WOKINGHAM
BOROUGH COUNCIL

GREENWAY PHASE 1, ARBORFIELD
California Way

VOLUME 1

WORKS INFORMATION – SPECIFICATION

**PRICED CONTRACT WITH
BILL OF QUANTITIES**

REVISION: WSP DRAFT 0

Contents

VOLUME 1A - WORKS INFORMATION (SPECIFICATION)

Preamble to the Specification

1. The Specification 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) Appendix 0/5: Special national alterations of the Overseeing Department of Scotland, Wales or Northern Ireland. **(Not Used)**

   Appendix 0/4 contains a list of the drawings.

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. 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.

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

5. 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.

6. 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.

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

8. 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 Organisation 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 Organisation.

9. 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 Project Manager**.

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

10. 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 9 above shall be 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 by the Contractor or the Design Build Finance and Operate concessionaire, such agreement, consent, approval shall be obtained from **the Employer's Representative**.

    (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 9 above shall

exercise such decisions in accordance with the **Employer's** requirements stated in the Contract.

14. The Specification shall be used in conjunction with the corresponding amendment to Volume 4 of the Manual of Contract Documents for Highway Works.

SPECIFICATION FOR HIGHWAY WORKS

Schedule of Pages and Relevant Publication Dates

Series/Appendix	Page Number	Publication date
000	1 to 3	May 2014
000	4 to 7F	February 2016
100	1 to 2, 4 to 9, 12 to 29F, WF1, N2 to N11F	May 2014
100	3, 10 to 11, N1	December 2014
200	1 to 3F	February 2016
300	1	May 2001
300	4	November 2002
300	2 to 3, 5 to 6F	May 2008
500	23 to 24, 26	November 2004
500	28F	May 2005
500	3, 22, N1F	May 2006
500	2, 5, 27	November 2006
500	6, 25	November 2007
500	1, 4, 7 to 21	May 2009
600	1 to 77F, S1 to S4F, W1 to W4F, N1 to N5F	November 2016
700	1 to 36F, N1 to N6F	February 2016
1100	1, 4F	November 2004
1100	2, N1F	November 2006
1100	3	August 2008
1200	5	May 2001
1200	2 to 3, W1F	August 2003
1200	1, 14 to 16F	May 2004
1200	4, 9 to 11, 13	May 2005
1200	12	November 2006
1200	6 to 7, N1 to N4F	November 2007
1200	8	May 2008
3000	1, 4 to 7, 10, 12 to 17, 19, 22 to 27F	May 2001
3000	20	November 2004
3000	2 to 3	May 2006
3000	8 to 9, 11, 18, 21	May 2008

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

List of Additional Clauses, Tables and Figures

Clause No	Title	Page No
(None)		

List of Substitute Clauses, Tables and Figures

Clause No	Title	Page No
(None)		

List of Cancelled Clauses, Tables and Figures

Clause No	Title
(None)	

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

Part A: Volume 1 Specification

Clause No	Alterations to be made
(None)	

Part B: Volume 2 Notes for Guidance of the Specification for Highway Works

Clause No	Alterations to be made
(None)	

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

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.

List A: List of Numbered Appendices Referred to in the Specification for Highway Works

Volume No	Completed by	App. No.	Title	Included in contract or not
			INTRODUCTIONS	
1	**(Co)**	**0/1**	**Contract-Specific Additional, Substitute and Cancelled Clauses, Tables and Figures included in the Contract**	**Included**
1	**(Co)**	**0/2**	**Contract-Specific Minor Alterations to Existing Clauses, Tables and Figures included in the Contract**	**Included**
1	**(Co)**	**0/3**	**List of Numbered Appendices Referred to in Specification and included in the Contract**	**Included**
1	**(Co)**	**0/4**	**List of Drawings included in the Contract**	**Included**
-	-	0/5	Special National Alterations of the Overseeing Organisation of Scotland/Wales/Northern Ireland	Not used
			PRELIMINARIES	
1	**(Co)**	**1/1**	**Temporary Accommodation and Equipment for the Overseeing Organisation**	**Included**
-	-	1/2	Vehicles for the Overseeing Organisation	Not used
-	-	1/3	Radio Communication System for the Overseeing Organisation	Not used
1	**(Co)**	**1/4**	**Standards, Quality Management and Acceptance**	**Included**
1	**(Co)**	**1/5**	**Goods, Materials, Sampling and Testing Goods and Materials**	**Included**
-	-	1/6	Design of Works by the Contractor.	Not used
1	**(Co)**	**1/7**	**Site Extent and Limitations on Use**	**Included**
-	-	1/8	Operatives for the Overseeing Organisation	Not used
1	**(Co)**	**1/9**	**Control of Noise and Vibration**	**Included**
1	**(Co)**	**1/10**	**Information Boards**	**Included**
1	**(Co)**	**1/11**	**Existing Ground Levels**	**Included**
1	**(Co)**	**1/12**	**Setting Out**	**Included**
1	**(Co)**	**1/13**	**Programme of Works**	**Included**
1	**(Co)**	**1/14**	**Payment Applications**	**Included**
-	-	1/15	Accommodation Works.	Not used

1	**(Co)**	**1/16**	**Privately and Publicly Owned Services or Supplies**	**Included**
1	**(Co)**	**1/17**	**Traffic Safety and Management**	**Included**
-	-	1/18	Temporary Diversions for Traffic	Not used
-	-	1/19	Routing of Vehicles	Not used
-	-	1/20	Recovery Vehicles for Breakdown	Not used
-	-	1/21	Tidal, Flowing and Standing Water	Not used
1	**(Co)**	**1/22**	**Progress Photographs**	**Included**
-	-	1/23	Not Used	Not used
-	-	1/24	Health and Safety Restrictions, Precautions and Monitoring	Not used
-	-	1/25	Temporary Closed Circuit Television (CCTV) System for the Monitoring of Traffic	Not used
1	**(Co)**	**1/26**	**Timber and Products Containing Wood Supplied Under the Contract**	**Included**
			SITE CLEARANCE	
1	**(Co)**	**2/0**	**General**	**Included**
1	**(Co)**	**2/1**	**Clearing**	**Included**
1	**(Co)**	**2/2**	**Existing Trees, Bushes and Hedges**	**Included**
-	-	2/3	Explosives and Blasting	Not used
1	**(Co)**	**2/4**	**Hazardous Materials**	**Included**
			FENCING	
-	-	3/1	General	Not used
1	**(Co)**	**3/2**	**Requirements for Temporary and Permanent Fences**	**Included**
1	**(Co)**	**3/3**	**Temporary Fencing**	**Included**
1	**(Co)**	**3/4**	**Timber Quality**	**Included**
1	**(Co)**	**3/5**	**Fittings**	**Included**
-	-	3/6	Permanent Fencing	Not used
-	-	3/7	Permanent Fencing for Accommodation Works	Not used
1	**(Co)**	**3/8**	**Gates and Stiles**	**Included**
-	-	3/9	Removing and Re-erecting Existing Fences and Gates	Not used
-	-	3/10	Not Used	Not used
-	-	3/11	Preservation of Timber	Not used
-	-	3/12	Painting of Timber Fences, Gates, Stiles and Posts	Not used
			DRAINAGE AND SERVIVE DUCTS	
1	**(Co)**	**5/1**	**Pipes for Drainage and for Service Ducts General**	**Included**

1	**(Co)**	**5/2**	**Excavation for Pipes and Chambers**	**Included**
1	**(Co)**	**5/3**	**Bedding, Laying and Surrounding of Pipes**	**Included**
1	**(Co)**	**5/4**	**Jointing of Pipes**	**Included**
1	**(Co)**	**5/5**	**Backfilling of Trenches and Filter Drains**	**Included**
1	**(Co)**	**5/6**	**Connecting to Existing Drains Chambers and Channels**	**Included**
-	-	5/7	Chambers	Not used
1	**(Co)**	**5/8**	**Gullies and Pipe Junctions**	**Included**
-	-	5/9	Testing and Cleaning	Not used
-	-	5/10	Surface Water Channels and Drainage Channel Blocks	Not used
-	-	5/11	Land Drains	Not used
-	-	5/12	Backfilling to Pipe Bays and Verges on Bridges	Not used
-	-	5/13	Permeable Backing to Earth Retaining Structures	Not used
-	-	5/14	Fin Drains	Not used
-	-	5/15	Narrow Filter Drains	Not used
-	-	5/16	Combined Drainage and Kerb Systems	Not used
-	-	5/17	Linear Drainage Channel Systems	Not used
-	-	5/18	Thermoplastics Structured Wall Pipes and Fittings	Not used
1	**(Co)**	5/19	**Concrete Bagwork**	**Included**
-	-	5/20	The Cleaning of Existing Drainage Systems	Not used
-	-	5/21	Low Pressure High Volume Jetting of Drainage Systems	Not used
			EARTHWORKS	
1	**(Co)**	**6/1**	**Classification, Definitions and Uses of Earthworks Materials**	**Included**
1	**(Co)**	**6/2**	**General Requirements**	**Included**
-	-	6/3	Forming of Cuttings and Cutting Slopes	Not used
-	-	6/4	Excavation for Foundations	Not used
-	-	6/5	Special Requirements for Class 3 Material	Not used
-	-	6/6	Watercourses	Not used
-	-	6/7	Explosives and Blasting for Excavation	Not used
-	-	6/8	Construction of Fills	Not used
-	-	6/9	Geotextiles and Geotextile-related Products Used to Separate Earthworks Materials	Not used
-	-	6/10	Fill to Structures	Not used
-	-	6/11	Fill Above Structural Concrete Foundations	Not used
-	-	6/12	Compaction of Fills	Not used
-	-	6/13	Sub-formation and Capping	Not used
-	-	6/14	Cement Stabilisation to Form Capping	Not used

-	-	6/15	Lime Stabilisation to Form Capping	Not used
-	-	6/16	Preparation and Surface Treatment of Formation	Not used
-	-	6/17	Use of Sub-formation or Formation by Construction Plant	Not used
1	**(Co)**	**6/18**	**Topsoiling**	**Included**
-	-	6/19	Earthwork Environmental Bunds	Not used
-	-	6/20	Landscape Areas	Not used
-	-	6/21	Strengthened Embankments	Not used
-	-	6/22	Earthworks for Reinforced Soil and Anchored Earth Structures	Not used
-	-	6/23	Earthworks for Corrugated Steel Buried Structures	Not used
-	-	6/24	Ground Anchorages	Not used
-	-	6/25	Crib Walling	Not used
-	-	6/26	Gabions	Not used
-	-	6/27	Swallow Holes and Other Naturally Occurring Cavities	Not used
-	-	6/28	Disused Mine Workings	Not used
-	-	6/29	Instrumentation and Monitoring	Not used
-	-	6/30	Ground Improvement	Not used
-	-	6/31	Earthworks Materials Tests	Not used
-	-	6/32	Determination of Moisture Condition Value (MCV) of Earthworks Materials	Not used
-	-	6/33	Determination of Undrained Shear Strength of Remoulded Cohesive Material	Not used
-	-	6/34	Determination of Intact Lump Dry Density (IDD) of Chalk	Not used
-	-	6/35	Los Angeles and Other Tests for Particle Soundness	Not used
-	-	6/36	Determination of Effective Angle of Internal Friction (ϕ/) and Effective Cohesion (c/) of Earthworks Materials	Not used
-	-	6/37	Determination of Resistivity (rs) to Assess Corrosively of Soil, Rock or Earthworks Materials	Not used
-	-	6/38	Determination of Redox Potential (Eh) to Assess Corrosively of Earthworks Materials for Reinforced Soil and Anchored Earth Structures	Not used
-	-	6/39	Determination of Coefficient of Friction and Adhesion between Fill and Reinforcing Elements or Anchor Elements for Reinforced Soil and Anchored Earth Structures	Not used
-	-	6/40	Determination of Permeability of Earthworks Materials	Not used
-	-	6/41	Determination of Available Lime Content of Lime for Lime Stabilised Capping	Not used
-	-	6/42	Determination of the Constrained Soil Modulus (M*)	Not used

			of Earthworks Materials for Corrugated Steel Buried structures	
-	-	6/43	Lime and Cement Stabilisation to Form Capping	Not used
-	-	6/44	Determination of Sulphate Content	Not used
			ROAD PAVEMENTS	
1	**(Co)**	**7/0**	**General**	**Included**
-	-	7/1	Pavement Construction	Not used
-	-	7/2	Horizontal Alignments, Surface Levels and Surface Regularity of Pavement Courses Horizontal Alignments	Not used
-	-	7/3	Not used	Not used
-	-	7/4	Not used	Not used
-	-	7/5	Not used	Not used
-	-	7/6	Excavation, Trimming and Reinstatement of Existing Surfaces	Not used
-	-	7/7	Breaking Up or Perforation of Redundant Pavement	Not used
-	-	7/8	Not used	Not used
1	**(Co)**	7/9	**Cold-milling (Planing) of Bituminous Bound Flexible Pavement**	**Included**
-	-	7/10	Testing for Constituent Materials in Recycled Aggregate and Recycled Concrete Aggregate	Not used
-	-	7/11	Overband and Inlaid Crack Sealing Systems	Not used
-	-	7/12	Maintenance of Arrester Beds	Not used
-	-	7/13	Saw-cut and Seal Bituminous Overlays on Existing Jointed Concrete Pavements	Not used
1	**(Co)**	7/14	**Preparation of Jointed Concrete Pavements Prior to Overlaying and Saw-cut and Seal of the Bituminous Overlays**	**Included**
-	-	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 Hydraulically Bound Mixture (HBM) Bases	Not used
-	-	7/17	Monitoring of Cracked and Seated Jointed Unreinforced Concrete Pavements and HBM Bases using the Falling Weight Deflectometer (FWD)	Not used
-	-	7/18	Monitoring of Saw-cut, Cracked and Seated Jointed Reinforced Concrete Pavements Using the Falling Weight Deflectometer (FWD)	Not used
-	-	7/19	Back-analysis of Falling Weight Deflectometer (FWD) Measurements Made on Concrete Pavements Treated by Fractured Slab Techniques	Not used

			KERBS, FOOTWAYS AND PAVED AREAS	
1	**(Co)**	**1100/1**	**Precast Concrete Kerbs, Channels, Edgings and Quadrants**	**Included**
-	-	1100/2	In-Situ Asphalt Kerbs	Not used
-	-	1100/3	Freestanding In-Situ Concrete Kerbs, Channels and Edge Details	Not used
-	-	1100/4	Footways and Paved Areas (Precast Concrete Flags and Natural Stone Slabs)	Not used
1	**(Co)**	**1100/5**	**Footways and Paved Areas (Flexible Surfacing)**	**Included**
-	-	1100/6	Footways and Paved Areas (In-Situ Concrete)	Not used
-	-	1100/7	Footways and Paved Areas (Concrete Block Paving)	Not used
-	-	1100/8	Footways and Paved Areas (Clay Pavers)	Not used
-	-	1100/9	Grass Concrete Paving	Not used
-	-	1100/10	Access Steps	Not used
			TRAFFIC SIGNS	
-	-	1200/1	Regulations, Sign Classification and Standards	Not used
1	**(Co)**	**1200/2**	**General Requirements for Permanent Traffic Signs**	**Included**
1	**(Co)**	**1200/3**	**Foundations for Permanent Traffic Signs and Signals**	**Included**
1	**(Co)**	**1200/4**	**Posts for Permanent Traffic Signs**	**Included**
-	-	1200/5	Sign Plates for Permanent Traffic Signs	Not used
-	-	1200/6	Faces for Permanent Traffic Signs	Not used
-	-	1200/7	Construction and Assembly of Permanent Traffic Signs	Not used
1	**(Co)**	**1200/8**	**Location and Erection of Permanent Traffic Signs**	**Included**
-	-	1200/9	Covering of Permanent Traffic Signs	Not used
-	-	1200/10	Permanent Bollards	Not used
-	-	1200/11	Permanent Marker Posts	Not used
1	**(Co)**	**1200/12**	**Road Markings**	**Included**
-	-	1200/13	Road Studs	Not used
-	-	1200/14	Traffic Cones, Traffic Cylinders, Flat Traffic Delineators and Other Traffic Delineators	Not used
-	-	1200/15	Road Danger Lamps and High Intensity Flashing Beacons	Not used
1	**(Co)**	**1200/16**	**Temporary Traffic Signs**	**Included**
-	-	1200/17	Traffic Signals	Not used
-	-	1200/18	Detector Loops	Not used
-	-	1200/19	Controlled and Un-controlled Crossings	Not used

-	-	1200/20	Traffic Signs on Gantries	Not used
-	-	1200/21	Preparation and Finish of Metal and Other Surfaces	Not used
			LANDSCAPE AND ECOLOGY	
-	-	3000/01	General	Not used
-	-	3000/02	Weed Control	Not used
-	-	3000/03	Control of Rabbits and Deer	Not used
-	-	3000/04	Ground Preparation	Not used
1	**(Co)**	3000/05	Grass Seeding, Wildflower Seeding and Turfing	**Included**
-	-	3000/06	Planting	Not used
-	-	3000/07	Grass, Bulbs and Wildflower Maintenance	Not used
-	-	3000/08	Watering	Not used
-	-	3000/09	Establishment Maintenance for Planting	Not used
-	-	3000/10	Maintenance of Established Trees and Shrubs	Not used
-	-	3000/11	Management of Waterbodies	Not used
-	-	3000/12	Special Ecological Measures	Not used

List ‘B’, this gives the list of Regional/Site specific numbered Appendices devised for the Contract with page numbers showing where they are to be found.

Volume No	Appendix No	Appendix Title	Page Number
(None)			

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

1. Contract-specific Drawings Supplied to the Tenderer

Drawing No. 5049/GWI	Title		
LOC/001	Location plan		
GA/001	General Arrangement 1 of 8		
GA/002	General Arrangement 2 of 8		
GA/003	General Arrangement 3 of 8		
GA/004	General Arrangement 4 of 8		
GA/005	General Arrangement 5 of 8		
GA/006	General Arrangement 6 of 8		
GA/007	General Arrangement 7 of 8		
GA/008	General Arrangement 8 of 8		
GA/009	Approach improvements to Commonfield Road		
TCS/001	Typical cross section 1		
TCS/002	Typical cross section 2		
TCS/003	Typical cross section 3		
TCS/004	Typical cross section 4		
TCS/005	Typical cross section 5		
TH/001	Trial hole location plan1		
TH/002	Trial hole location plan 2		
TH/003	Trial hole location plan 3		

2. Standard Drawings

2.1 Supplied to Contractor/'Partner'

Drawing No.	Title	Aspect required if not whole Drawing
500/001	Pipes under paved areas	
500/004	Road and footpath gully details	
500/009	Lined ditches and outfalls	
500/012	Headwall Type 3	
900/003	Carriageway haunching	
1100/001	Kerbs and channels	
1100/013	Footways, cycleways and verges	
1200/001	Traffic signs	

2.2 Inspected by the Contractor

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

Drawing No.	Title	Aspect required if not whole Drawing
(None)		

2.3 Brought into the Contract by Reference

HCD published by The Stationery Office (formerly HMSO) as Volume 3 of the Manual of Contract Documents for Highway Works contains the following drawings brought into the Contract by reference. Unless otherwise stated below the whole drawing is brought into the Contract.

Drawing No	Title	Date	Aspect / Alternative(s) required if not whole Drawing
(None)			

PRELIMINARIES

APPENDIX 1/1: TEMPORARY ACCOMMODATION AND REQUIREMENTS FOR THE OVERSEEING ORGANISATION

No temporary accommodation or equipment for the Overseeing Organisation is required; however the Contractor shall allow access to his facilities as appropriate.

APPENDIX 1/4: STANDARDS, QUALITY MANAGEMENT AND ACCEPTANCE

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Standards and CE markings

Where there is a requirement in this specification for compliance with any part of a "British Standard" or other technical specification, that requirement may be met by compliance with:

(a) a standard or code of practice of a national standards body or equivalent body of any EEA state or Turkey;

(b) any international standard recognised for use as a standard or code of practice by any EEA state or Turkey;

(c) a technical specification recognised for use as a standard by a public authority of any EEA state or Turkey; or

(d) a European Technical Assessment issued in accordance with the procedure set out in regulation (EU) No 305/2011 provided that the relevant standard imposes an equivalent level of performance and safety provided for by the stated Standard or technical specification. "EEA State" means a state which is a contracting party to the European Economic Area Agreement. "British Standard" means any standard published by the British Standards Institution including adopted European or other international standards.

Construction products which are produced for incorporation in a permanent manner in the works and are covered by a harmonised European standard or European Technical Approval or Assessment must have the product performance required by the specification for the intended use declared under the Declaration of Performance and be CE marked in accordance with the relevant British adopted European standard or European Technical Approvals or Assessments and the regulation (EU) No 305/2011. Unless otherwise described in the specification, the declared performance of the product shall meet the required performance of all the essential characteristics required by the specification. Declarations of performance required by the above regulation shall be provided to the Overseeing Organisation prior to installation or use or procurement or supply of the product.

Quality Management

1. The Contractor shall institute and operate a quality management system complying with BS EN ISO 9001: 2000 and Clause 104. The quality management system shall be described in a Quality Plan that shall be submitted to the Overseeing Organisation for its acceptance.
2. The Quality Plan shall cover the following items:
   (i) Contractor's organisation and management

(ii) Contractor's method statements and construction procedures

(iii) Contractor's construction quality control

(iv) Suppliers' Quality Plans (for each of the quality management schemes listed in Appendix A of the Specification of Highway Works)

3. Quality Plans shall conform to the requirements tabulated in this Appendix, as follows:

CONTRACTOR'S ORGANISATION AND MANAGEMENT

This section of the Quality Plan shall include:

A. Definition of the Contract and its documentation.

B. The organisation of the Contract, including the line of command and communication links between parties involved in the Contract.

C. Names, roles, responsibilities and authority of principals and key personnel.

D. Control of liaison and meetings with third parties.

E. Identification of the contractor's own staff responsible for overseeing each major activity.

F. The main Contractor's control of sub-contracts.

G. Document control.

H. Programme for submission of method statements and Suppliers' Quality Plans.

The Quality Plan shall identify procedures (which may be part of the Contractor's general procedures) that cover the topics listed below. Copies of these procedures shall be made available to the Overseeing Organisation on request.

I. The quality plans for sub-contractors and suppliers of work, goods and materials, which are the subject of quality management schemes.

J. Procedure for the preparation, review and adjustment of programmes for the effective progression of the Works and the recording of this.

K. Control and approval of purchases of materials.

L. Control of off-site activities (where appropriate).

M. Procedures for the regular review and recording by the Contractor of the quality of the Works.

N. Control of personnel selection, based on their care, skill and experience.

O. Management review/audits to monitor and exercise adequate control over the implementation of the quality plan.

P. Any other relevant item.

CONTRACTOR'S METHOD STATEMENTS AND CONSTRUCTION PROCEDURES

This section of the Quality Plan shall include:

A. Detailed method statements for each major activity whether directly controlled or subcontracted.

The method statements shall identify hold points and invoke:

- work instructions
- quality control procedures
- environmental control procedures
- CDM procedures
- compliance testing/inspection arrangements
- and work acceptance procedures

For all activities that might affect the quality of the permanent and temporary works

B. Identify the relevant construction procedures in the Contractor's own Quality Management System (and provide copies on request).

CONTRACTOR'S CONSTRUCTION QUALITY CONTROL

This section of the Quality Plan shall include:

A. Statement of the Contractor's organisation for quality control.

The quality plan shall identify procedures (which may be part of the Contractor's general procedures) that cover the topics listed below. Copies of these procedures shall be made available to the Overseeing Organisation on request.

B. Arrangements for 'receiving' and 'in-process' testing.

C. Control of test laboratories.

D. Control of test, measuring and inspection equipment.

E. Document control.

F. Procedure for monitoring and recording the inspection, test and approval status of the constructed/installed work.

G. Procedures for tests and inspections for the purpose of the Contractor certifying that prior to covering up, each part of the Works is complete and conforms to the Contract.

H. Procedure for the review of work submitted for review but not accepted as conforming to the Contract.

I. Procedure for the collation of quality records as identified in BS EN ISO 9001 : 2000 and provision of copies when requested by the Overseeing Organisation.

SUPPLIERS' QUALITY PLANS

This section of the Quality Plan shall include:

A. Definition of the product or service to be provided.

B. The organisation of the Supplier describing the line of command and stating the name of the senior manager responsible for the contracted Work and the name of the Suppliers' on-site management representative. Contact addresses telephone numbers etc. shall be provided.

C.* Identification of the relevant parts of the Suppliers' quality system relevant to the product or service being provided. (Copies to be provided to the Overseeing Organisation on request).

D. The control of personnel selection (at works and on site), including special requirements for skilled personnel e.g. certification of welders, training of operatives, experience requirements etc.

Specific procedures for the following:

E.* Receipt and examination of certificates of conformity and test results for purchased products.

F.* Product identification and traceability.

G.* Handling, storage, packaging and delivery to Site and storage and handling on Site.

H. Quality records.

Items marked * Where available and appropriate, copies of the Suppliers' quality system/general procedures may be acceptable

4. Item (i) and (iii) above of the Quality Plan shall be submitted to the Overseeing Organisation for its acceptance not later than 21 days prior to the Commencement date.

5. The Contractor shall submit other parts of the Quality Plan prior to commencement of any related work or activity and to a timetable included in item (i) above.

6. Method statements are required for all principal work activities. Attention is drawn to the works listed below and as highlighted in the Pre-Construction Information (Health and Safety):

   (i) site clearance

   (ii) pavement construction

   (iii) drainage

   (iv) handling and storage of diesel / oil / petrol

   (v) removal and erection of street lighting and traffic signs

Provision of Information

Where information and documentation regarding works, goods or materials is required to be submitted to the Overseeing Organisation for acceptance the Contractor shall submit such documentation in a timescale to meet the requirements of the Contractor's programme of works. The Contractor shall liaise with the Overseeing Organisation to ensure that adequate time is allocated for the Overseeing Organisation to undertake the required assessments for acceptance. The time allocated for acceptance shall not be less than four weeks.

Unless otherwise specified, two copies of all information and documentation, including valid certificates, in respect of work, goods or materials proposed by the Contractor shall be supplied to the Overseeing Organisation in English.

Where the Contractor proposes to use an equivalent standard, quality management scheme, product certification scheme, industry product acceptance scheme, or type approval/registration to that specified the Contractor shall provide relevant information to enable the Overseeing Organisation to ascertain whether or not the proposal is equivalent to the specified requirement. The information provided by the Contractor shall provide full disclosure and appropriate evidence regarding the works, goods or materials concerned in order to fully demonstrate equivalent levels of safety, performance and fitness for purpose. For products within the scope of the Construction Products Regulation this documentation would be the relevant Declaration of Performance and associated CE mark for the intended specified use.

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

All testing shall be undertaken by a UKAS accredited laboratory.

The Contractor shall be responsible for ensuring compliance with the Specification (clause 105) and shall, at his own discretion and cost, carry out any testing that the Contractor considers necessary to ensure compliance.

On occasion the Overseeing Organisation may arrange for its own laboratory to take samples and carry out testing of materials. The Contractor shall allow such samples to be taken. Given that the amount taken for a sample is likely to be minimal, no additional payment will be made for the material taken.

Where required a test certificate complying with the provisions of the relevant standard or specification where applicable and certifying that the goods or material have been tested and meet the specified requirements, shall be supplied to the Overseeing Organisation by the Contractor at least four weeks prior to the incorporation of the goods or materials in the works.

APPENDIX 1/7: SITE EXTENT AND LIMITATIONS ON USE

General

The extent of the Site (*boundaries of the site*) is shown on drawing no. 5049/GWI/LOC/001. The limits of working areas shall be agreed with the Overseeing Organisation as work proceeds. Adequate fencing shall be erected to define the limits, restrict construction plant and protect the public. Highway outside the limits of the Site is affected by the Works and requires traffic management (see Appendix 1/17).

Limitations on the Use of the Site

The Contractor shall obtain the approval of the Overseeing Organisation to the siting of all huts, equipment, stacks or heaps and such approval will only be given when the Overseeing Organisation is satisfied that no danger to the public or interference with private land will be caused.

On completion of the Contract, all huts, equipment etc. shall be removed and the ground made good to the satisfaction of the Overseeing Organisation.

The condition of all tracks, paths, grassed areas fences and gates in and adjacent to the Site shall be agreed with the Overseeing Organisation and recorded before work starts. Surfaces, fences and gates shall be reinstated to their former condition on completion of the Works.

The Contractor shall at all times keep the area of the Works in a safe, clean and passable state. All waste or superfluous material shall be cleared away by the Contractor as the Works proceed.

Clearance of Site and Removal of Debris etc.

The Contractor shall obtain the written permission of the Overseeing Organisation before using the surface of carriageways, footways, verges or driveways for storing, mixing or preparing any materials used in the execution of the Works. The location and duration of material storage shall be agreed with the Overseeing Organisation. The Contractor shall, at his own expense, ensure that such areas are kept free from staining, mud, debris and damage. On completion of the Works, the Contractor shall clear away and remove all his equipment and rubbish of every kind and leave the whole of the Site and Works in a condition to the satisfaction of the Overseeing Organisation.

Environmental Management

In all operations the Contractor shall have regard to factors that may affect the environment and shall, notwithstanding the other requirements of the Contract, seek to carry out all operations in a manner that will have minimal adverse impact on the environment.

There shall be no parking or depositing of equipment or materials on:

- Local or designated areas of environmental or ecological interest
- Local/public areas including FBC centre and California Country Park
- Land not within Council ownership.

Fires

The Contractor shall not light fires on Site without the prior written permission of the Overseeing Organisation.

Storage, Offices and Equipment

The Contractor is to find a suitable location for the site offices and compound, and shall obtain written approval from the Overseeing Organisation for the siting of the above prior to the commencement of the works and such approval will only be given when the Overseeing Organisation is satisfied that no danger or limitation of sight lines will be caused**.** On completion of the Contract, the Contractor is to make good their site compound to the satisfaction of the Overseeing Organisation (any topsoiling or grass seeding shall comply with Appendices 6/8 and 30/1). The location of the site compound will be discussed during the design and planning and mobilisation period.

Overnight parking of equipment will not be allowed within the highway boundary, unless agreed otherwise by the Overseeing Organisation.

Cleanliness

The Contractor shall, at all times, keep roads, streets, private entrances, verges, paths, footways, drains and sewers in a safe, clean and passable state. The Contractor shall clear all waste or superfluous material away as the Works proceed.

The Overseeing Organisation shall have the authority to close any site, if such a substance is not promptly removed by the Contractor, and any losses or expenses incurred as a result shall be borne by the Contractor.

The loading or unloading of materials will only be permitted during permitted working hours Monday to Friday, or during weekend permitted working hours according to Appendix 1/13. At no time during the loading or unloading of materials shall the Contractor obstruct the free flow of traffic. In addition, the Contractor shall not cause an obstruction to the footway / cycleway unless they have been temporarily closed off and pedestrians / cyclists have been diverted.

All roads are to be reopened within the periods detailed in Appendix 1/13.

The Contractor shall ensure that any necessary planning consent for land to be used for tipping has been given by the Local Authority concerned (i.e., waste transfer licence).

Any material / equipment at all times stored on site shall be stored in accordance with the Control of Pollution Regulations (2001).

Site Extents

The contractor shall be responsible and liable for the area of works shown on drawing no. 5049/GWI/LOC/001

APPENDIX 1/9: CONTROL OF NOISE AND VIBRATION

The Contractor shall comply with the recommendations for practical measures to reduce noise set out in BS 5228: Noise and Vibration Control on Construction and Open Sites: 2009: Parts 1 & 2 and with any specific requirements stated in contract specific Appendix 1/9.

The Contractor shall comply with any specific requirements for the control of vibration stated in contract specific Appendices 1/9, 2/4, 6/3, 6/13 and Clause 607.

The Contractor shall carry out the measurement and monitoring of construction noise and vibration effects as detailed in contract specific Appendix 1/9. Volume 1 Series 100 Specification for Highway Works Preliminaries (05/14)

The Contractor shall limit vibration levels arising from the site activities to the levels stated in contract specific Appendix 1/9. Tracked plant shall be prohibited from travelling within 6m of buildings.

Unless otherwise detailed in contract specific Appendix 1/9 the levels of vibration shall be monitored by the Contractor using an approved vibration meter plus a graphical level recorder, a record of this shall be provided to the Overseeing Organisation within 24 hours. Vibration control stations will be at locations as detailed in contract specific Appendix 1/9.

1. The Local Authority has agreed that the following measures would be acceptable to it and these are given as a guide. However, it is for the Contractor to seek the Local Authority's formal consent to his methods of work and to the steps he proposes in order to minimise noise.

Wokingham Borough Council
Environmental Health Department
Council Offices
Shute End
Wokingham RG40 1WW
Tel No. **0118 974 6382/6364**

2. The Contractor shall notify the Local Authority, within one week of the Date of Commencement of the Works, of the name, address and telephone number of an employee who will be available to respond, outside of normal office hours, to complaints arising from any alleged excessive sound emissions.
3. The normal working hours within the site shall be as per Appendix 1/13 with no works undertaken during the non-working periods and on public holidays. Exceptionally consent for work outside these hours may be given after any necessary consultation. Seven days prior notice is required from the Contractor when seeking such consent.
4. The noise levels, scheduled below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working.
5. Compliance with this appendix shall not relieve the Contractor of any of his obligations and liabilities under legislation, or the requirements of the Local Authority.
6. The Contractor's attention is drawn to the Control of Pollution Act 1974: it is for the Contractor to decide whether to seek the relevant Local Authority's formal consent to his methods of work and to the steps he proposes in order to minimise noise.
7. The Contractor shall comply with the general requirements of BS 5228-1 : 1997 and BS 5228-2 : 1997. The Contractor shall make every effort to minimise noise when choosing plant and methods of working.
8. The ambient noise level Leq, refer Note (ii), from all sources when measured 1.2 to 1.5m above the ground at any point 1m from any noise sensitive façade adjacent to the site shall not exceed the appropriate level given in the schedule or not exceed by more than 3dB (A) the existing ambient noise level Leq, refer Note (iii), measured over the same period, whichever is the greater. Exceptionally the Contractor may be given permission to carry out works which exceed the noise levels in the schedule, provided that 14 days notice of the date and timing of these works is given to the Overseeing Organisation and the Contractor demonstrates that he intends to take all reasonable measures to mitigate the noise nuisance. After consultations with the Local Authority and any other interested bodies a decision will be given within seven days of receipt of the notice.
9. All compressors shall be "sound reduced" models Hydrovane or similarly approved fitted with properly lined and sealed acoustic covers which shall be kept closed when the machines are in use, and all ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers. A maximum of two compressors in any one $100m^2$ area will be permitted.
10. All vehicles and mechanical plant used for the purpose of the works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order so that extraneous noise from mechanical vibrations, squeaking, hissing, etc. shall be reduced to a minimum.
11. Machines in intermittent use shall be shut down in the intervening periods between works or throttled down to a minimum.

SCHEDULE: Total Noise Levels at Control ~Stations			
Period	**Hours**	**Leq (t)**	**Max. sound level - See Note (iii)**
Mon to Sun	0700-1900	72 dB (A) - (12hr)	85 dB (A)
Night Work (Mon to Sun)	1900-0700	50 dB (A) - (5 min)	55 dB (A)

Notes:

(i) Noise levels relate to free field conditions, where noise control stations are located one metre from the facades of buildings.

(ii) The ambient noise level, Leq, at a noise control station is the total Leq from all the noise sources in the vicinity over the specified period.

(iii) The existing ambient noise level, Leq,at a noise control station is the total Leq from all the noise sources in the vicinity over the specified period prior to the commencement of the site works.

(iv) Maximum sound level is the highest value indicated on a sound level meter which meets the requirements of BS EN 60651 type 1 or 2 set to SLOW response and frequency weighting A or on an integrating averaging sound meter to BS EN 60804.

Vibration

12. The Contractor shall also normally limit vibration levels arising from site activities at any residential building between 08:00 and 18:00 hours weekdays 08:00 to 13:00 hours Saturdays to a peak particle velocity of 1.5mm/seconds in the vertical direction. No detectable vibration is permitted in such buildings at any other time. Exceptionally for short periods not exceeding 2 hours in any weekday, vibration levels of up to 2mm/sec may be permitted at the discretion of the Environmental Health Officer. Where vibration occurs, reference should be made to ISO 2631 - Whole Body Vibration and BS 6472 : 1992 Evaluation of Human Response to Vibration in Buildings.

APPENDIX 1/10: INFORMATION BOARDS

The Contractor shall, within four weeks of the date for the commencement of the works provide and erect information boards at the locations and to the specification given in contract specific Appendix 1/21. The Contractor shall ensure that they are kept clean and maintained in a safe and legible condition and remove them on completion of the works

One month prior to the commencement of work on site, the Contractor shall provide and erect information boards as detailed below.

The layout of the sign face is to be in accordance with Sign WBM 298 (P7007) (Chapter 8 (2006). The 'x'-heights of the signs are to be as shown in the table in Interim Advice Note 4/93 Information Board Trunk Roads or Motorway Opening.

The Scheme name is '**Greenways Phase 1'.**

Information Boards shall be located on the verges in each direction on the approach to the Site, in positions to be approved by the Overseeing Organisation.

The Contractor shall design, provide, install and maintain additional information boards as necessary throughout the construction period necessitated by his construction sequences or phasing of the Works.

The location and size of any Contractor's or Sub-Contractor's own sign boards shall be subject to the Overseeing Organisation's written approval.

The Contractor shall remove all scheme information boards including any Contractor's or Sub-Contractor's own sign boards immediately at the end of the Contract or at any time.

APPENDIX 1/11: EXISTING GROUND LEVELS

The Contractor shall satisfy himself that the existing ground levels as described in contract specific Appendix 1/12 are correct. Should the Contractor wish to dispute any levels he shall submit to the Overseeing Organisation a schedule of the position of the levels considered to be in error and a set of revised levels. The existing ground relevant to the disputed levels shall not be disturbed before the correct levels are determined

APPENDIX 1/12: SETTING OUT AND EXISTING GROUND LEVELS

The Contractor shall, unless otherwise stated in contract specific Appendix 1/12, within 3 weeks of the date for commencement of the works, carry out a check of the co-ordinates and levels of all permanent ground markers and permanent bench marks described in Appendix 1/12 and shall supply the Overseeing Organisation, if requested, with their position and level in order that they may be checked and revised if necessary. The Contractor shall identify and bring to the attention of the Overseeing Organisation any markers that are missing. The Contractor shall comply with any specific requirements for setting out described in contract specific Appendix 1/12.

The Contractor shall keep updated schedules and drawings of all bench marks (which shall be based on Ordnance Datum at Newlyn) used in the setting out and shall make these available to the Overseeing Organisation when required

The Contractor shall survey and record existing details of items which he is required to remove and subsequently replace. The level of survey information to be recorded is described in contract specific Appendix 1/12.

The Contractor shall position any additional master stations as he feels necessary to comply with his proposed setting out programme. These additional stations shall be co-ordinated and levelled and agreed with the Project Manager before incorporating into the overall setting out data for the Contract.

Setting out of any part of the works shall not be completed until the Contractor has agreed with the Project Manager the values of all Permanent Markers including any which the Project Manager has replaced.

The Contractor shall meet with the Overseeing Organisation to discuss his requirements for setting out 2 weeks prior to starting work on site.

Existing ground levels are related to the general arrangements (GWI series). The method of setting out is related to a system of co-ordinated survey markers, based on a local grid

This information is provided without warranty and the Contractor shall establish survey control stations necessary for the satisfactory setting out of the works.

The Contractor shall be responsible for all setting out.

APPENDIX 1/13: PROGRAMME OF WORKS

1. Subject and without prejudice to the Conditions of Contract, the programme which the Contractor submits to the Overseeing Organisation shall comply with the constraints imposed by the Contract and specific requirements stated in contract specific Appendix 1/13. The Contractor shall update the programme as necessary. The programme and subsequent revisions of the programme 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
2. The Contractor shall provide a fully linked Microsoft Project/Primavera electronic Programme of Works (in accordance with Clause 31 of the NEC ECC form of contract) in the 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.

3. At the time of presentation of the Programme the Contractor shall also provide a general description of the arrangements and methods of construction accompanied by a schedule of all labour and plant resources which the Contractor proposes to adopt for each activity or task.
4. Traffic Orders - Temporary works permit will be required for works on the highway from Wokingham Borough Council Street Works 8 weeks prior to the works the contractor to make all necessary submissions and arrangements for the permit(s).

Operation	Permitted Working Hours
Construction of the works	08:30hrs – 18:00hrs Monday to Friday 08:30hrs – 13:00hrs Saturday

APPENDIX 1/14: PAYMENT APPLICATIONS

1. The Contractor shall submit to the Overseeing Organisation after the end of each month in accordance with an agreed timetable, a summary statement showing the estimated value of all works executed that month.
2. The summary statement shall separately identify the following:-
   (i) Value of facilities for service provision of Contractors offices, messes and stores up to the end of each month, if appropriate.
   (ii) Value of work completed on the Fixed Cost Works Order up to the end of that month.
3. Each payment invoice shall include the following information:-
   (i) Works order reference number.
   (ii) The Originator of the works order.
   (iii) Location of works.
   (iv) Nature and extent of works.
   (v) The start and finish date.
   (vi) Item description
   (vii) Total quantity for each item
   (viii) The invoice shall also specify the Contractors registration number for the value added tax and the amount of value added tax payable in respect of the sum payable.
   (ix) Total value for the works order.
4. Where the Employer is to withhold payment, the Employer shall notify the Contractor in a format to be agreed with both parties, not less than 7 days before the final date for payment specifying the grounds for withholding payment.
5. Each statement shall also list any matters relating to Compensation Events.
6. The Contractor shall permit the Overseeing Organisation to inspect invoices for goods and materials included in the statement and shall provide details of the plant and labour required to undertake each works order on request.
7. Information contained in the Bill of Quantities is not Works Information or Site Information.

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

The Contractor shall satisfy himself as to the exact position of Statutory Undertakers and other publicly and privately owned services or supplies affected by the works.

The Contractor shall, during the progress of the works take all measures required by any Statutory Undertaker or the management of other publicly or privately owned services or supplies, for the support and full protection of all such services or supplies.

Where privately or publicly owned services or supplies affected by the works are subject to alteration, removal or addition, the Contractor shall be responsible for all arrangements with the owners and/or their agents for the execution and phasing of such works in accordance with his programme. Details of such work, preliminary arrangements made by the Overseeing Organisation, and/or any orders already placed are given in contract specific Appendix 1/16.

No services or supplies shall be interrupted without the written consent of the appropriate authority or owner, and the Contractor shall provide a satisfactory alternative before interrupting any existing service or supply, unless otherwise stated in contract specific Appendix 1/16.

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

APPENDIX 1/17: TRAFFIC SAFETY AND MANAGEMENT

Definition of Terms

Traffic Management Operation: A traffic management operation consists of those activities necessary to implement, assemble, maintain, alter or remove a traffic management system.

Traffic Management System: A traffic management system is the method chosen to direct traffic through or around the site to facilitate construction of the permanent works.

Traffic Management Equipment: Traffic management equipment consists of all signs and their covers, traffic signals, cones, cylinders, stud, barriers, road markings and lights including their support, fixing and any cabling, joints, connectors, gas/electric supply, weighting down and any other equipment for the Traffic Management System.

Working Area: Works area shall in addition to the definition in Paragraph 1.2.4 of Chapter 8 of The Traffic Signs Manual mean the area occupied by the Contractor at any time for the purpose of constructing the permanent works.

Works Traffic: Works traffic shall mean the vehicles and plant that are required within the working area for the purposes of constructing the permanent works.

Safety Zone: Safety Zone shall be as defined in Paragraph 1.2.4 of Chapter 8 of The Traffic Signs Manual.

Publications

1. The Contractor shall comply with the requirements and advice given in Chapter 8 of the Traffic Signs Manual 2006, the site specific requirements detailed and referred to in this Appendix and Safety at Street Works and Roadworks – A Code of Practice.

Responsibility for Traffic Safety and Management

2. The Contractor is responsible for the traffic safety and management and associated work as described in Clause 117 and in this Appendix. This does not relieve the Contractor of his obligations and liabilities under the Contract and under relevant provisions of the Highways Act.
3. In the interest of the safety of the workforce and the public traffic management works are only to be undertaken by accredited traffic management companies in accordance with Appendix A of

the Specification for Highway Works: Volume 1 with an up to date Quality Assurance Certificate as identified in BS EN ISO 9002. This is to be made available to the Overseeing Organisation so that the company may be approved.

4. The Contractor shall take particular care with the siting of all huts, plant, equipment, materials, and stacks or heaps within the highway boundaries, in order that no danger or limitation of sight lines will be caused.

5. Until the issue of the Finish Certificate the Contractor shall be responsible for maintaining all lengths of the highway. He shall ensure that such lengths and highway approaches are swept clear of debris from any source to the satisfaction of the Overseeing Organisation .

6. The Contractor is to ensure that his traffic management proposals shall include for all necessary works traffic manoeuvres within the working area.

Traffic Management Requirements

7. Traffic management layouts shall comply with the following:

   The recommendations contained in Chapter 8 of the Traffic Signs Manual published by The Stationary Office

Planning

19. The Contractor shall submit Traffic Management details to the Overseeing Organisation at least 7 days prior to implementation of any traffic management measures (2 weeks if traffic signals, traffic orders or authorisation of non-prescribed signs are required). The submission shall include the traffic management drawings which shall take into account the following:

    (a) These proposals shall be on drawings to a scale not less than 1/2500, supplemented by drawings at 1/1000 or 1/500 scales as necessary. The Contractor shall also provide all drawings required when a traffic order has to be made.

    (b) Drawings showing traffic management layout to include:

        (i) Position of temporary traffic signals and signs

        (ii) Width of lanes

        (iii) Working areas

        (iv) Safety zones

        (v) Provisions for pedestrians and equestrian traffic as required

        (vi) Diversion routes/signing

        (vii) Road lighting requirements

Working Hours

20. The permitted working hours will be as specified in Appendix 1/13

21. No plant or materials are to be delivered to the site outside these working hours

22. No materials or equipment will be stored on the public highway.

Safety

23. The Overseeing Organisation shall have the unqualified right to instruct work persons and/or sub-contractors on any matter relating to traffic safety and management including their immediate removal from site.

24. All the Contractor or Sub-Contractor's personnel shall wear at all times on site, high visibility fluorescent garments in compliance with Clause 117.18.

25. In accordance with Clause 117.17, the Contractor shall provide and suitably sign points of entry to and exit from the Site, for vehicles and plant engaged on the Works.

26. The Contractor shall impose a 15-mph speed limit on all Contractor's vehicle and plant movements within the working area. Notices drawing drivers' attention to the speed limit shall be posted at all entrances to the working area and at regular intervals along the working area.

27. All hazards within a coned off area are to be signed with lane closure barriers, cones and flashing lamps unless protected by a safety fence.

28. The Contractor shall take preventative measures to prevent nuisance and danger from dust. Measures may include damping-down by spraying with water from a mobile bowser.

29. The Contractor shall provide in writing, for the approval of the Overseeing Organisation, written general proposals for traffic management measures. The proposals are to be accompanied with a general description of the arrangements and methods of construction, which the Contractor intends to adopt for the carrying out of the works. A copy of the approved proposals and the detailed traffic management proposals and programme as detailed in 'Phasing of Works' and 'Programme' of this Appendix shall be kept on site at all times for inspection by the Overseeing Organisation.

Safety Zones

30. The safety zones shall not be entered or encroached on by materials, plant or anything else being used in connection with the work except for:

    (i) Traffic management related operations and equipment,

    (ii) Where identified within the Risk Assessment together with the approval of the CDM Co-ordinator, and

    (iii) Vehicles entering or leaving the area.

31. The Contractor shall allow for the occasional use of the safety zone by broken down vehicles, which would otherwise impede the flow of traffic past the works, or in an emergency when required by the Overseeing Organisation or Police to divert traffic past an obstruction in a trafficked lane. Broken down vehicles belonging to the Contractor or Sub-Contractors are to be removed from site by the Contractor within 4 hrs of the breakdown occurring.

32. Unless otherwise stated, where the Contractor is working adjacent to an existing public road or diversion of a public road, a safety zone of 0.5m minimum shall be used.

Works Traffic

33. All vehicles shall move into and out of the Works travelling in the direction of traffic flows. Vehicles shall only enter or leave coned off areas at approved access or egress points. Non essential vehicles, particularly private cars, shall not enter a coned off area (except when such areas are designated as residents parking areas and cars are displaying appropriate authorisation).

34. Site vehicles are not to be parked on verges or cause a nuisance to residents.

35. With the exception of vehicles operated by the Emergency Services, vehicles entering the Working Area shall be only vehicles that are essential for the purpose of carrying out the Works. Any vehicle deemed by the Overseeing Organisation to be non-essential (especially private cars), and any vehicle not complying with the requirements of this paragraph shall not be permitted to remain within the working area. If necessary, the Contractor shall provide and maintain an area off site for the long term parking of his employees' and his sub-contractor employees' private vehicles. The location of any parking area shall be subject to the Overseeing Organisation's prior approval. The Contractor shall arrange transport, if necessary, for his employees and his sub-contractors employees between his parking areas (wherever situated) and the Site.

36. All Contractor or Sub-Contractors' Heavy Goods Vehicles delivering or operating on site shall be equipped with and utilise an audible warning system when reversing.

Traffic Management Equipment

37. The Contractor shall supply, erect, maintain and remove all traffic management equipment required for any traffic management system. All signs when not in use shall be covered in accordance with Clause 1209.

38. Traffic signs, traffic signals, cones, cylinders, road danger lamps, temporary road markings and road studs shall conform to the requirements of the 1200 series of the Specification for Highway Works.

39. All warning signs used in connection with the works unless otherwise shown, shall be a minimum of 750mm in size.

40. Unless agreed by the Overseeing Organisation, all warning and mandatory signs shall have a mounting height of 1.8m. The Contractor shall forward details of his proposed method of mounting signs to the Overseeing Organisation for approval. The sign position shall be visible to traffic and not obstructed by street furniture, structures and traffic management equipment.

41. All traffic cones in connection with the works shall be 750mm high in accordance with Diagram 7101 of the Traffic Signs Regulations and General Directions 2002.

Temporary Traffic Light Signals in Residential Areas

42. If temporary traffic signals are to be used then they shall not be powered by a generator between 1900 and 0700 hours. During this period the power supply shall be by suitable batteries capable of providing a continuous 24 hours operation. Alternatively, by connection to a mains source of supply in which case it is the responsibility of the Contractor to arrange with the appropriate authority for the connection to be made. Supply cables shall not conduct currents in excess of 110V AC and these cables shall be suitably protected where they are laid on the highway.

43. If the power source for temporary traffic signals is to be taken from the existing street lighting supply then the local Highway Authority approval and procedures must be complied with.

44. Temporary traffic signs, 543 and 517 of the Traffic Signs Regulations and General Directions 2002, are to be illuminated by an independent power source during the hours of darkness. This power source shall not be from a generator.

45. Temporary traffic signals are to operate using microwave vehicle detectors rather than a time delay function.

Temporary Traffic Signs to be supplied by the Contractor

46. The Contractor shall provide, transport, place in position, move as required, maintain and finally remove all signs, cones and bollards, reflective studs, temporary white lines which are required in Chapter 8 of the Traffic Signs Manual published by Her Majesty's Stationery Office and any amendments thereof. All signs shall be in accordance with Appendix 12/5.

Covering up signs

47. Where the temporary traffic management and its signing is incompatible with the existing signing, the existing signing is to be covered or partly covered "by an approved method", as appropriate and maintained for the duration of works. On removal of the temporary traffic management the existing signing is to be uncovered.

Keeping Site Clear

48. The Contractor shall at all times keep the area of the Works in a safe, clean and passable state. The Contractor shall clear away all waste or superfluous material on the site as the works proceed.

Traffic Management Maintenance

49. The Contractor shall keep all roads, accesses, rights of way etc. leading to, from or crossing the site free from mud, slurry or other hazardous substance that is deposited through the Contractor's operations. Any such substance deposited by the Contractor or Sub-contractors on any such road, footway or verge etc. shall be promptly removed by and at the Contractor's expense. If in the opinion of the Overseeing Organisation the Contractor is not dealing adequately with the control of the above then the Contractor may be instructed to carry out additional measures as the Overseeing Organisation considers necessary, which shall be at the Contractors expense.

Highways, Private Roads and other Ways Affected By the Works

All highways and public rights of way are under the Authority of:

Wokingham Borough Council

Council Offices

Shute End

Wokingham

Pedestrian access and thoroughfare to and from the public highway shall be maintained at all times. Private rights of way to private properties shall be maintained at all times (including Emergency and Delivery Vehicles).

Maintenance of Highways Affected by the Works

50. Except for salting and gritting the Contractor shall be responsible for the following highway maintenance functions for all trafficked carriageways within the site. The Contractor's highway maintenance functions shall start at the Commencement of the Contract and remain until the issue of the Finish Certificate.

(i) Daily inspections during daylight hours of the carriageway surface, street furniture, fences and structures for defects, damage and safety hazards and during darkness of the street lighting for lighting failures.

(ii) Carry out repairs, remedial works and making good deficiencies reported in the inspection in (i) above or advised by the Overseeing Organisation. Where the Overseeing Organisation considers that these are the result of fault latent defect error or omission in the trafficked highways prior to commencement of the Works the Overseeing Organisation may instruct the Contractor in accordance with Clause 51.

(iii) The Contractor shall provide the Overseeing Organisation daily with reports of the inspections in (i) above and the actions taken in (ii) above.

(iv) Work in (ii) above shall be carried out within 24 hours of being reported unless agreed or instructed otherwise by the Overseeing Organisation.

Signs

51. Verges shall be cleared of vegetation to accommodate all temporary signs in an upright position and to achieve satisfactory visibility. The Contractor shall maintain the vegetation accordingly for the duration of the temporary sign installations. Where this is necessary the Contractor shall agree the positions of signs with the Overseeing Organisation prior to any clearance works starting.

Traffic Signs shall comply with BS 873 and road danger lamps to BS 3143, except that the flashing rate for flashing lamps shall be within the range 120-150 flashes per minute. The minimum luminous intensity of the lamps shall be 0.5 candela for steady lamps, 1.0 candela for ripple lamps at their peak, and 1.5 candela for flashing lamps at their peak.

All warning signs used in connection with the works, unless otherwise stipulated by the Overseeing Organisation, shall be a minimum of 750mm high.

Unless otherwise agreed by the Overseeing Organisation, all warning and mandatory signs shall have a mounting height of 1.2m. The Contractor shall forward details of his proposed

method of mounting signs to the Overseeing Organisation for approval. The sign position shall be visible to traffic and not obstructed by street furniture, structures and traffic management equipment.

All traffic cones in connection with the works shall be minimum of 750mm high in accordance Diagram 7101 of the TSRGD 2002.

APPENDIX 1/22: PROGRESS PHOTOGRAPHS

The Contractor shall arrange to have record photographs of the works taken at the times and/or intervals on a daily basis. The format of the photographs and the media used for submission to the Overseeing Organisation shall be in a jpeg format filed under a specific date & time.

APPENDIX 1/26: TIMBER AND PRODUCTS CONTAINING WOOD SUPPLIED UNDER THE CONTRACT

All Timber and wood-derived products for supply or use in the works shall be independently verifiable and either from a Legal and Sustainable source or a FLEGT-licensed or equivalent source.

SITE CLEARANCE

APPENDIX 2/0: GENERAL

This Series is part of the Specification for Highway Works. Whilst this Series is particularly relevant to the subject matter in its title it must be read in conjunction with the general requirements in Series 000 and 100 and with all other Series relevant to the specification for the particular works to be undertaken.

APPENDIX 2/1: CLEARING

The Contractor shall ensure that individual trees, shrubs and other features and areas stated on the drawings to be preserved, are suitably identified and protected. The Contractor shall prepare a method statement describing the approach for such works and their operation. This shall be submitted to the Overseeing Organisation for acceptance prior to the commencement of site clearance works. Should any trees, shrubs and other planting features and planting areas which it is intended to preserve be killed, removed or damaged by the Contractor during the course of the works, they shall be replaced by the Contractor with plants of the same species and equal in size to those killed, removed or damaged, all in accordance with Series 3000; or made good by arboricultural work in accordance with Clause 3010, or as directed by the Overseeing Organisation; or replaced or made good to the satisfaction of the Overseeing Organisation. Such work shall be carried out at the Contractor's own expense.

Where the line of an existing fence, hedge or wall is cut by the site boundary the severance shall be made good unless otherwise described in contract specific Appendix 2/1; either by the continuation of the fence, hedge or wall in a different direction, or by its termination. In the case of a strained wire or chain link fence a straining post shall be installed and the fence re-strained

Disused soil and surface water drains, sewers, cables and ducts together with any bed or haunch or surround within 1 m of formation level shall be removed and over 1 m below formation shall be left unless otherwise described in contract specific Appendix 2/2. The ends of existing drains and sewers no longer required because of alterations to the drainage layout shall be sealed in accordance with Clause 506. All trenches shall be backfilled in accordance with Clause 505 unless otherwise described in contract specific Appendix 2/2.

The Contractor, subject to any instructions or contrary directions in accordance with the contract, shall take all measures required by any Statutory Undertaker, the management of other publicly owned services, or owners of privately owned services or supplies, for disconnection and proper sealing off of all redundant drains, services and supplies.

All materials arising from site clearance which are not required, or unacceptable for use in the permanent works and not included in contract, shall become the property of the Contractor and shall be disposed of by him.

When required, voids left by items that have been removed shall be backfilled immediately in accordance with the appropriate Clauses in Series 600.

APPENDIX 2/2: EXISTING TREES, BUSHES AND HEDGES

Unless otherwise required trees, bushes and hedges shall be uprooted or cut down as near to ground level as possible. All felled timber shall be disposed of by the Contractor.

Stumps and roots from trees, bushes and hedges shall be grubbed up or blasted in accordance with Clause 203 and disposed of by the Contractor. Holes left by removal of the stumps or roots shall, within one week, be filled with acceptable material, as defined in Clause 601 and Table 6/1, and be compacted in compliance with Clause 612 and Table 6/4.

Unless otherwise required in where shown on the drawings, existing trees, bushes and hedges shall be cut back to the lines shown on the drawings in accordance with Clause 3010. For the purposes of this sub-Clause, trees shall be defined as a woody plant greater than 2m in height and a bush shall be defined as a woody plant of 2m height or less.

APPENDIX 2/4: HAZARDOUS MATERIALS

The treatment of hazardous materials encountered in site clearance shall comply with relevant legislation and any other health and safety measures

An Asbestos action plan has not been prepared for this section of the network. Nor have survey works to establish the presence of asbestos containing materials been carried out.

(i) Restrictions in relation to working practices.

Work shall be curtailed where wind causes spreading of hazardous deposits.

Dust, Fumes and Smoke

The Contractor shall not cause excessive dust, fumes or smoke from the following operations:

(i) Removal of Thermo-plastic white lines

(ii) Milling bituminous surfacing

(iii) Sweeping of pavements

The free floating dust shall be kept to a minimum and if required by the Overseeing Organisation shall be dampened with water sprays.

Plant should be sited and screened where necessary to minimise dust emission to adjoining areas.

All stockpiles should be covered to prevent the generation of dust.

The Contractor shall take all measures necessary to prevent spillage on to roads adjoining the site and in wet weather shall prevent mud from the site being carried on to the highway.

Details of Specific Traffic Management measures are contained in Appendix 1/17.

Details of Noise and Vibration Restrictions and Working hours are given in Appendix 1/9.

The Contractor shall take appropriate measures to check all substances that may be hazardous to health which include:

(i) Any dust in substantial concentrations;

Substantial concentrations shall be taken as one of the following

(a) A concentration of 10mg/m^3, 8 hour time-weighted average, of total inhalable * dust or
(b) A concentration of 3mg/m^3, 8 hour time-weighted average, of total respirable * dust where there is no need for a lower value

* see current edition of Health and Safety Executive Guidance Note EH40 Occupational Exposure Limits for explanation of “inhalable” and “respirable” dust.

(ii) Measures to be taken to protect members of the public.

Measures to be taken to protect members of the public are scheduled below. Adequate warning signs shall be provided.

Substance	Hazard	Operation	Special Measures
Phenolic, alkyd and acrylated rubber paints	Harmful/flammable	Coating to steel	Erect signs, barriers and screens to protect from overspray. Restrict access until dry.
Bitumen joint sealing compounds		Sealing joints	Site pre heaters away from public. Restrict access during use and until set.
Cementitious mortars and grout	Irritant	Grouting, bedding concrete repair	Restrict access during application and until set
Concrete	Irritant	General construction	Restrict access during application and until set
Dust generated during cutting of concrete	Irritant	Cutting cement products	Restrict access during cutting.
Concrete curing agents	Flammable/harmful	Curing Concrete	Restrict access during use and until dry.
Silane	Harmful	Surface impregnation of concrete	Restrict access, erect screens to protect public
Dust generated during the cutting of hard woods	Harmful	Cutting/sanding	Restrict access during cutting/sanding operations
Epoxy based points	Flammable/harmful	Coatings to street lights	Erect signs, barriers and screens to protect from overspray. Restrict access until dry.
Galvanising Paints	Flammable/harmful	Coatings to parapets etc.	Restrict access during application
Asphaltic materials - Coated roadstone	Harmful	Highway construction	Restrict access during laying and until set.
Thermoplastic	Harmful	Line marking	Site pre-heaters well away from public, restrict access during application and until dried.
Cement	Irritant	General Construction	Restrict access during mixing and application until dried
Bitumen	Harmful	Tack coat, Bridge Deck Waterproofing	Restrict access during application and until set.
Treated timber	Low	Fencing, environmental barriers	Restrict access if timber wet and when cutting or sanding
Dust generated during the cutting of soft woods	Low	Fencing, environmental barriers	Restrict access during cutting/sanding operations
Dust generated during the cutting of macadams and asphalts	Low	Cutting	Restrict access while cutting
Siliceous material	Low	Earthworks	Damp down, control operations and site traffic

Dust generated during milling/planing	Harmful	Milling/Planing	Restrict access during milling/planing operations
Flying debris	Harmful	Excavation, milling, hydrodemolition, etc.	Restrict access, erect screens
High Pressure Water	Harmful	Hydrodemolition	Restrict access, erect screens to work areas and hosing to protect public from jets. Emergency plan for equipment failures
Spray, waste water	Low	Hydrodemolition	Adequate screening, water seals on overhead gantries, etc. Emergency plan for seal failures etc.
Acrylic Based Membrane	Harmful	Sprayed Waterproofing	Restrict access, erect screens to protect public

In the case of sprayed bridge deck waterproofing systems and silane impregnation effective barriers or screens are to be erected to prevent drift of material onto trafficked lanes or areas used by pedestrians. When adjacent traffic stops, such operations should cease until five minutes after traffic has started flowing again.

The Contractor shall advise the Overseeing Organisation of the measures he proposes to undertake to safeguard from the effects of hazardous materials, the general public and the owners and occupiers of properties adjacent to the Works.

(iii) Monitoring to be undertaken by Contractor.

The Contractor shall monitor fumes produced adjacent to public areas. All proprietary products shall be used strictly in accordance with the manufacturer's instructions.

Depending on the substances and processes, air quality monitoring may be required where traffic, pedestrians or properties are adjacent to or close to the works.

Note: Nothing contained in this Appendix shall relieve the Contractor of his obligations under the Contract.

Measures to be taken to protect members of the public

Members of the public are to be protected from activities within, and from gaining access to, the working area by whatever means necessary, e.g. temporary fencing, appropriate signing etc to prevent their interaction with hazardous materials.

FENCING

APPENDIX 3/2: REQUIREMENTS FOR TEMPORARY AND PERMANENT FENCES

As soon as the Contractor is placed in possession of any part of the Site he shall immediately erect fencing on the boundaries of the land as shown on the Drawings. In places where permanent fencing cannot be erected immediately or where none is required, the Contractor shall erect, and when and where necessary, re-erect and maintain, temporary fencing and subsequently take down and remove as necessary. The type of temporary fencing shall be chosen by the Contractor and may be selected from the four standard types for highway works described in Clause 303, taking into account the usage of the adjoining land. The Contractor shall not use barbed wire in areas accessible to the general public. Access shall be made in temporary fencing as necessary for the use of the occupiers of adjacent lands.

Temporary fencing shall remain in position either until it is replaced by permanent fencing or until its removal on completion of the Works.

When concrete for post footings is required, it shall comply with Clause 2602

APPENDIX 3/3: TEMPORARY FENCING

Temporary fencing shall be appropriate to the usage of the adjoining land

If temporary fencing is removed temporarily for the execution of any part of the Works it shall be reinstated as soon as possible and in the meantime the gap in the fencing shall be patrolled so that no unauthorised entry on to adjoining land takes place and no stock escapes from the adjoining land.

APPENDIX 3/4: TIMBER QUALITY

Timber for use in permanent works shall be either of appropriate natural durability or be treated with wood preservatives in compliance with Clause 311. Where natural durability is used as the criterion, the timber shall be of class 1 if used in ground contact (e.g. fence posts) and of class 2 or better if used out of ground contact (e.g. fence rails) according to the classification given in BS EN 350-1.

If any sapwood is present in the timber, irrespective of the natural durability of the heartwood, the timber shall be treated with preservative

Unless otherwise described in this specification and in Appendix 3/1, timber for permanent fencing shall comply with BS 1722-7, timber for field gates and posts shall comply with BS 3470; and timber for stiles, bridle gates and kissing gates shall comply with BS 5709.

All timber for permanent fencing, field gates and posts, stiles, bridle gates and kissing gates shall be of sawn timber conforming to BS 1722-7 Annex A. Non-structural timber in environmental barriers shall comply with the requirements of sub-Clause 2504.6. Structural timber in environmental barriers shall be stress graded and marked to comply with BS EN 14081-1 and where appropriate BS 4978, BS 5756 or BS EN 519 or other grading rules accepted in BS 5268-2 and BS EN 1912

All timber and wood contained in products supplied or used for fences, including field gates and posts, stiles, bridle gates, kissing gates, and environmental barriers shall comply with sustainability criteria described in Clause 126.

APPENDIX 3/5: FITTINGS

Bolts, screws and nuts shall comply with BS EN ISO 4016, BS EN ISO 4018 and BS EN ISO 4034, for BS EN ISO 898-1 property class 4.6 or 4.8 unless otherwise described in Appendix 3/1. Washers shall comply with BS 4320. Nails shall comply with BS 1202. Bolts washers and nails shall be galvanised to comply with BS EN ISO 1461 unless they are stainless steel.

APPENDIX 3/8: GATES AND STILES

Refer to Drg No. 5049/GWI/SD/001

DRAINAGE AND SERVICE DUCTS

APPENDIX 5/1: PIPES FOR DRAINAGE AND FOR SERVICE DUCTS GENERAL

Where the term drain is used in this Series it shall be deemed to include the terms sewer and piped culvert

APPENDIX 5/2: EXCAVATION FOR PIPES AND CHAMBERS

Excavation shall comply with Clause 602 and with the following:

(i) soft spots existing below the bottom of an excavation shall be removed and the resulting voids backfilled with Type 1 unbound mixture for subbase complying with Clause 803 or pipe bedding material complying with Clause 503, both well compacted, or ST1 concrete in compliance to Clause 2602;

(ii) any additional excavation below the bottom of an excavation that is required because the Contractor has allowed the bottom to become soft or otherwise unacceptable for the construction of the pipeline or chambers shall be made good as described in sub-Clause 1(i) of this Clause;

(iii) any excavation greater than the net volume required for the Permanent Works below the level of any pipe surround shall be made good as described in (i) above

APPENDIX 5/3: BEDDING, LAYING AND SURROUNDING OF PIPES

Immediately following the excavation of the trench, the pipes shall be laid and jointed on the pipe bed. Pipes shall be laid so that each one is in contact with the bed throughout the length of its barrel. The pipes shall be laid at the level and gradients shown on the Drawings and schedules. The deviation in level from that specified at any point shall not exceed 20 mm and in addition the algebraic difference of the deviation in level at any two points on each pipe shall not exceed 30 mm. In the case of socketed or sleeve jointed pipes the bed shall be cut away and removed at each socket or sleeve to give a clearance of at least 50 mm, or 100 mm for trenches in material designated as Hard Material, so that the socket or sleeve does not bear on the bed. Pipes shall be laid on setting blocks only where a concrete bed or cradle is used.

APPENDIX 5/4: JOINTING OF PIPES

Rigid joints shall mean joints made solid by caulking the sockets, or bolting together flanges integral with the pipes. Flexible joints shall mean joints made with deformable rings or gaskets held between pipe spigots and sockets, sleeves or collars.

Watertight joints shall comply with the appropriate British Standards, the manufacturer's instructions and the following:

(i) Rigid joints shall not be used unless otherwise specified. Spigots and sockets of rigid joints may be caulked with tarred rope yarn or equivalent and the socket completely filled with mortar designation (i) complying with Clause 2404, excluding lime; a fillet of mortar being worked

around the socket extending for a length of not less than 50 mm from the face of the socket. Iron pipes with open sockets shall have rigid joints caulked with lead wool or equivalent.

(ii) Joints in PVC-U pipes shall not be made with plastic solvent.

(iii) Flexible mechanical joints may be used with surface water pipes complying with BS 65.

(iv) Joints for cast iron pipes to BS 437 shall comply with BS EN 877.

(v) Joints in thermoplastics structured wall pipe shall comply with Clause 518.

Partly watertight joints for surface water drains shall be tested in accordance with sub-Clause 509.7 and shall be British Standard joints or non-British Standard joints. Push fit joints shall have a register to ensure that the pipe is fully pushed into the joint.

Where a concrete bed, cradle, arch or surround is used with rigid pipes having flexible joints, joint filler board complying with Clause 1015 shall be placed in contact with the end of the socket at a pipe joint and shall extend through the full thickness of the concrete in contact with the pipe. Such joints in the concrete bed, haunch or surround shall be at intervals not exceeding 5 metres except where the spacing of joints in the pipe exceeds 5 metres when they shall be at each pipe joint.

Joints in pipes for service ducts shall comply with the appropriate British Standard and with the following:

(i) Pipes for ducts shall be jointed so that no silt, grit, grout or concrete surround is able to enter the duct. Pipes with push-fit joints shall have a register to ensure that the pipe is fully pushed into the joint.

(ii) (05/05) Joints in pipes to BS 3506 shall comply with BS EN 1452-1 to 5 as appropriate.

APPENDIX 5/5: BACKFILLING OF TRENCHES AND FILTER DRAINS

Backfilling shall be undertaken immediately after the required operations preceding it have been completed.

Backfill materials to be in accordance with standard details and requirements in specification for highway works.

APPENDIX 5/6: CONNECTING TO EXISTING DRAINS, CHAMBERS AND CHANNELS

Where described in Appendix 5/1, existing drains shall be extended, connected and jointed to new drains, chambers or channels. All such connections shall be made during the construction of the new drain or other work and their positions recorded by the Contractor who shall hand to the Overseeing Organisation a copy of the record of the connections made the previous day. Where pipe connections are made to existing brick concrete or stone drains, chambers or channels, the pipes shall be well and tightly built into the concrete, brick or masonry work and be so placed as to discharge at an angle not greater than 60° to the direction of flow of the drain or channel and with the end of the pipe carefully cut to the necessary angle. Where the connections are between pipe drains, special connecting pipes shall be laid and jointed as described in Appendix 5/1. 2

Before entering or breaking into an existing sewer or drain, the Contractor shall give notice of his intention to do so to the authority responsible for the pipeline to which the connection is to be made.

APPENDIX 5/8: GULLIES AND PIPE JUNCTIONS

Precast concrete gullies shall comply with BS 5911-6 and clay gullies with BS EN 295. In situ concrete gullies shall be as described in Appendix 5/1 and constructed of ST4 concrete of 150 mm minimum thickness, using permanent or removable shuttering. Where in situ concrete gullies are formed with permanent shuttering, such shuttering shall have a current British Board of Agrément Roads and Bridges Certificate.

Gully gratings, kerb type gully covers and frames shall comply with BS EN 124.

The upper surface of gully gratings shall be flat except where otherwise specified. Slots in gratings or between gratings and frames shall not be orientated parallel to the direction of traffic except where the slots are less than 150 mm long or less than 20 mm wide. Unless otherwise specified, all gratings and frames shall be supplied in a fine cast (uncoated) condition. Where a coating is specified, the coating shall only be applied when the surfaces of the casting are clean, free from rust and dry. Frames shall be bedded on mortar complying with sub-Clause 507.16. Brickwork shall comply with sub-Clause 507.3.

APPENDIX 5/19: CONCRETE BAGWORK

ST4 concrete in compliance with Clause 2602 shall be used throughout. The concrete filling to the bags shall have a low workability with a slump of 25 mm.

The bags shall be hessian sand bags complying with BS 1214. The size of the bags shall be such that when filled, the dimensions shall be 450 mm x 300 mm x 150 mm. The bags shall be placed in position and shaped to the profile shown on the Drawings by striking with a flat timber board until all faces are flat and all edges square.

The finished exposed faces of the bagwork shall not be punctured or torn and no tucked ends shall be visible.

Each concrete bag is to be spiked to the one below and the bottom row spiked to the foundation with 10 mm x 200 mm mild steel dowel bars. Where the concrete bags have a concrete backing, alternate rows of bags shall be spiked to the backing concrete with 10 mm x 200 mm mild steel dowel bars at 45 degrees to the horizontal with one dowel per bag in the row.

Where bagwork forms a headwall, headwall foundations are to be cast against the excavated face and any overdig filled with ST4 concrete.

Where bagwork is provided to protect watercourses, before placing the bags, the banks shall be cut into horizontal steps to provide a suitable foundation and shall be covered in geotextile to the requirements of Clause 609. The bottom course of bags shall be at least 450 mm below the stream bed and all succeeding courses shall be horizontal and all vertical joints shall be staggered in alternate courses. Headers shall be placed at every third bag in alternate courses.

The bagwork shall be thoroughly soaked with water upon completion of the construction to saturate the hessian bags.

EARTHWORKS

APPENDIX 6/1: CLASSIFICATION, DEFINITIONS AND USES OF EARTHWORKS MATERIALS

Earthworks materials shall fall into one or other of the following general classifications:

(i) acceptable material: material excavated from within the site or imported on to the site which meets the requirements of Table 6/1 and contract specific Appendix 6/1 for acceptability for use in the permanent works;

(ii) unacceptable material Class U1A as defined in sub-Clauses 2(i)(a) and 2(i)(b) of this Clause: material excavated from within the site which, unless processed so that it meets the requirements of Table 6/1 and contract specific Appendix 6/1, shall not be used in the permanent works;

(iii) unacceptable material Class U1B as defined in sub-Clause 2(ii)(a) of this Clause: material excavated from within the site which, unless processed so that it meets the requirements of Table 6/1 and contract specific Appendix 6/1, shall not be used in the permanent works; and

(iv) unacceptable material Class U2 as defined in sub-Clause 3(i) of this Clause: material excavated from within the site which shall not be used in the permanent works. (02/16) Unacceptable Materials

Unacceptable material Classes U1A and U1B:

(i) unacceptable material Class U1A shall be: (a) material which does not comply with the permitted constituents and material properties of Table 6/1 and contract specific Appendix 6/1 for acceptable material; and (b) material, or constituents of materials, composed of the following unless otherwise described in contract specific Appendix 6/1: • peat, materials from swamps, marshes and bogs; • logs, stumps and perishable material; • materials in a frozen condition; • clay having a liquid limit determined in accordance with BS 1377: Part 2, exceeding 90 or plasticity index determined in accordance with BS 1377: Part 2, exceeding 65; • material susceptible to spontaneous combustion except unburnt colliery spoil complying with sub-Clause 15 of this Clause;

(ii) unacceptable material Class U1B shall be: (a) contaminated materials, including controlled wastes (as defined in the Environmental Protection Act 1990 Part IIA) whose level of contamination is above that given either in contract specific Appendix 6/14 or in contract specific Appendix 6/15, but excluding all hazardous wastes (as defined in the Hazardous Waste (England and Wales) Regulations 2005) and radioactive wastes (as defined in the Radioactive Substances Act 1993). Volume 1 Series 600 Specification for Highway Works Earthworks Amendment – February 2016 4

Unacceptable material Class U2 shall be: (i) hazardous waste (as defined in the Hazardous Waste (England and Wales) Regulations 2005) and radioactive waste (as defined in the Radioactive Substances Act 1993).

Where required in contract specific Appendix 6/1, unacceptable material (other than Class U2) shall be processed by mechanical, chemical or other means to render the material acceptable for use in the permanent works in accordance with the requirements of Table 6/1 and contract specific Appendix 6/1. (02/16) Definitions

Where source codes are referred to these shall be for materials from the sources listed in Table 6/7.

Formation shall be the top surface of capping. Where no capping is required formation shall be the top surface of earthworks at the underside of sub-base, unless otherwise shown on the drawings.

Sub-formation shall be the top surface of earthworks at the underside of capping.

Stabilisation shall mean the spreading of cement or lime or both on a layer of deposited or intact granular or cohesive material, and the subsequent process of pulverising and mixing followed by appropriate compaction to form the whole or a constituent layer of a capping.

'As dug' shall mean material that has been excavated, transported and placed without any processing. Where imported material undergoes any processing, including cleaning and sorting, it will not be deemed 'as dug' and thus shall be aggregate complying with BS EN 13242.

APPENDIX 6/2: GENERAL REQUIREMENTS

The Contractor shall employ only plant and working methods which are suited to the materials to be handled and traversed. He shall be responsible for maintaining the nature of the acceptable material so that when it is placed and compacted it remains acceptable in accordance with the contract. Acceptability shall be determined in accordance with Table 6/1 and any special contract specific requirements in Appendix 6/1.

Haulage of material to embankments or other areas of fill shall proceed only when sufficient spreading and compaction plant is operating at the place of deposition to ensure compliance with Clause 612.

The Contractor shall make his own arrangements for stockpiling of acceptable material, and unacceptable material to be processed and for the provision of sites for the purpose.

The Contractor shall ensure that he does not adversely affect the stability of excavations or fills by his methods of stockpiling materials, use of plant or siting of temporary buildings or structures.

Topsoil shall wherever practicable be used immediately after its stripping and if not shall be stored in stockpiles of heights not exceeding 2 m or other heights stated in contract specific Appendix 6/8. Unless otherwise stated in contract specific Appendix 6/8, topsoil shall not be stockpiled for more than two years. Topsoil shall not be unnecessarily trafficked either before stripping or when in a stockpile. Stockpiles shall not be surcharged or otherwise loaded and multiple handling shall be kept to a minimum.

Excavations requiring backfilling shall remain open only for the minimum period necessary.

Excavations requiring backfilling in existing paved or other surfaces, including those paved areas to be reconstructed or repaired shall be carried out and reinstated in compliance with Clause 706.

APPENDIX 6/18: TOPSOILING

Top soiling shall be carried out using Class 5 material complying with Table 6/1

Topsoil shall:

(i) be deposited and spread on the areas in layers not exceeding 150 mm. Each layer shall be firmed before spreading the next. The thickness shall be reduced where necessary to allow for any subsequent turfing required in contract specific Appendix 30/5 (it shall not be spread using a tracked vehicle; Volume 1 Series 600 Specification for Highway Works Earthworks Amendment – February 2016 24

(ii) have stones and other debris removed and disposed off site which have: (a) dimensions greater than 100 mm equivalent diameter and (b) dimensions greater than 50 mm equivalent diameter which lie within 50 mm of the surface;

(iii) be graded to smooth contours, eliminating all mounds and depressions where water may collect; (iv) not have stones or other debris protruding above the surface by more than 30 mm, and comply with the further requirements of Clauses 3004 and 3005.

Top soiling at the rear of kerbs shall be flush with the top of the kerb and graded uniformly to suit the existing verge profile.

Where topsoil is to be stripped from verges it shall be stored within the Site for reuse. Topsoil shall wherever practical be used immediately after stripping and if not shall be stored in accordance with good horticultural practices and not exceed 2.0m height. The Contractor shall refrain from compacting the topsoil while storing it.

Topsoil for all areas shall be Class 5B as defined in Table 6/1 of the Specification for Highway Works. Any topsoil to be imported must first be approved. The Contractor is to supply a sample for testing and exact location of source when seeking approval.

All areas prior to top soiling shall receive treatment in accordance with Clause 3004.5.

Topsoil shall be spread in layers not exceeding 150mm and shall avoid compacting topsoil during spreading in accordance with clause 618.4.

During fallow periods prior to seeding, the ground shall be kept weed free by cultivation or treatment with an approved herbicide in accordance with clause 3002.6.

Where topsoil is to be stripped, this must not be carried out during rainy weather refer to Clause 618.

For details of grass seeding and turfing, refer to Appendix 30/5.

ROAD PAVEMENTS

APPENDIX 7/0: GENERAL

The requirement is for a thin surface course to clause 942. The longevity of the surface course and its resistance to heavy traffic is of paramount importance. As such any SHW Clause 942 thin surface course proposed by the contractor must take these points in to consideration. The Contractor's attention is drawn to Clause 942 paragraph 14 regarding the Guarantee Period for Thin Surface Courses.

The Contractor should use recycled material in all pavement layers, within the limits required by the specification, wherever practical. The use of recycled material should only be used in Surfacing with the prior agreement of the Overseeing Organisation.

Notice is drawn to the requirements of Clause 902. The use of reclaimed material is encouraged in all carriageway construction layers.

If the Contractor's proposed materials are rejected by the Overseeing Organisation, he will be informed within 3 working days and permitted to submit alternative proposals. These substitute proposals must be supplied within 3 working days to the Overseeing Organisation. It is therefore in the Contractor's interest to confirm any aspect in the Contract he considers to be unclear. This can be done through contacting the Overseeing Organisation at the address below:

Construction Project Manager

Resources

Wokingham Borough Council

Council Offices

Shute End

Wokingham

Refer to drawing no. 5049/GWI/GA/series for the full extents of the surfacing and specification

APPENDIX 7/9: COLD MILLING (PLANING) OF BITUMININOUS BOUND FLEXIBLE PAVEMENT

Where cold-milling of bituminous bound flexible pavement is required, the area of carriageway to be milled shall be removed by a suitable milling machine to the requirements specified in contract specific Appendix 7/9. The process shall be carried out so as not to produce excessive quantities of dust, which shall be minimised by damping with water sprays.

The cut edges shall be left neat, vertical and in straight lines. The Contractor shall brush and sweep the milled surface by mechanical means to produce a clean and regular running surface with a groove depth not greater than 10 mm, and with a uniform texture.

Carriageways shall be milled to the tolerance of ± 6 mm. If the tolerances in this Clause are exceeded, the full extent of the area which does not comply shall be rectified by further milling or by regulating with materials in accordance with Clause 907.

Existing ironwork shall not be disturbed by the milling action. Where necessary, surfacing in the vicinity of ironwork and in small or irregular areas shall be cut out by pneumatic tools or other suitable methods and removed.

Where milling is carried out on a carriageway open to traffic, temporary ramping to ensure the safe passage of vehicles shall be provided in accordance with the requirements of contract specific Appendix 1/17.

If the milled surface profile varies by more than 10 mm, when measured transversely or longitudinally by a 3 metre straight-edge, adjustments or replacements shall be made to the cutting teeth on the milling drum before work continues. Any discontinuity between adjacent milling passes exceeding 10 mm, when measured transversely by a 3 metre straight-edge, shall be rectified by further milling or regulating before placing bituminous materials.

The material removed from the carriageway shall be removed from site, unless otherwise described. No stockpiling shall be allowed on site unless the material is to be used in the works.

Carriageways which are closed to traffic to permit milling shall be resurfaced after milling prior to reopening the carriageway to traffic unless otherwise agreed by the Overseeing Organisation.

When specified, 48 hours prior to cold-milling the Contractor shall carry out a sweep of the area(s) to locate any buried metalwork within the layer to be cold-milled. The sweep shall be carried out with electronic detection equipment suitable for the purpose. The surface shall be clearly marked above all objects to show their detected extent. The objects shall be referenced and their location and depth reported to the Overseeing Organisation within 6 hours of discovery. Surfacing in the vicinity of such objects shall be excavated using pneumatic tools or other suitable methods.

APPENDIX 7/14: PREPARATION OF JOINTED CONCRETE PAVEMENTS PRIOR TO OVERLAYING AND SAW-CUT AND SEAL OF BITUMINOUS OVERLAYS

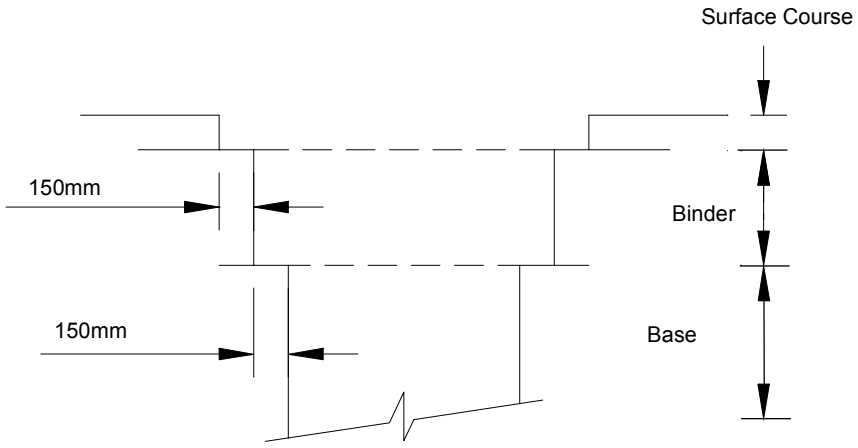
Where specified in contract specific Appendix 7/14 and shown on the drawings, the existing jointed unreinforced or reinforced cementitious pavement shall be prepared in accordance with this Clause before receiving a bituminous overlay which will then be saw-cut and sealed in accordance with Clause 713.

Once the preparation work to this Clause has been accepted by the Overseeing Organisation for a specified portion of the total area, the bituminous overlay, including any tack or bond coating, may proceed. Then the saw-cutting and sealing shall be carried out and accepted solely in accordance with the requirements of Clause 713

All joints, arises and temporary repairs shall be checked and repaired.

Before work to this Clause commences, the area shall be cleared of all debris and detritus and then be thoroughly brushed clean. Similar cleaning shall be carried out on completion of work to this Clause and prior to tack or bond coating in preparation for overlaying with the specified bituminous material

Reinstatement of existing surface



KERBS, FOOTWAYS AND PAVED AREAS

APPENDIX 11/1: CONCRETE KERBS, CHANNELS, EDGINGS AND QUADRANTS

Except where otherwise specified in this Clause, precast concrete kerbs, channels, edgings and quadrants shall conform to BS EN 1340 and their dimensions, type designations and performances and classes shall be as described in this Clause and Appendix 11/1. They shall be laid and bedded in accordance with BS 7533-6 on a mortar bed on a concrete pavement slab, a base or a C6/8 or ST1 in accordance with BS 8500-2 concrete foundation. The mortar bed may be omitted if units are bedded onto a concrete slab or foundation that is still plastic. All precast units laid on a mortar bed or bedded onto plastic concrete shall be backed with a strength class C6/8 or ST1 concrete in accordance with BS 8500-2.

Precast concrete kerbs, which are to be bonded to the pavement surface, shall conform to BS EN 1340. The bonding materials and methods of bonding shall be to the manufacturer's recommendations for this specific application. Bonded kerbs shall not be less than 100 mm in width at the base, their height shall not exceed their width and they shall be bonded over their full width. Kerbs shall be precast to the dimensions described in Appendix 11/1. The clear distance between unsupported pavement edge and back of kerb shall be not less than 100 mm. The bending strength of units shall be established by testing in accordance with BS EN 1340 and shall not be less than class 2 in Table 3 of BS EN 1340. Units shall be installed in accordance with the manufacturer's instructions. They shall be bonded to the pavement surface with a resilient adhesive compatible with the pavement materials and be capable of withstanding a static push-off load of 10 kN/m applied parallel to the pavement surface at right angles to the kerb.

Joints shall be provided in kerbs, channels, edgings and backing, which are laid on or adjacent to a concrete pavement to coincide with the pavement transverse contraction, warping and expansion joints. The joints shall be the same width as the joint sealing grooves of the pavement and shall be caulked and sealed as described in Clauses 1016 and 1017. Concrete foundations to kerbs, channels and edgings laid adjacent to a concrete pavement shall be provided with joint filler board complying with Clause 1015 placed vertically through the full extent of the concrete foundation at positions coinciding with the pavement joints. At expansion joints in bridge decks, the kerb joints shall be as described in Appendix 11/1. Where the details of bridge expansion joints are proposed by the Contractor, such details shall include the intended treatment at kerbs and footways.

For curves of radius 12 m or less, kerbs of appropriate radius shall be used as per BS EN 1340.

The surface level of units of kerb, channel, edging and quadrant shall not deviate from the design level ± 6 mm, nor shall the longitudinal surface regularity deviate more than 3 mm in 3 m when checked with a 3 m straight edge. Horizontal alignment shall comply with Clause 702.

When completing kerbing works the Contractor's attention is drawn to in the Health and Safety file with regards to manual handling restrictions.

The kerb types are shown on drawing no. 5049/GWI/GA/Series and standard detail WSD/1100/001. The following kerb types can be used:

(i) PCC Straight Bullnose Kerb	Type BN	125 x 150	Marshalls RK0550000 or similar approved
(ii) PCC External Radius (not exceeding 12m) Bullnose Kerb	Type BN	125 x 150	Marshalls RK0555xxx or similar approved
(iii) PCC Straight Bullnose Kerb	Type BN	125 x 255	Marshalls RK0350000 or similar approved
(iv) PCC External Radius (not exceeding 12m) Bullnose Kerb	Type BN	125 x 255	Marshalls RK0355xxx or similar approved
(v) PCC Straight Half Batter Kerbs	Type HB2	125 x 255	Marshalls RK0300000 or similar approved
(vi) PCC External Radius (not exceeding 12m) Half Batter Kerb	Type HB2	125 x 255	Marshalls RK0305xxx or similar approved

A joint inspection prior to commencement of works shall be carried out to identify any broken or damaged sections of kerbing. Any damaged or broken kerbing shall be removed to the contractors tip with like replacements provided.

Where replaced the backing to the existing kerbs is to be broken out and removed to the Contractors tip off site.

Any new Edgings shall be precast concrete in accordance with BS 7263: Part 1: 2001.

The edging types are shown on drawing no. 5049/GWI/GA/Series and standard detail WSD/1100/001.

The following types are used: -

(i) PCC Edging	Type EF	50 x 150	Marshalls ED5000150 or similar approved

A joint inspection prior to commencement of works shall be carried out to identify any broken or damaged sections of edging. Any damaged or broken edging shall be removed to the contractors tip with like replacements provided.

Where replaced the backing to the existing edging is to be broken out and removed to the Contractors tip off site.

The units may be bedded directly onto a freshly mixed concrete kerb race, or bedded onto mortar on a hardened kerb race or bonded directly to the pavement surface with a suitable modified strengthened mortar or a suitable resin compound, in accordance with the mortar/resin manufacturer's installation recommendations.

The concrete foundation shall conform to BS 8500-2: 2002 and BS EN 206-1: 2000 designated concrete GEN0 and consistence class S1.

A concrete kerb race foundation should be a minimum thickness of 150mm and extend to a width suitable to accept the width of the units being installed plus the width of the haunching behind the unit. The concrete race should be fully compacted.

When laying units onto an adjacent roadbase or sub-base it may be necessary to step the base to cater for certain carriageway thickness. The concrete race for the kerb unit should therefore be bedded on a suitable base material.

For applications that may fall outside the scope of the aforementioned guidance, advice can be sought from the Overseeing Organisation.

When laying units on a fully compacted hardened kerb race, lay the unit to line and level onto a 12mm to 40mm thick layer of fresh bedding mortar 1:3 cement: sand, (proportions by volume) containing sand complying with BS EN 12620 : 2002. If the mortar has been mixed for more than two hours or begun to set, it should be discarded and replaced with fresh mortar.

Alternatively units can be laid onto a well-compacted fresh race of concrete with a maximum slump of 35mm.

For units laid flush with the pavement running surface (e.g. channel units) and for applications receiving regular and/or heavy vehicular overruns (e.g. centre stones, approaches to traffic calming ramps, etc.), the units should be cut down to lengths of no longer than 300mm. No cut unit should be less than 300mm for any part of the installation. When cutting to adjacent to complimentary fitting units, only standard kerb units should be cut to fit.

Units should be bedded onto the bedding layer using a paviours maul to line and level. String lines should be used to ensure the accuracy of the units being installed to line and level.

On curves with a radius of 12m and less the appropriate radius kerb should be used.

For applications that may fall outside the scope of the aforementioned guidance, advice can be sought from the Overseeing Organisation.

The units should be backed with concrete conforming to BS 8500-2 : 2002 and BS EN 206-1 : 2000, designated concrete GEN0 and consistence class S1.

The backing should be of sufficient size, no less than 150mm and strength to prevent any movement of the unit when subjected to any envisaged loading.

The backing mix, the unit and the base must be bonded and should not act independently of each other.

In areas where units are likely to be subjected to high loading, dowel bars should be fixed into the race foundation with the kerb-backing cast around the bars.

Units should be close jointed, leaving dry gaps of 2mm minimum.

Alternatively wide joints can be used, the joint being between 5mm and 7mm. Wide joints should be fully filled with 1:4 cement: sand mortar (proportions by volume) containing sand complying with BS EN 12620 : 2002. Units should not be pointed after installation.

For wide joint construction, movement joints should be provided at 15m centres for units laid with wide joints. The movement joint should be formed using a 10mm thick easily compressible material and sealed with a two-part polysulphide sealant. The joint should extend through the concrete race and haunching.

Units should never be butt jointed.

Where units are laid over a jointed concrete pavement, suitable joints should extend through the line of units at a joint and continue through the haunching concrete.

Laying operations should be discontinued if weather conditions are such that the performance of the units in-situ may be jeopardised.

Laying operations should not be undertaken when the temperature is below $3^{o}C$ on a falling thermometer and below $1^{o}C$ on a rising thermometer.

All unfinished areas should be covered in the advent of inclement weather, and stockpiles of materials covered.

APPENDIX 11/5: FOOTWAYS AND PAVED AREAS (FLEXIBLE SURFACING)

Flexible surfacing and subbase for footways and paved areas shall be constructed using the materials and layer thicknesses described in Appendix 11/1.

Bituminous mixtures used in flexible surfacing shall be made in accordance with BS EN 13108, the detailed requirements from the example specifications in BS PD6691 and Clause 901.

Flexible surfacing shall be laid and compacted in accordance with BS 594987. Subbase shall be composed of an unbound mixture conforming to Clause 803, 804, 805, 806, or 807 or a cement bound granular mixture conforming to Clause 821, 822 or 823. Subbase shall be laid and compacted to Clause 802 or 813, as appropriate.

Bituminous materials for footways and paved areas shall comprise of the following materials:

Requirements for Construction Materials		
Clause	**Description**	**Requirements**
803	Type 1 unbound mixture	Sub-base material to comply with the general requirements of Clause 801.
804	Type 2 unbound mixture	Sub-base material to comply with the general requirements of Clause 801. Mixtures containing more than 50% Cold Milling arising's are permitted.
906	Recipe Mixtures: Dense Base and Binder Course Macadam's with Paving Grade Bitumen	DBM125 Binder Course DBM190 Binder Course (November to March) Grading range: 0/20mm Sub-Clauses 945.1 and 945.2 do apply. BS 4987-1 Cl 4.2 and 6.5
909	Dense Macadam Surface Course (0/6mm)	BS 4987-1 Cl 7.5 Binder: 125pen (190pen – November to March) Coarse Aggregate: Crushed rock to BS 4987-1 Cl 4.2.1 Grading: BS 4987-1 table 29

Flexible Surfacing material
Where flexible surfacing material is being used within the scheme, it is expected that the principal contractor is to lay the base course for this area with a view of a third party laying the final flexible surface within the overall programme.

This will require both parties to liaise closely with each other on the programme of works and work together to manage the works efficiently and effectivity as possible.

The surfacing contractor will need to sign off the base course installation prior to their works, so a material guarantee can be issued to the Client upon completion.

As part of the collaborate arrangement between the surfacing contractor and the Principal Contractor, the surfacing contractor will need to utilise the Principal Contractors' storage and welfare facilities as part of the surfacing works.

It is expected for the Principal Contractor to liaison/programme the surfacing contractor during the scheme works and supervise the laying of the surface material.

TRAFFIC SIGNS

APPENDIX 12/3: FOUNDATIONS FOR PERMANENT TRAFFIC SIGNS

The size of foundations shall be as specified on the traffic sign schedule and in accordance with standard detail WSD/1200/001

APPENDIX 12/4 POSTS FOR PERMANENT TRAFFIC SIGNS

Posts shall be of tubular steel section and shall be hot-dipped galvanised and plastic coated and offer a guaranteed life of not less than 20 years. The colour of posts shall match the back of the sign face.

Baseplates where provided shall be to the sizes as set out below;

Straight posts without electrical housing.				
Post Diameter (mm)	Post Area (mm^2)	Area x 5 (mm^2)	Square root of area (mm)	Minimum Plate size (mm)
76	4536	22682	150	150 x 150
89	6221	31106	176	176 x 176
114	10207	51035	225	225 x 225
140	15393	76969	277	277 x 277
168	22167	110835	333	333 x 333
Where posts have a base housing specially adapted to accommodate electrical equipment. (i.e. illuminated signs).				
Post Diameter (mm)	Post Area (mm^2)	Area x 5 (mm^2)	Square root of area (mm)	Minimum Plate size (mm)
168	22167	55418	235	235 x 235

APPENDIX 12/5 SIGN PLATES FOR PERMANENT TRAFFIC SIGNS

Sign plates shall be fabricated in accordance with BS 873: Road Traffic Signs and Internally Illuminated Bollards. The finish shall be CLASS 1 retro-reflective material or MICRO-PRISMATIC (Diamond Grade type or similar) retro-reflective material with a warranted life of not less than ten years and shall fulfil the requirements of BS873 Part 6 : 1983. The material used will be as specified on the Sign Schedule unless informed otherwise.

The back of each sign is to be marked in accordance with BS873 Part 6, Section 3.1.1. with its associated drawing number and sign reference in characters not larger than 15mm in height.

Plate signs not exceeding 1200mm x 2400mm shall be made of single sheet.

The whole of the back surface of the signs shall be covered with 693 Aircraft grey non-reflective plastic sheeting, powder coating or stove enamel unless in a conservation area where it shall be conservation grey to BS 381C (18 B 29).

Signs shall be stiffened such that post fixings may be positioned at any point across the width of the sign without the need for drilling of the stiffening to permit erection onto posts of unspecified spacing.

When signs are to be stored prior to erection they should be kept dry, preferably indoors. All packaging should be removed and the signs supported on wooden battens in the upright position with plenty of space for free air circulation. All contact with treated wooden posts and excessive water must be avoided.

APPENDIX 12/8 LOCATION AND ERECTION OF PERMANENT TRAFFIC SIGNS

The locations of signs are shown on drawing numbers 5049/GWI/GA/Series. The sign details are specified on the Traffic Signs Schedule and referenced on the above drawings.

All signs and posts shall be manufactured and erected in accordance with BS873, Traffic Signs Regulations and General Directions 1994, Traffic Signs Manual, Specification for Highway Works 7th Edition, location plan and associated sign schedules and the following specification.

APPENDIX 12/12: ROAD MARKINGS

Road markings shall be white or yellow (Classes Y1 and Y2) complying with BS EN 1436 Table 6, as appropriate except where an alternative shade has been specified in Appendix 12/3. The markings shall consist of continuous or intermittent lines, letters, figures, arrows or symbols and comply with subClauses 2 to 12 of this Clause. Statutory requirements controlling road markings are contained in The Traffic Signs Regulations and General Directions 2002 (Statutory Instrument 2002 No. 3113) and subsequent amending Regulations.

Permanent road markings shall be one of the following materials and comply with the colour, location and material type requirements described in Appendix 12/3:

(i) thermoplastic road marking material or paint in accordance with BS EN 1871;
(ii) permanent preformed road markings in accordance with BS EN 1790;
(iii) other materials as described in Appendix 12/3.

They shall be also tested in road trials to the Roll-over class P5 in accordance with the procedure stated in BS EN 1824 to demonstrate compliance with the performance requirements as stated in sub-Clauses 3 to 6. The test report shall give particulars of the quality and quantity of the material, including drop on glass beads laid at the test site for future reference and comparison purposes should such a need arise.

APPENDIX 12/16: TEMPORARY TRAFFIC SIGNS

The contractor may propose to fix signs in 'A-frames' or fasten the signs on to posts, in which case he shall submit the post details and the fixing arrangements with his traffic management proposals. Signs erected in free standing frames must be heavily weighted down with sandbags and the potential for theft, vandalism and overturning should be considered when choosing the mounting method and exact location. Any signs fixed on temporary posts in verges or footways shall have the ground reinstated after removal of these signs to the detailed in Appendix 11/1.

All traffic signs must conform to the requirements of the Traffic Signs Manual - Chapter 8. All signs erected in the verge or footway must have a minimum clearance of 450mm from the edge of the carriageway.

Prior to handing over, all traffic sign assemblies (including back and front of the sign face, posts, lighting units and external and internal surfaces of traffic bollards) shall be cleaned in accordance with the requirements of the Traffic Signs Manual and the materials manufacturers recommendations.

LANDSCAPE AND ECOLOGY

APPENDIX 30/5: GRASS SEEDING, WILD FLOWER SEEDING AND TURFING

1. The selected areas to be seeded shall be treated first with a total non-residual herbicide to kill vegetation prior to seeding preparation and in accordance with Clause 3004.2.
2. Prior to cultivation the Contractor shall remove all arising's from the herbicide treatment from Site to the Contractor's tip. No cultivation shall commence of the herbicide treated areas until the vegetation has been effectively controlled.
3. Unless otherwise agreed with the Overseeing Organisation all treated areas to be seeded shall be thoroughly cultivated to a fine tilth and the surface shall be left even without localised humps or depressions ready to receive the grass seeds. All treated areas to be grass seeded shall also be cultivated to a sufficient depth. All stones and the like over 50mm in any dimensions and all other deleterious material brought to the surface shall be removed off Site to the Contractor's tip.
4. The Contractor shall ensure that all adjoining hard surfaces are kept clean and free from any deposits spilt.
5. The Contractor shall supply the grass seed mix as described below in seed mix 1 and to the percentage detailed to surfaces.

Seed Mix 1 Sowing Rate 40g/m^2	
Grasses	**% by weight**
Agrostis capillaris Or *A catellana*	10
Cynosurus cristatus	20
Festuca ovina	40
Festuca rubra pruinosa	20
Poa pratensis	10

6. The seeds shall be genetically compatible with plants of UK seed origin. Certificates to be submitted for germination approval prior to seeding Clause 618.13.
7. Sowing of grass seed shall take place during suitable calm weather conditions.
8. Grass seed shall be sown during the period 1st March to 31st May or 1st September to 31st October.
9. Sowing shall be by hand or mechanical means as agreed with the Overseeing Organisation. The operation shall be carried out in two traverse directions as two equal sowings on the soil surface with the overall rate of sowing to be 4g/m^2.
10. The Contractor shall not harrow or rake the sown area after seeding has taken place. To firm and level the surface and create good seed/soil contact the Contractor shall carry out two passes with a Cambridge (ribbed) or flat roller in transverse directions following seeding.
11. The Contractor shall ensure satisfactory germination of the seeded area to the satisfaction of the Overseeing Organisation.
12. Hydraulic mulch seeding is not permitted.