gully gratings and frames.
II	1.	Different sizes.
III	1.	Heavy duty.
	2.	Light duty.

Extra Over For Supply Of Stopcocks, Hydrant Boxes And Similar Sized Covers, Manhole Covers And Frames, Public Utility Box Cover And Frames And Gully Gratings And Frames

112. The items for extra over for supply of stopcocks, hydrant boxes and similar sized covers, manhole covers and frames, public utility box covers and frames and gully gratings and frames shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) loading, transportation from store, unloading and positioning for installation.

(b) modification and new materials.

(c) liaison with public utilities.

(d) disposal of stopcock, hydrant box, manhole cover and frame, public utility box or gully grating being replaced.

Rainwater Downpipe Crossing of the Footway

Add new paragraphs 113, 114, 115 and 116

Units 113. The units of measurement shall be:-

(i) rainwater downpipe crossing of footway lin.m

Measurement 114. The measurement of rainwater downpipe crossing of the footway shall be measured along the centre line of the duct or channel between the kerb face and the wall of the building or back edge of the footway. (See Construction Detail F88 and F89).

Itemisation 115. Separate items shall be provided for rainwater downpipe crossing of the footway in accordance with Chapter II paragraphs 3 and 4 and the following:

Group	Feature	
I	1.	Rainwater downpipe crossing of the footway
II	2.	Particular designs stated in contract.

Rainwater Downpipe Crossing of the Footway 116. The items for rainwater downpipe crossing of the footway shall in accordance with the Preamble to Bill of Quantities General Directions include for:

Item Coverage

(a) excavation of acceptable material (as Series 600 paragraph 18)

(b) excavation of unacceptable material (as Series 600 paragraph 19)

(c) excavation of hard material (as Series 600 paragraph 23)

(d) disposal of material (as Series 600 paragraph 39)

(e) connecting to downpipe hopper

(f) reinstatement of footway (as Series 1100 paragraph 31 -35)

(g) drilling through concrete haunching and kerb

(h) concrete surround

(i) adjustments to kerbing

(j) supplying Overseeing Organisation with key to lockable covers.

SERIES 600: EARTHWORKS

Excavation of Acceptable Material Excluding Class 5A

(ABERDEEN CITY & ABERDEENSHIRE ONLY)

Page 5 : Insert additional item into paragraph 18.

(vi) reinstatement of paved areas (Series 2900: Reinstatement).

Excavation of Hard Material

Itemisation — Amendment to paragraph 22.

Add the following features to Group II

Group	Feature	
II	11.	Cutting and other excavation (Kerbing inc. foundation, concrete channel block and haunching)
	12.	Cutting and other excavation (Bitmac footway surfacing)
	13.	Cutting and other excavation (Precast concrete footway surfacing)
	14.	Cutting and other excavation (In-situ concrete footway surfacing)
	15.	Cutting and other excavation (Carriageway surfacing)

Deposition of Fill

Itemisation — Amendment to paragraph 32.

Add the following note:-

Note 1 “other areas of fill” (See Group III Item 1) shall include trenches.

Imported Fill

Itemisation — Amendment to paragraph 44.

Add the following note:-

Note 2 : ‘Other areas of fill’ (See Group II Item 1) shall include trenches.’

Compaction of Fill

Itemisation — Amendment to paragraph 51.

Add the following note:-

Note 1 “other areas of fill” (See Group III Item 1) shall include trenches.

Clearing of Existing Ditches

Delete paragraph 92 and insert the following:

Itemisation — 92. Separate items shall be provided for cleaning of existing ditches in accordance with Chapter II paragraphs 3 & 4 and the following:-

Group	Feature	
I	1.	Cleaning of existing ditches.
II	1.	Different sizes.

Verge Trimming

Add new paragraphs 178, 179, 180 and 181.

Units 178. The units of measurement shall be:-

(i). Verge Trimming ..... lin metre.

Measurement 179. The measurement of verge trimming shall be the lengths for the work specified in the Contract. No deduction shall be made for gaps of 1 linear metre or less.

Itemisation 180. Separate item shall be provided for verge trimming in accordance with Chapter II paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	Verge trimming.
II	1.	Straight or curved over 12 metre radius.
	2.	Curves of 12 metre radius or less.

Verge Trimming 181. The item for verge trimming shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage (a) cutting verges to obtain clean regular cuts.

(b) uplifting surplus verge material.

(c) loading into transport.

(d) haulage and deposition in tips off site provided by the Contractor.

(e) multiple handling of uplifted material.

SERIES 700: PAVEMENTS

Regulating Course

Itemisation Amendment to paragraph 13.

Delete the Note after the group and features table.

Reinstatement of Paved Area

Delete existing paragraph 34 (a) and substitute the following

Measurement 34 (a) for drains, sewers, piped culverts, service ducts and filter drains – the width shall be the actual width or, the internal diameter of the pipe plus 600mm, whichever is the lesser.

SERIES 1100: KERBS, FOOTWAYS AND PAVED AREAS

Kerbs, Channel Edgings and Combined Drainage and Kerb Blocks

Item coverage — Amendment to paragraph 4.

Add the following

Item Coverage — 4(bb) reinstatement of existing pavement at front and rear off end kerb (see Construction Detail B86).

Remove from Store and Relay Kerbs, Channels, Edgings and Combined Drainage and Kerb Blocks

Delete existing paragraphs 9, 10, 11 and 12 and substitute the following:-

Measurement

9. The units of measurement shall be:-

(i). Remove from store and relay kerbs, channels edgings and combined drainage and kerb blocks lin metre.

10. The measurement for remove from Store and relay kerbs, channels,

edgings and combined drainage and kerb blocks shall be the length required for the Contract for the work. No deduction shall be made for gaps of 1 linear metre or less. This item shall be used for laying kerb above an existing foundation.

Itemisation

11. Separate item shall be provided for remove from Store and relay kerbs, channels, edgings and combined drainage and kerb blocks in accordance with Chapter II paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Remove from Store and relay kerbs.
	2.	Remove from Store and relay channels.
	3.	Remove from Store and relay edgings.
	4.	Remove from Store and relay combined Drainage and Kerb Blocks.
II	1.	Different materials and designs.
III	1.	Straight or curved over 12 metre radius.
	2.	Curves of 12 metre radius or less.

Remove from Store and Relay Kerbs Channels, Edgings and Combined Drainage and Kerb Blocks

12. The item for remove from Store and relay kerbs, channels, edgings and combined drainage and kerb blocks shall in accordance with the Preambles of Bill of Quantities General Directions include for:-

Item Coverage

(a) loading, transporting from Store unloading and positioning for relaying;

(b) replacing items damaged during the foregoing operations;

(c) modifications and new materials;

(d) kerbs channels, edgings and combined drainage and kerb blocks (as this series paragraph 4);

(e) reinstatement of existing pavement at front and rear of new kerb, channel, edging or combined drainage and kerb block.

(f) replacing material rendered unsuitable;

(g) selection of materials at Council store;

(h) gaining access to Council store.

Racking of Kerbs

Add new paragraphs 34 to 37 inclusive.

Units

34. The units of measurement shall be:-

(i). racking of kerbs ..... lin metre.

Measurement

35. The measurement of racking of kerbs shall be the lengths for the work. No deduction shall be made for gaps of 1 linear metre or less. This item shall be used for measuring small adjustments of level insitu.

Itemisation

36. Separate item shall be provided for kerbing in accordance with Chapter II paragraphs 3 and 4 and the following:-

Group	Feature	
II	1.	Racking.
II	1.	Different types of kerb.
III	1.	Straight or curved over 12 metre radius.
	2.	Curves of 12 metre radius or less.

Racking of Kerbs

37. The item for racking of kerbs shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) bedding and jointing;

(b) building in gully grating and frames;

(c) raising existing kerbs;

(d) haunching existing kerbs;

(e) disposal of surplus material(as Series 600 paragraph 39).

Turf Edging

Add new paragraphs 38 to 41 inclusive.

Units

38. The units of measurement shall be:-

(i) turf edging ..... lin metre.

Measurement	39.	The measurement for turf edging shall be the length required for the Contract for the work. No deduction shall be made for gaps of 1 linear metre or less.
Itemisation	40.	Separate item shall be provided for turf edging in accordance with Chapter II paragraph 3 and 4 and the following:-

Group	Feature	
I	1.	Turf Edging
II	1.	Different Types.
III	1.	Straight or curved over 12 metre radius.
	2.	Curves of 12 metre radius or less.

Turf Edging	41.	The item for Turf Edging shall in accordance with the Preambles of Bill of Quantities General Directions include for:-
Item Coverage	(a)	excavation of acceptable material (as Series 600 paragraphs 17 and 18);
	(b)	excavation of unacceptable material (as Series 600 paragraph 19);
	(c)	excavation in Hard Material (as Series 600 paragraph 23);
	(d)	disposal of material (as Series 600 paragraph 39);
	(e)	turfing for turf edging;
	(f)	laying of turf edging to line and level;
	(g)	replacing materials rendered unsuitable for the purpose;
	(h)	regrading and reinstatement of verges adjacent to turf edging.

SERIES 1200 :TRAFFIC SIGNS AND ROAD MARKINGS

Street Name Signs

Add new paragraphs 46 to 49 inclusive.

Units	46.	The unit of measurement shall be:-
	(i)	street name signs……number.
	(ii)	street name tiles……..number.
Measurement	47.	The measurement shall be for the complete installation of the street name sign. Street name signs shall either be wall mounted or free standing on aluminium posts.

Itemisation

48. Separate items shall be provided for street name signs in accordance with Chapter II paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	street name plate.
	2.	street name tiles.
II	1.	different types and sizes.

Street Name Signs

49. The items for street name signs shall in accordance with the Preambles to the Bill of Quantities General Directions include for:-

Item Coverage

(a) excavation of acceptable material (as Series 600 paragraphs 17 and 18);

(b) excavation of unacceptable material (as Series 600 paragraph 19);

(c) excavation in hard material (as Series 600 paragraph 23);

(d) backfilling and compaction;

(e) insitu concrete (as Series 1700 paragraph 4);

(f) reinstatement of surfaces;

(g) covering and removal of covering of signs;

(h) disposal of material (as Series 600 paragraph 39);

(i) location lettering and marking;

(j) drilling of forming holes and pockets in structures, lighting columns or foundations and casting in bolts, sockets, base plates and anchorage assembles;

(k) bedding and grouting;

(l) rivets, nuts, bolts and the like;

(m) backboard, fixings, protective caps, sealing, grommets, spacers, mounting plates and strips;

(n) protective treatment;

(o) notices and recording;

(p) preparation and supply of record drawings;

(q) fixing to structures and foundations including attachment systems;

(r) aluminium posts

Replacement or Repair of Flexible Chevron Roundabout Units, Bollard Base Lighting Units and Bollard Lighting Units

Add new paragraphs 55 to 60 inclusive.

Units

55. The units of measurement shall be:-

(i) replacement of flexible chevron roundabout unit posts number.
(ii) repair of bollard base lighting unit number
(iii) replacement of bollard base lighting unit number

Measurements

56. The measurement of flexible chevron roundabout units shall be for replacement of damaged unit section posts.

The measurement of replacement of bollard base lighting unit shall be for the removal of the existing unit and the complete installation of the new unit.

Itemisation

57. Separate items shall be provided for flexible chevron roundabout units in accordance with Chapter II paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	Replacement of section posts.
II	1.	Repair of bollard base lighting unit.
	2.	Replacement of bollard lighting unit.

Replacement of Flexible Chevron Unit Post

58 The items for the replacement of flexible chevron roundabout unit posts shall in accordance with the Preambles to Bill of Quantities General Direction include for:-

Item Coverage

(a) excavation of acceptable material (as Series 600 paragraphs 17 and 18);

(b) excavation of unacceptable material (as Series 600 paragraph 19);

(c) excavation in hard material (as Series 600 paragraph 23);

(d) backfilling and compaction;

(e) insitu concrete (as Series 1700 paragraph 4);

(f) reinstatement of surfaces

(g) disposal of damage post;

(h) disposal of material (as Series 600 paragraph 39);

(i) bedding and grouting;

(j) rivets, nuts, bolts and the like;

(k) protective treatment.

Repair of Bollard Base Lighting Unit	59.	The items for the repair of bollard base lighting unit in accordance with the Preambles to Bill of Quantities General Directions include for:-
Item Coverage	(a)	repair of bollard base lighting unit;
	(b)	resetting to correct position, level and direction;
	(c)	fixings, protective caps, sealing, grommets, spacers, mounting plates and strips;
	(d)	replacement of lighting unit;
	(e)	insitu concrete (as Series 1700 paragraph 4);
	(f)	reinstatement of surfaces;
	(g)	rivets, nuts, bolts and the like.
Replacement of Bollard Lighting Units	60.	The items for replacement of bollard lighting unit in accordance with the Preambles to Bill of Quantities General Directions include for:-
Item Coverage	(a)	excavation of acceptable material (as Series 600 paragraphs 17 and 18);
	(b)	excavation of unacceptable material (as Series 600 paragraph 19);
	(c)	excavation in hard material (as Series 600 paragraph 23);
	(d)	backfilling and compaction;
	(e)	insitu concrete (as Series 1700 paragraph 4);
	(f)	reinstatement of surfaces;
	(g)	disposal of damaged bollard lighting unit;
	(h)	disposal of material (as Series 600 paragraph 39);
	(i)	bedding and grouting;
	(j)	rivets, nuts, bolts and the like;
	(k)	backboard, fixings, protective caps, sealing, grommets, spacers, mounting plates and strips;
	(l)	protective treatment;
	(m)	reconnection of power supply

ADDITIONAL PREAMBLES
TREE GRIDS, FRAMES AND GUARDS, LITTER BINS, BENCH SEATS, BOLLARDS, BANNER POLES, CYCLE RACKS AND PLANTERS

SERIES 2800: TREE GRIDS, FRAMES AND GUARDS, LITTER BINS, BENCH SEATS, BOLLARDS, BANNER POLES, CYCLE RACKS AND PLANTERS

Units

1. The unit of measurement shall be:-

(i) tree grids, frames and guards, litter bins, bench seats, bollards, banner poles, cycle racks and planters ……number.

Measurement

32. The measurement of tree grids, frames and guards, litter bins, bench seats, bollards, banner poles, cycle racks and planters shall be the number required by the Contract.

Itemisation

33. Separate items shall be provided for tree grids, frames and guards, litter bins, bench seats, bollards, banner poles, cycle racks and planters in accordance with Chapter II, paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	Tree Grids, Frames and Guards
	2.	Litter Bins
	3.	Bench Seats
	4.	Bollards
	5.	Banner Poles
	6.	Cycle Racks
	7.	Planters
II	1.	Different types
III	1.	Different sizes
IV	1.	Different fixings

Tree Grids, Frames and Guards, Litter Bins, Bench Seats, Planters

34. The items for Tree Grids, Frames and Guards, Litter Bins, Bench Seats and Planters shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) excavation of unacceptable material (as Series 600 paragraph 19);

(b) excavation in hard material (as Series 600 paragraph 23);

(c) disposal of material (as Series 600 paragraph 39)

(d) drilling or forming holes and pockets in structures or foundations and casting in bolts, sockets, base plates and anchorage assemblies

(e) bedding, grouting and filling.

(f) reinstatement of existing pavement.

Bollards, Banner Poles

35. The items for Bollards and Banner Poles shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) excavation of unacceptable material (as Series 600 paragraph 19);

(b) excavation in hard material (as Series 600 paragraph 23);

(c) disposal of material (as Series 600 paragraph 39)

(d) drilling or forming holes and pockets in structures or foundations and casting in bolts, sockets, base plates and anchorage assemblies

(e) bedding, grouting and filling.

(f) insitu concrete (as Series 1700 paragraph 4);

(g) reinforcement (as Series 1700 paragraph 26);

(h) reinstatement of existing pavement.

Insert new Series 2900.

SERIES 2900: REINSTATEMENT

Patching and Reinstatement

Units

1. The units of measurement shall be:-

(i) Patching and Reinstatement square metre.

(ii) Each additional 10mm layer of surfacing square metre.

Measured as an extra over main item.

Measurement

2. The measurement of patching and reinstatement shall be calculated using the dimensions at the top surface. Where dimensions vary, the average dimensions shall be calculated and used.

3. The measurement of depth shall be the depth specified unless otherwise instructed or agreed on site. Where the depth varies, the average depth shall be calculated and used.

4. Separate items shall be provided for patching and reinstatement in accordance with Chapter II, paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	Different materials.
II	1.	Different construction layers.
III	1.	Different thickness.
	2.	Incremental increase in thickness.
IV	1.	Different aggregate areas.
V	1.	In carriageway.
	2.	In footpath.

Patching and Reinstatement

5. The items for patching and reinstatement shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) breaking out and disposal of any temporary reinstatement, pavement, etc. (as Series 600 paragraph 39;

(b) cutting of edges and joints and painting with hot bitumen;

(c) applying emulsion where required to the exposed base material;

(d) laying of flexible surface (as Series 700 of paragraph 9);

(e) laying of sub-base material (as Series 700 paragraph 5);

(f) scarifying, trimming, blinding, recompacting of base or sub-base material;

(g) augmenting existing base material by a maximum of 25mm average in any patch or reinstatement;

(h) the disposing of surplus base material.

REINSTATEMENT IN PAVED FOOTWAYS AND PAVED AREAS

Units

6. The units of measurement shall be:-

(i) Reinstatement in paved footways and paved areas …..square metre.

Measurement

7. The measurement of reinstatement in paved footways and paved areas shall be calculated using the dimensions at the top surface. Where dimensions vary, the average dimensions shall be calculated and used.

8. The measurement of depth shall be the depth specified unless otherwise instructed or agreed on site. Where the depth varies, the average depth will be calculated and used.

Itemisation

9. Separate items shall be provided for reinstatement in paved footways in accordance with Chapter II, paragraphs 3 and 4 and the following:-

Group	Feature	
I	1.	Reinstatement.
II	1.	Granite sett paving.
	2.	Granite slabbed paving.
	3.	Precast concrete paving.
III	1.	Aggregate area.

Reinstatement in paved footways and paved areas

10. The items for patching and reinstatement of shall in accordance with the Preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) breaking out and disposal of any temporary reinstatement, fill, etc. (as Series 600 paragraph 39;

(b) lifting, cleaning and setting aside for reuse any material being relaid under the contract;

(c) trimming and completion of formation;

(d) mixing, laying and trimming sand / cement bedding;

(e) laying and beating to falls;

(f) bedding and jointing including grouting or sealing;

(g) straight circular and radial cutting and fitting;

(h) racking and packing.

ADDITIONAL BASE AND SUB-BASE

Units

11. The units of measurement shall be:-

(i) Additional sub-base ..... cubic metre.

(ii) Additional base ..... cubic metre.

Measured as extra over the main item.

Group	Feature	
I	1.	Sub-base.
	2.	Base.
II	1.	Different types of material.

Additional Base and Sub-base

12. The items for additional Base and Sub-base shall in accordance with the preambles to Bill of Quantities General Directions include for:-

Item Coverage

(a) materials and attendance sampling and testing carried out by the Overseeing Organisation;

(b) protection of mixed material in transit and while awaiting tipping;

(c) grading, measuring, mixing and depositing materials.

(d) spreading and compaction of deposited material in layers;

(e) taking measures to protect the sub-grade, sub-base and base from deterioration due to the ingress of water and the use of constructional plant;

(f) shaping to cambers, falls and crowns.