

**2026 Road Surfacing Works in Muinebheag Municipal
District**

CARLOW COUNTY COUNCIL



VOLUME A

WORKS REQUIREMENTS

July 2026

Client:

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Registration of Amendments

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Preamble to the Works Requirements

1. The Specification referred to in the Contract shall be the Specification for Works (SPW) in TII Publications (Standards) published by TII as a collective group of documents under the Construction and Commissioning activity within the online TII publications system (<http://www.tiipublications.ie/>) current on the date 10 working days prior to the tender returns date or, if applicable, the extended tender returns date and incorporating all amendments current on that date and as 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) Appendix 0/3: The Numbered Appendices;
 - (iv) Appendix 0/4 containing a list of the drawings referred to in the Specification.
2. An Additional Clause as indicated by a suffix 'AR' in Appendix 0/1 is a Contract-specific alteration.
3. A Substitute Clause as indicated by a suffix 'SR' in Appendix 0/1 is a Contract-specific alteration.
4. A Cancelled Clause indicated by a suffix 'CR' in Appendix 0/1 is a Contract-specific alteration.
5. Insofar as any of the Numbered Appendices may conflict or be inconsistent with any provision of the SPW the Numbered Appendices shall always prevail.
6. Any reference in the Contract to a part of the SPW or Appendix shall be deemed to refer to the corresponding Substitute part of the SPW or Appendix listed in Appendix 0/1 or 0/2.
7. Where a part of the SPW is altered, any original Table/Figure referred to in the part of the SPW shall apply unless the Table/Figure is also altered. Where a Table/Figure is altered, any reference in a part of the SPW to the original Table/Figure shall apply to the altered Table/Figure.
8. Where a part of the SPW relates to work goods or materials that are not required for the Works it shall be deemed not to apply.
9. Any Appendix referred to in the SPW that is not used shall be deemed not to apply.
10. References in the SPW to "NRA Road Construction Details" shall be taken to refer to Standard Construction Details (SCD) in TII Publications (Standards) published by TII as a collective

group of documents under the Construction and Commissioning activity within the online TII publications system (<http://www.tiipublications.ie/>), current on the date 10 working days prior to the tender returns date or, if applicable, the extended tender returns date.

11. Text shown in grey highlight applies only to Contracts where the applicable Conditions of Contract is either the Public Works Contract for Civil Engineering Works Designed by the Employer or the Public Works Contract for Minor Building and Civil Engineering Works Designed by the Employer.
12. Text shown in square brackets immediately following text shown in grey highlight, if any, is deemed to replace the text in grey highlight for Contracts where the applicable Conditions of Contract is the Public Works Contract for Civil Engineering Work Designed by the Contractor.
13. Throughout the SPW and Appendices to the SPW, the following interpretations shall apply:
 - “Base Course” shall mean “Binder Course”
 - “Roadbase” shall mean “Base”
 - “Wearing Course” shall mean “Surface Course”
 - “UK Department of Transport” shall mean “UK Highways Agency”

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

Clause / Table / Figure No.	Title	Written on Page No. Following
	None	None

(ii) List of Substitute Clauses, Tables and Figures

Clause / Table / Figure No.	Title	Written on Page No. Following
	None	None

(iii) List of Cancelled Clauses and Tables

Clause/ Table/ Figure No.	Title
	None

Appendix 0/2: Contract-specific minor alterations to existing Clauses, Tables and Figures
List of Altered Clauses

Clause /Table / Figure No.	Alterations to be made
	None

Appendix 0/3: List of Numbered Appendices referred to in the Specification and Included in the Contract

Responsibility for the compilation/completion of the appendices is indicated by the following symbols:

- E Employer compiles
- C Contractor to compile and submit to the Employer's Representative
- E/C Employer partially compiles and Contractor completes and submits to the Employer's Representative
- T/C Tenderer compiles and returns with his Tender. Post award of Contract the Contractor reviews and submits to the Employer's Representative.
- (P) The symbol 'P' indicates the appendix is a national pro-forma and the format must not be altered.

Where a Contractor or Tenderer is required to compile or complete an Appendix, they shall do so in accordance with the GCW, and providing information similar to that stated in the sample appendices as a minimum.

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

List 'A' is a complete list of the Numbered Appendices referred to in the SPW 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 'B' gives a list of Contract – specific Numbered Appendices devised for this Contract.

1. List A: List of Numbered Appendices referred to in the Specification for Road Works

Volume No.	Contract for Works Designed by the Employer Completed By:	Appendix	Title
A	E		INTRODUCTION
	Not Used	0/1	Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures Included in the Contract
	Not Used	0/2	Contract-specific Minor Alterations to Existing Clauses, Tables and Figures Included in the Contract
A	E	0/3	List of Numbered Appendices Referred to in the Specification and Included in the Contract
	E	0/4	List of Drawings Included in the Contract
			PRELIMINARIES
	Not Used	1/1	Accommodation and Equipment for the Employer's Representative
	Not Used	1/2	Vehicles for the Employer's Personnel
	Not Used	1/3	Communication System for the Employer's Personnel
A	Not Used	1/4	Working and Fabrication Drawings

A	(E)	1/5	Testing to be Carried out by the Contractor
A	(E)	1/6	Supply and Delivery of Samples to the Employer's Representative
A	(E)	1/7	Site Extent and Limitations on Use
	Not Used	1/8	Operatives for the Employer's Representative
A	(E)	1/9	Control of Noise and Vibration
	Not Used	1/10	Principal Structures to be Designed by the Contractor
A	(E)	1/11	Structural Elements and Other Features to be Designed by the Contractor
A	(E)	1/12	Setting Out and Existing Ground Levels
A	(E)	1/13	Programme of Works
A	(E)	1/14	Monthly Statements
A	(E)	1/15	Accommodation Works
A	(E)	1/16	Privately and Publicly Owned Services and Supplies
A	(E)	1/17	Traffic Safety and Management
A	(E)	1/18	Temporary Diversions for Traffic
A	(E)	1/19	Routeing of Vehicles
	Not Used	1/20	Recovery Vehicles for Breakdown
	Not Used	1/21	Information Boards
	Not Used	1/22	Progress Photographs
A	(E)	1/23	Substances Hazardous to Health
A	(E)	1/24	Quality Management System
A	(E)	1/25	Product Certification Schemes
A	(E)	1/26	NSAI Agrément Certificates
			SITE CLEARANCE
	Not Used	2/1	List of Buildings etc. to be Demolished
	Not Used	2/2	Filling of Trenches & Pipes
	Not Used	2/3	Retention of Material Arising from Site Clearance
	Not Used	2/4	Explosives and Blasting
A	(E)	2/5	Hazardous Materials
			FENCING AND ENVIRONMENTAL NOISE BARRIERS
	Not Used	3/1	Fencing, Gates and Stiles
	Not Used	3/2	Fencing: NRA Road Construction Details
			SAFETY BARRIERS & PEDESTRIAN GUARDRAILS
	Not Used	4/1	Safety Barriers

	Not Used	4/2	Pedestrian Guardrails
	Not Used	4/3	Safety Barrier Terminals
	Not Used	4/4	Safety Barrier Maintenance
	Not Used	4/5	Anti-Glare Screens
	Not Used	4/6	Safety Barriers: NRA Road Construction Details
			DRAINAGE AND SERVICES DUCTS
	Not Used	5/1	Drainage Requirements
	Not Used	5/2	Service Duct Requirements
	Not Used	5/3	Surface Water Channels and Drainage Channel Blocks
	Not Used	5/4	Fin Drains and Narrow Filter Drains and Geotextiles for Filter Drains
	Not Used	5/5	Combined Drainage and Kerb Systems
	Not Used	5/6	Linear Drainage Channel Systems
	Not Used	5/7	Drainage and Service Ducts: NRA Road Construction Details
	Not Used	5/8	Thermoplastic Structural Wall Pipes and Fittings
	Not Used	5/9	Attenuation
			EARTHWORKS
	Not Used	6/1	Requirements for Acceptability & Testing of Earthworks Materials
	Not Used	6/2	Requirements for Dealing with Class U2 Unacceptable Material
	Not Used	6/3	Requirements for Excavation, Deposition, Compaction (Other than Dynamic Compaction)
	Not Used	6/4	Not Used
	Not Used	6/5	Geotextiles Used to Separate Earthworks Materials
	Not Used	6/6	Fill to Structures & Fill Above Structural Foundations
	Not Used	6/7	Sub-Formation & Capping & Preparation & Surface Treatment of Formation
	Not Used	6/8	Topsoiling, Grass Seeding and Turfing
	Not Used	6/9	Earthwork Environmental Bunds, Landscape Areas, Strengthened Embankments
	Not Used	6/10	Ground Anchorages, Crib Walling and Gabions

	Not Used	6/11	Swallow Holes and Other Naturally Occurring Cavities & Disused Mine Workings
	Not Used	6/12	Instrumentation and Monitoring
	Not Used	6/13	Ground Improvement
			ROAD PAVEMENTS GENERAL
	(E)	7/1	Permitted Pavement Options
	(E)	7/2	Excavation and Reinstatement of Existing Surfaces
	Not used	7/3	Surface Dressing
A	(E)	7/4	Bituminous Sprays
	Not Used	7/5	Road Pavements: Road Construction Details
	Not used	7/6	Breaking up or Perforation of Existing Pavement
	Not Used	7/7	Not Used
	Not Used	7/8	Not Used
	Not Used	7/9	Cold Milling (Planing) of Bituminous Bound Flexible Pavement
			KERBS, FOOTWAYS AND PAVED AREAS
	Not Used	11/1	Kerbs, Footways and Paved Areas
	Not Used	11/2	Access Steps
	Not Used	11/3	Kerbs, Footways and Paved Areas: Road Construction Details
			TRAFFIC SIGNS
	Not Used	12/1	Traffic Signs: General
	Not Used	12/2	Traffic Signs: Reflective Markers
	Not Used	12/3	Traffic Signs: Road Markings and Studs
	Not Used	12/4	Traffic Signs: Cones, Cylinders, FTD's and other traffic delineators
	Not Used	12/5	Traffic Signs: Traffic Signals
	Not Used	12/6	Traffic Signs: Special sign requirements on Gantries
	Not Used	12/7	Traffic Signs: Preparation and Finish of Metal and other surfaces
			ROAD LIGHTING COLUMNS AND BRACKETS
	Not Used	13/1	Information to be Provided by the Designer for the Road Lighting Works when Specifying Lighting Columns and Brackets
	Not Used	13/2	Column and Bracket Data Sheets 1&2
	Not Used	13/3	Instructions for completion of column and bracket data sheets

	Not Used	13/4	Certification For Lighting Columns
	Not Used	13/5	Road Lighting Columns And Brackets: NRA Road Construction Details
			ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS
	Not Used	14/1	Site Records
	Not Used	14/2	Location of Lighting Units and Feeder Pillars
	Not Used	14/3	Temporary Lighting
	Not Used	14/4	Electrical Equipment for Road Lighting
	Not Used	14/5	Electrical Equipment for Traffic Signs
	Not Used	14/6	Preparation and Finish of Metal and Other Surfaces
			MOTORWAY COMMUNICATIONS
	Not Used	15/1	Motorway Communications
			PILING AND EMBEDDED RETAINING WALLS
	Not Used	16/1	General Requirements for Piling and Embedded Retaining Walls
	Not Used	16/2	Precast Reinforced and Prestressed Concrete Piles and Precast Reinforced Concrete Segmental Piles
	Not Used	16/3	Bored Cast-in-Place Piles
	Not Used	16/4	Bored Piles Constructed Using Continuous Flight Augers and Concrete or Grout Injection Through Hollow Auger Stems
	Not Used	16/5	Driven Cast-in-Place Piles
	Not Used	16/6	Steel Bearing Piles
	Not Used	16/7	Reduction of Friction on Piles
	Not Used	16/8	Non-Destructive Methods for Testing Piles
	Not Used	16/9	Static Testing of Piles
	Not Used	16/10	Diaphragm Wall
	Not Used	16/11	Hard/Hard Secant Pile Walls
	Not Used	16/12	Hard/Soft Secant Pile Walls
	Not Used	16/13	Contiguous Bored Pile Walls
	Not Used	16/14	King Post Walls

	Not Used	16/15	Steel Sheet Piles
	Not Used	16/16	Integrity Testing of Wall Elements
	Not Used	16/17	Instrumentation for Piles and Embedded Walls
	Not Used	16/18	Support Fluid
			STRUCTURAL CONCRETE
	Not Used	17/1	Concrete – Classification of Mixes
	Not Used	17/2	Impregnation and Coating Schedule
	Not Used	17/3	Concrete – Surface finishes
	Not Used	17/4	Concrete General
			STRUCTURAL STEELWORK
	Not Used	18/1	Requirements for Structural Steelwork
			PROTECTION OF STEELWORK AGAINST CORROSION
	Not Used	19/1	(Specification for Roadworks) Sheet No. Form BE/P1(New Works) Paint system Sheet
	Not Used	19/2	(New Works) Requirements for Other Work
	Not Used	19/3	(Specification for Roadworks) Form BE/P2 Paint Data Sheet
	Not Used	19/3**	(Specification for Roadworks) Form BE/P3 Paint Sample Despatch List: Sheet 1
	Not Used	19/3**	(Specification for Roadworks) Form BE/P3 Paint Sample Despatch List: Sheet 2
	Not Used	19/4	(New Works) General Requirements
	Not Used	19/5	(Specification for Roadworks) Form BE/P1 (Maintenance) Paint System Sheet 1
	Not Used	19/6	(Specification for Roadworks) Form BE/P1 (Maintenance) Paint System Sheet 2
	Not Used	19/7	(Maintenance) Requirements for Other Work
	Not Used	19/8	(Maintenance) General Requirements
			WATERPROOFING FOR CONCRETE STRUCTURES
	Not Used	20/1	Form PWS Proprietary Waterproofing System Data Sheet (1991 & Annex 'A')
	Not Used	20/2	Waterproofing for Concrete Structures
			BRIDGE BEARINGS
	Not Used	21/1	Bridge Bearing Schedule
			PARAPETS

	Not Used	22/1	Parapet Schedule
			BRIDGE EXPANSION JOINTS AND SEALING OF GAPS
	Not Used	23/1	Bridge Deck Expansion Joint Schedule
	Not Used	23/2	Sealing of Gaps Schedule (Other than in Bridge Deck Expansion Joints)
			BRICKWORK, BLOCKWORK AND STONWORK
	Not Used	24/1	Brickwork, Blockwork and Stonework
	Not Used	24/2	Brickwork, Blockwork and Stonework: NRA Construction Details
			SPECIAL STRUCTURES
	Not Used	25/1	Requirements for Corrugated Steel Buried Structures
	Not Used	25/2	Requirements for Reinforced Soil and Anchored Earth Structures
	Not Used	25/3	Requirements for Reinforced Clay Brickwork Retaining Walls of Pocket Type and Grouted Cavity Construction Structures
			MISCELLANEOUS
	Not Used	26/1	Ancillary Concrete
	Not Used	26/2	Bedding Mortar
	Not Used	26/3	Cored Thermoplastic Node Markers
			WATERMAINS UTILITIES AND ACCOMMODATION WORKS
	Not Used	27/1	Requirements for Watermains
	Not Used	27/2	Watermains: NRA Road Construction Details
			TRENCHLESS INSTALLATION OF ROAD DRAINAGE AND SERVICE DUCTS
	Not Used	28/1	Trenchless and Minimum Dig Techniques
			CCTV SURVEY OF ROAD DRAINAGE SYSTEMS
	Not Used	29/1	CCTV Survey of Road Drainage Systems

2. **List B: List of Contract-Specific Numbered Appendices Devised for the Contract**

Volume No.	Completed By	Appendix	Title
A	(E)	1/70	As-Built Records
A	(E)	1/71	Safety File

Appendix 0/4: List of Drawings included in the Contract**1 Contract Specific Drawings Supplied to Each Tenderer**

Drawing No.	Title	Volume No.
SITE LOCATION DRAWINGS		
	Scope of works document	A
GENERAL ARRANGEMENT DRAWINGS		
100/02a,b,c. 100/03,04	Appendix A - General Layouts	A
TYPICAL CROSS-SECTIONS		
None		
LANDS MADE AVAILABLE		
None		
SITE CLEARANCE		
None		
DRAINAGE AND SERVICE DUCTS		
None		
EARTHWORKS		
None		
PAVEMENT		
None		
TRAFFIC SIGNS AND ROAD MARKINGS		
None		

2 (i) Standard Drawings

Drawing No.	Title	Volume No.
None		

2 (ii) Inspected by Tenderers

Drawing No.	Title	Volume No.
None		

2 (iii) Brought into the Contract by Reference

The NRA Road Construction Details contain the following drawings brought into the Contract by reference. Unless otherwise stated below the whole drawing is brought into the Contract.

Drawing No.	Title	Aspect/Alternative(s) Required if Not Whole Drawing
None		

APPENDIX 1/4 WORKING AND FABRICATION DRAWINGS

Whenever required by the Contract, the Contractor shall supply calculations, test reports, data sheets, etc. in support of his detailed working and fabrication drawings to the Employer's Representative. Such documents shall remain the property of the Employer.

The Contractor shall submit three paper copies and one electronic copy (in PDF format or equivalent approved) of all relevant documents to the Employer's Representative in advance (as indicated in the table below) of the date on which the Contractor proposes to commence such works.

Drawings shall be to an appropriate scale and in sufficient detail to enable the Employer's Representative to assess the Contractor's works proposals. The drawings shall be supplied digitally in AutoCAD format, pdf and hardcopy.

The Contractor shall provide the following working and/or fabrication drawings to the Employer's Representative:

Series	Description of Work
100	Traffic Management Proposals as required by the Contract

The Employer's Representative will review and comment on submissions within 10 working days. The Contractor shall bear the reasonable risk of delays to programme if approvals are not obtained in time to commence works on the programmed date.

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

1. Tests carried out by the Contractor to demonstrate compliance with the Specification, Book 1 of Volume A, Works Requirements shall be carried out by a laboratory approved by the Employer's Representative and accredited by ILAB where required by the Specification, Book 1 of Volume A, Works Requirements.
2. The tables on the following pages give the minimum frequency of testing to be carried out by the Contractor to demonstrate compliance with the Specification, Book 1 of Volume A, Works Requirements. Testing shall be carried out immediately after sampling and results shall be included in the Quality File as per Appendix 1/24, which shall be available for inspection if required.
3. Material that is to be sourced from outside the Site shall be tested prior to its use as to its suitability as an earthworks material, and be approved by the Employer's Representative.
4. Additional testing shall be carried out by the Contractor as and when required by the Employer's Representative.
5. Tests comparable to those specified in this Appendix 1/5 shall be necessary for any equivalent work, goods or materials proposed by the Contractor. (See sub-Clause 105.4 of the Specification).
6. (IL) entered in the table indicates that an INAB test report or certificate is required for that test or series of tests.
7. Unless otherwise shown in this Appendix 1/5, tests for work, goods, or materials as scheduled under any one Clause are required for all such work, goods, or materials in the Works.
8. Cube strength tests are not required for concrete complying with Clause 2602.

APPENDIX 1/6

SUPPLY AND DELIVERY OF SAMPLES TO THE ENGINEER

1. Samples comparable to those specified in this Appendix shall be necessary for any equivalent work, goods or materials proposed by the Contractor (Refer to Sub- Clause 105.4 of the Specification).
2. Unless otherwise shown in this Appendix 1/6 samples of work, goods or materials schedule under any one Clause are required for all such works, goods or materials in the Works.
3. Unless otherwise scheduled under Clause 2602 of the Specification samples of concrete complying with that Clause are not required.
4. These samples shall be in addition to those taken and tested by the Contractor in accordance with Clause 105.2 of the Specification.
5. Samples are to be provided or made available by the Contractor for testing by the Employer's Representative, as listed in Table 1/6 below:

APPENDIX 1/7 SITE EXTENT AND LIMITATIONS ON USE**1.0 Extent of the Site**

- 1.1 Subject to the other provisions of the Contract, the extent of the Site shall include:
- a) Lands Made Available by the Employer for the Works as shown on drawings listed in Appendix 0/4 of the Specification;
 - b) Any further land acquired by or conveyed to the Employer (from any person, including the Contractor) from time to time for the purposes of the execution and completion of the Works;
 - c) Further lands designated as Public Road as per the Roads Act 1993, beyond the extent of the lands described in (a) and (b) above which shall be required to facilitate utility diversions and to provide Traffic Signs, Road Markings and Road Studs and the like; and
 - d) Lands owned or occupied by third parties where such lands are permitted to be accessed by such third parties to execute and complete Accommodation Works as specified in Appendix 1/15 of the Specification.
 - e) areas required for the installation alteration and removal of plant for statutory or other bodies. The use of these areas will be limited by the terms of the way-leaves acquired by the statutory or other bodies for execution of the works.
- 1.2 In addition, and subject to the agreement of the Local Authority and written consent of the Employer's Representative, the extent of the Site shall include areas required for local traffic control measures by the Contractor in compliance with Clauses 117 and 118 of the Specification, as and when necessary.

2.0 Limitations on the Use of the Site

- 2.1 Prior to entering parcels of land not acquired in their entirety, the Contractor shall erect suitable temporary/permanent fencing taking into account the requirements of adjacent land usage.
- 2.2 Where public roads are included within the extent of the Site, the Contractor shall maintain adequate traffic routes across, within and through the Site, or temporary diversions for traffic in accordance with Appendix 1/17 & Appendix 1/18 of the Specification.
- 2.3 The Contractor is limited in the use of public roads as a means of access to the Site as stated in Appendix 1/19.
- 2.4 The Site shall be used solely for the execution of the Works.
- 2.5 The Contractors attention is drawn to Appendix 1/9 of the Specification concerning limitations on noise and vibration. The normal working hours at locations 01,02,03,04,05,06,07 & 08 shall be Monday to Friday between 0800 and 1830 hours with no working on Saturdays, Sundays and public holidays, unless otherwise required to comply with traffic management restrictions in appendices 1/17, 1/18 and 1/19. The normal working hours at locations 09, 10 & 11 shall be Monday to Friday between 1830

and 0500 hours with no working on Saturdays, Sundays and public holidays, unless otherwise required to comply with traffic management restrictions in appendices 1/17, 1/18 and 1/19. Exceptionally, the Employer's Representative's consent for work outside these hours may be given after necessary consultation and written approval. A minimum of 3 days notice shall be required from the Contractor when seeking such consent.

- 2.6 The Contractor shall note and have regard to the presence of other contractors on parts of and adjacent to the site.
- 2.7 The Contractor shall not use areas of land with a temporary right of access for any purpose other than the execution and completion of the Works. The Contractor shall minimize the area of land occupied to that which is essential for the safe execution and completion of such part of the Works. The Contractor shall reinstate all areas of land which have been temporarily occupied to the satisfaction of the affected landowner, occupier and the relevant Authorities, Utilities Service Providers and Private Utility Services and other companies.
- 2.8 Access for pedestrians, cyclists and vehicular traffic shall be maintained to all properties affected by the Works.
- 2.9 Accommodation Works on lands not made available by the Employer shall be executed and completed as soon as possible so that inconvenience to the property owners and occupiers shall be minimized
- 2.10 Where the execution and completion of the Works affects lands and property the Contractor shall provide suitable temporary access having regard to the use of the lands and property
- 2.11 Notwithstanding the other provisions of the Contract the Contractor shall not have exclusive use of the Site and shall be aware that third parties shall be operating within the extent of the Site. Without limiting the previous sentence, those areas defined in Appendix 1/13 of the Specification and within this Appendix 1/7 shall not be for the sole use of the Contractor
- 2.12 The Contractor's use of the Site shall be limited to the constraints and restrictions contained within this Appendix 1/7, Appendix 1/13, Appendix 1/17, and Appendix 1/19 of the Specification

3.0 Archaeological Investigations

- 3.1 The Contractor shall not execute work in Archaeological exclusion Zones until all archaeological resolution works shall have been completed in these areas and shall take cognisance of this when programming the Works. Notwithstanding any other provision of this Contract, the Contractor shall consult and comply with the Project Archaeologist regarding the archaeological exclusion zones, until the necessary resolution works shall have been completed. In this respect the Contractor shall refer to:
 - a) None at Present
 - b) None at Present

4.0 Adjacent Works

It is not envisaged at this stage that other works will be ongoing adjacent to the construction site.

5.0 Licences

It is the responsibility of the Contractor to obtain all licenses, permits, permissions etc. required for the disposal of surplus material in accordance with Planning, Waste and all other relevant legislation.

6.0 Additional Particular Limitations on the Use of Certain lands

- 6.1 The scheduling of works in the vicinity of properties, which has the affect of limiting or removing access to those properties must be agreed in advance with the property owners and such agreements must be recorded in writing and be forwarded to the Employer's Representative at least 7 days prior to the commencement of the related works for approval.
- 6.2 The contractor shall note that reasonable access, for all private, public, commercial and business related activities, to all properties shall be maintained at all times unless the owners of the relevant properties agree to a relaxation in accordance with 6.1 above.

APPENDIX 1/9 CONTROL OF NOISE AND VIBRATION**1 Noise Control**

- 1.1.** The Contractor shall consult with the Employer and the Employer's Representative and comply with their requirements. The Contractor shall comply with the contents and recommendations of BS 5228: Code of Practice for Noise and Vibration Control on Construction and Open Sites (2009) and European Communities (Construction Plant and Equipment) Permissible Noise Regulations, Guidelines for the treatment of noise and vibration in National Roads Schemes published by the NRA, together with the specific requirements of this Appendix. Further to Clause 109 of the Specification for Road Works, the Contractor's attention is particularly drawn to Part 1: of the British Standard, BS 5228.
- 1.2.** All Plant used on the Works shall be the quietest of its type practical for carrying out the work required and shall be maintained in good condition with regard to minimising noise output. All Plant shall be operated and maintained in accordance with the manufacturer's recommendations including the use and maintenance of any specific noise reduction measures
- 1.3.** All necessary measures shall be employed including the use of mufflers on pneumatic tools, the use of effective exhaust silencers, the use of non-reciprocating Plant and the use where practical of effective sound reducing enclosures to ensure all Plant used in connection with the Works operates with the minimum of noise. The plant shall be maintained in good and efficient working order for the duration of the works in compliance with BS5228. Machines, which are used intermittently, shall be shut down or throttled back to a minimum during those periods when they are not in use.
- 1.4.** The noise levels (see Table 1/9.1 Note (i) below) scheduled below for periods outside the normal working hours will only be permitted when consent has been given to exceptional working.
- 1.5.** The ambient noise level, Leq (see Table 1/9.1 Note (ii) below) from all sources when measured 2.0 m above the ground at locations determined by the Employer shall either not exceed the appropriate level given in the Schedule or not exceed by more than 3dB(A) the existing ambient noise level, Leq (see Table 1/9.1 Note (iii) below), at the control station measured over the same period, whichever level is the greater. The maximum sound level at any noise control station shall not exceed the level given in the Schedule. Exceptionally the Contractor may be given permission to carry out works which exceed the noise levels in the Schedule, provided that 3 days notice of the date and timing of these works is given to the Employer's Representative, 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 3 days of receipt of the notice.

APPENDIX 1/11 STRUCTURAL ELEMENTS AND OTHER FEATURES TO BE DESIGNED BY THE CONTRACTOR

Table 1/11: Structural Elements to be Designed by the Contractor

Structural Elements and other features to be Designed by the Contractor	Location / Lot		Design Specification
Traffic Management including, diversions and all other traffic management arrangements.	1	<i>Garryhill Cross L-7005-49 & L-3003-26</i>	Traffic Signs Manual, Chapter 8 Appendix 1/17
	2	<i>Clashganny R-729-26</i>	
	3	<i>Ballymurphy - Kildealy R-702-187</i>	
	4	<i>Ballyblake R-729-53</i>	

APPENDIX 1/12 SETTING OUT AND EXISTING GROUND LEVELS**1. Specific Requirements for setting out**

The extent of the areas to be surfaced shown on the site location drawings will be marked out by staff of the Carlow Municipal District of Carlow County Council prior to the commencement of the contract. The existing levels will be agreed on site with the engineer and these levels will be used for tie-in purposes.

The centre lines of the Works shall be continuous with the centrelines of the adjacent works or existing roads. The contractor shall, when instructed by the Engineer, make any adjustments necessary to satisfy these requirements.

The Contractor shall, prior to the commencement of any pavement replacement works, agree in writing with the Engineer the existing ground levels, the existing vertical geometric alignment design parameters (gradients, vertical curve lengths, crown locations and cross falls) and any remedial measures to surface irregularities.

2. References to drawings or schedules quoting existing ground levels**Existing Survey Control Stations (Irish Transverse Mercator)**

Station Name	Easting	Northing	Level
Permanent Survey Control Stations	N/A	N/A	N/A
Not available			

APPENDIX 1/13 PROGRAMME OF WORKS**1.0 General**

- 1.1 The Contractor shall submit its Programme in accordance with the provisions of the Contract, and in compliance with the following specific requirements.
- 1.2 The Contractor shall provide the Programme in the form of a Microsoft Project Gantt Chart, or equivalent Approved; produced as a result of a “critical path analysis” and shall comply with the constraints stated or implied in the Contract. It shall show the level of detail appropriate to each stage of the Construction 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. An electronic version of the Programme shall also be supplied at the same time. The critical path shall be clearly shown on the Programme. The Programme shall be supported by bar charts for particular activities or time scales at the request of the Employer’s Representative.
- 1.3 The Programme shall be mounted on computer software that shall be Approved by the Employer’s Representative. If required, the Contractor shall supply to the Employer’s Representative such software, licences, reference manuals and initial training as are necessary for the Employer’s Representative or his staff to use the computer software.
- 1.4 All revisions and / or updates to the Programme and data relating to the Programme shall be provided to the Employer’s Representative in both hard copy and Approved electronic format.
- 1.5 Where there is a local concentration of individual distinct operations which cannot be satisfactorily represented in enough detail on the Gantt chart for the full length of the Design and Construction of the Works, for example, at a junction or at a Structure, then an individual bar chart detailing such activities shall be provided to the Employer’s Representative.
- 1.6 Additionally and notwithstanding any other provision of the Contract, the Employer’s Representative shall have the right to require the Contractor to provide a Gantt chart or Bar chart for any discrete part of the Works. The Contractor shall comply with such requirements at the cost of the Contractor.
- 1.7 Gantt or bar charts shall list the location and description of activities to which they refer and show for each listed activity a horizontal bar indicating the start, duration and end date of those activities plotted to a horizontal scale of time.
- 1.8 Additionally, and notwithstanding any other provision of the Contract, the Employer’s Representative shall have the right to require the Contractor to introduce additional activities into the bar chart and the Contractor shall comply with such requirements at the cost of the Contractor.
- 1.9 A separate Programme shall be provided for the Works.

2.0 Schedule of Stated Constraints

- 2.1 The list of constraints included in this section 2 of Appendix 1/13 of the Specification, Book 1 of Volume A, Works Requirements shall not be considered exhaustive and all other constraints suggested, or implied, within the Contract or considered prudent by the Contractor for any reason whatsoever including, but not limited to, its inspection of the Site and Off-Site Areas, shall be taken into account by it in formulating its Programme in accordance with the provisions of the Contract.
- 2.2 Further to the other provisions of this Appendix 1/13 of the Specification included in Volume A, Book 1, Specification, the Programme shall allow for all of the following, as a minimum:
 - (a) The time periods, order of Works and procedures provided;
 - (b) The establishment and certification of any testing laboratory;

- (c) The critical path from the Starting Date to the Date for Substantial Completion;
 - (d) The inter-relationship between the Contractor and all other parties for all key or significant activities including, but not limited to, the activities of relevant authorities;
 - (e) Constraints imposed through working on, or adjacent to, carriageways carrying live traffic and any necessary temporary diversions and Temporary Traffic Management Schemes;
 - (f) Constraints imposed on Construction activities due to maintenance;
 - (g) Constraints imposed by the requirements of relevant authorities including, but not limited to, the Inland Fisheries Ireland, the Office of Public Works and the National Parks and Wildlife Service;
 - (h) Constraints due to work to privately and publicly owned services and supplies, possessions of railways, property, way leaves and the like; and
 - (i) Constraints imposed by the restrictions on access to the Site, including those outlined in Appendix 1/19 of the Specification, Book 1 of Volume A, Works Requirements.
- 2.3 The traffic safety and management requirements are outlined in Numbered Appendices 1/17 and 1/18 of the Specification, Book 1 of Volume A, Works Requirements. The Contractor shall note the requirements of Appendix 1/17 of the Specification, Book 1 of Volume A, Works Requirements in programming the Traffic Management requirements.
- 2.4 The Construction of environmental earth bunds, environmental barriers and the like shall be undertaken at the earliest practicable time in the construction period by the Contractor.
- 2.5 The Construction of environmental mitigation planting shall be undertaken at the earliest practicable date by the Contractor to ensure that the plants are established by the end of the establishment period.
- 2.6 Notwithstanding the other provisions of the Contract; access for pedestrians, cyclists, and other vehicular traffic shall be maintained to all properties in accordance with the requirements given in Appendix 1/7.
- 2.7 All properties connected to public sewers shall remain connected throughout the Works.
- 2.8 The flow in watercourses and the like shall be maintained during the Construction of watercourse structures, culverts, river diversions and all other works. The flows shall be maintained without flooding to property. The requirements in relation to the Office of Public Works and the Inland Fisheries Ireland shall also be taken into consideration.
- 2.9 In order to reduce inconvenience to Users, the Contractor shall phase the road and Structure Works affecting the existing road network to ensure that the Construction shall be completed in one continuous period from the Starting Date.
- 2.10 The Construction of Accommodation Works shall be in accordance with Appendix 1/15 included in the Specification, Book 1 of Volume A, Works Requirements.
- 2.11 Accommodation Works generally replace existing facilities or rights enjoyed by relevant persons. The programming of these Works shall be co-ordinated with the remainder of the Works to ensure any inconvenience to the said relevant persons shall be kept to a minimum.
- 2.12 The Contractor shall note the requirements of Appendix 1/7 of the Specification, Book 1 of Volume A, Works Requirements particularly in gaining possession of certain lands and to the constraints required in dealing with Archaeological Resolution.
- 2.13 The Contractor shall allow sufficient time within the Programme to allow for the written Approval of the Employer's Representative of Principal Sub-Contractors and all other Approvals, Acknowledgements and the like as shall be required in accordance with the provisions of the Contract.
- 2.14 The works identified in Table 1/13.1 of this Appendix 1/13 of the Specification, Book 1 of Volume A, Works Requirements are planned to be underway during the construct period and the Contractor shall take cognisance of these in its Programme and shall consult with the relevant authorities and the other contractors and incorporate and co-ordinate their requirements within its Programme:

Table 1/13: List of Works planned to be underway during the period up to the issue of the

Certificate of Substantial Completion for the Works

Name of the Third party	Nature of the Work
Contractor to liaise with Carlow County Council with regard to details of third parties	At intervals Carlow County Council shall carry out routine and emergency works which may impact the scheme.

3.0 Programme Levels

- 3.1 The level of detail required for the Programme submissions described in section 1 of this Appendix 1/13 of the Specification, Book 1 of Volume A, Works Requirements shall not be less than the following:

Level 1 Programme Submissions

- 3.1.1 Before the Starting Date and in any subsequent revision, the level of detail required shall include the following, as a minimum:

(a)	Roadworks – For main route and for each side road, link road and slip road;	
	(i)	Site clearance;
	(ii)	Drainage;
	(iii)	Kerbs and footway;
	(iv)	Surfacing;
	(v)	Road Markings
(e)	Traffic Management measures including operation of site accesses, Contractor's crossings, and temporary diversions and the like;	
(f)	Accommodation Works;	
(j)	Any pre-Construction works	

Level 2 Programme Submissions

- 3.1.2 At least 2 weeks before the commencement of any item of the Works a further breakdown of items and other details as may be required either by the Contractor and / or the Employer's Representative shall be provided.

APPENDIX 1/14 MONTHLY STATEMENTS

1. The monthly statements shall be submitted to the Employer's Representative by the Contractor in accordance with Clause 11 of the Conditions shall, whenever dealing with matters covered by the Bills of Quantities as included in Volume C of the Works Requirements (Pricing Document), be set out under Part and Section headings similar to those in the Bills of Quantities and shall separately identify each item and specify quantity, unit, rate and value.

APPENDIX 1/15 ACCOMMODATION WORKS**General**

- 1.1** All unauthorised work carried out by the Contractor outside of the authorised site shall be at the Contractors own expense and with the written approval of the landowner concerned.
- 1.2** All agreements made by the Contractor with landowners or occupiers shall be confirmed to the Employer's Representative in writing. Where the Contractor is deemed by the Employer's Representative to be in breach of any such agreement, the landowner or occupier may be compensated directly by the Employer who, in such instances, shall be reimbursed by deductions of such payments due to the Contractor from the Employer under the Contract (including retention monies).
- 1.3** The Contractor shall take all necessary precautions to safeguard all existing buildings and works from damage by construction activity, plant operation, blasting operations, ground movement and settlement, and all other activities associated with the execution of the Contract. The Contractor shall make all necessary records (photographic or otherwise) of existing structures and other properties that could be affected by execution of the works prior to the commencement of construction.

APPENDIX 1/16 PRIVATELY & PUBLICLY OWNED SERVICES AND SUPPLIES**General**

1. Details of preliminary arrangements that have been made with Statutory Undertakers and others for the alteration of services affected by the works are listed in this Appendix.
2. The Contractor shall make arrangements with the Statutory Undertakers and others concerned, for the co-ordination of his work with all work which needs to be done by them or their contractors concurrently with the Works. Compliance with the periods of notice given in this Appendix does not relieve the Contractor of his obligations.
3. Private services to individual properties have not generally been listed or shown on the Drawings. The Contractor shall make arrangements with the Statutory Undertakers and others concerned for the phasing of all necessary disconnections and diversion of private services affected by the Works.
4. Disconnected apparatus shall be removed by the Contractor only with the prior consent of the Authority concerned.
5. The names, addresses and contact details of the authorities serving in the locality are listed below:

Schedule of Contacts for Private and Publicly Owned Services and Suppliers

Name	Addresses	Contact
Roads Section Carlow County Council	County Buildings, Athy Road, Carlow	059 9170300 Orla Barrett Senior Engineer Cian Madden (Carlow MD) Lily Slye (Muine Bheag MD) Pat Harrington { Tullow MD}.
Water Services Carlow County Council	Cox's Lane, Carlow	059 9170300 Orla Barrett Donnacha Lynch (Water) (Wastewater)
ESB Networks	Green Lane, Carlow	(021) 2386555 esbnetworks@esb.ie
Eircom PLC	Kennedy Avenue, Carlow	https://cbyd.emaps.eircom.ie/Eircom-CBYD/
Gas Networks Ireland	Gasworks Road, Cork	1850 427 747
E-Net	Hamilton House, Plassey, Limerick	061 274010

APPENDIX 1/17 TRAFFIC SAFETY AND MANAGEMENT

Definitions

1. Temporary Traffic Management Schemes (TTMS): Temporary Traffic Management Schemes (TTMS) shall be the arrangements for specific locations within a section of the Works to be implemented by the Contractor to direct traffic through, or around, the Site to facilitate Construction of the Works. Traffic safety and management arrangements shall remain constant for the duration of any given Temporary Traffic Management Scheme. Any alteration to these arrangements such as changes to lane provision, width, location or type shall be deemed to be a new and separate Temporary Traffic Management Scheme.
2. Traffic Safety and Control Officer: The Traffic Safety and Control Officer is a senior person nominated by the Contractor who is responsible for Temporary Traffic Management Schemes and the like. The Contractor shall appoint a minimum of one nominated Traffic Safety and Control Officer and one deputy for the Works who shall make all arrangements necessary for Traffic Management for the Works, unless otherwise approved by the Employer's Representative.
3. Traffic Management Operation: A Traffic Management Operation consists of those activities necessary to assemble, maintain, alter and remove a Temporary Traffic Management Scheme.
4. Traffic Management Equipment: Traffic Management Equipment shall consist of all signs and their covers, cones, cylinders, studs, barriers, road markings, lights, traffic signals including, their supports, and the like and fixings and any cabling, piping, joints, connectors, electricity supply, weighting down and any other item required for any Temporary Traffic Management Scheme.
5. Traffic Management Plan: The plan required for the Works as outlined in this Appendix 1/17 of the Specification, Book 1 of Volume A, Works Requirements.

General

6. The works require the setting up, maintenance, alteration and removal of Traffic, Safety and Management Measures. The Contractor shall be responsible for the Planning, Design, Implementation, Construction, Maintenance and Removal of all Traffic Management required to facilitate the Construction of the Works.
7. Traffic management measures shall be necessary whenever work is undertaken on or adjacent to existing roads. Traffic Control shall be undertaken in accordance with the "Traffic Signs Manual - Chapter 8 – Temporary Traffic Measures and Signs for Roadworks" issued by the Department of Transport November 2010 and the document "Guidance for the Control and Management of Traffic at Roadworks" 2nd Edition 2010 also issued by the Department of Transport and any additional requirements detailed in the DMRB. Where any revisions have been made to these documents, or where the

documents have been superseded by other documents, the Contractor shall use the version of the documents current at the time of the works.

8. Without prejudice to the Conditions of Contract, the Contractor shall, at least 7 days prior to the date on which it is proposed to commence the works, prepare and submit to the Employer's Representative a detailed Construction Stage Traffic Management Plan for each phase of Traffic Management, which has the prior written agreement of Carlow County Council's Roads Department and the emergency services. Such Construction Stage Traffic Management Plans shall show the sequence of Construction within the Programme constraints of Numbered Appendix 1/13 of the Specification, Book 1 of Volume A, Works Requirements. Such Construction Stage Traffic Management Plans shall also include the following information, as a minimum:-

- (i) Phasing of the works.
- (ii) Timing of the operations and provisions for working at night
- (iii) Drawings showing traffic management layout, including:-

- (a) Working Areas
- (b) Safety Zones
- (c) Crossovers
- (d) Access and exit locations for construction vehicles
- (e) Signing
- (f) Road markings
- (g) Temporary lighting
- (h) Provision for emergency services
- (i) Provision for Pedestrian Access
- (j) Provision for Cyclist Access
- (k) Temporary Carriageway Pavement
- (l) Details and dates of Lane Closures
- (m) Risk Assessments

9. Where necessary, the Contractor shall employ temporary safety barrier systems to delineate and segregate the trafficked lanes from the Contractor's working area during construction.
10. Any temporary pedestrian and cycle ways shall be properly segregated and protected from trafficked lanes and construction activities.
11. Temporary road markings shall not be used on permanent asphalt wearing course.
12. The Contractor is entirely responsible for obtaining Road Opening Licences, Road Works Speed Limit Orders and Road Closures as necessary to enable him to fulfil his contractual obligations and shall programme the works allowing for any necessary approval periods.
13. The Contractor shall Design and implement detailed Temporary Traffic Management Schemes that are compatible with its Programme and within the constraints set out in

the Contract. Traffic Management Operations shall be arranged to minimise disruption in all cases.

14. Each Temporary Traffic Management Scheme shall include, but shall not be limited to, the following measures in relation to the traffic on the existing road network:
 - (a) The staged re-alignment of each National, Regional or Local Road at the tie in points to maintain traffic flows along the existing road until completion of the junction Works and the completion and opening to traffic of the mainline;
 - (b) The staged Construction of the new section of National, Regional or Local Road including, but not limited to, changes to junctions to maintain traffic flows along the existing road until completion of the Works and the Completion and opening to traffic of the mainline and other works Roads;
 - (c) Provision and maintenance of all temporary traffic signs and barriers to clearly identify traffic routes and end destinations for traffic using the existing National, Regional or Local Road;
 - (d) Provision and maintenance of all road studs and lane markings in accordance with the Traffic Signs Manual; and
 - (e) Dismantling and disposal off site of all temporary measures.
15. In the event of poor visibility due to fog or spray from vehicles travelling on the road, the Contractor shall, after consultation with the Garda Síochána and the Employer's Representative, not set up, alter or remove a Temporary Traffic Management Scheme. The Gardaí or the Employer's Representative may also instruct the Contractor to immediately remove or alter any Temporary Traffic Management Scheme until visibility is deemed by the Garda Síochána to have sufficiently improved.

Particular Requirements

16. A full road closure will be permitted as part of this Contract while local access will be maintained. Carlow County Council will provide the formal road closure notification.
17. The Contractor shall supply, erect and maintain, for the duration of the Works, adequate warning and diversion signs and any other signs or control light signals which may be considered necessary. Temporary traffic management measures shall also be required to accommodate traffic at adjoining side roads
18. Not Required
19. Not Required
20. Regular meetings between the Employer's Representative, the Contractor, Carlow County Council, the Gardaí and other emergency services and shall be arranged by the Contractor and shall take place throughout the Construction Period; as well as at initiation or changes of Traffic Management layouts and at any other time deemed necessary by any of these parties. Such meetings shall take account of any special events that may require particular Traffic Management Operations.
21. Notwithstanding any consents or approvals granted for the Contractors Construction Stage Traffic Management Plan by Carlow County Council's Roads Department, An Garda Síochána and the emergency services; Carlow County Council and An Garda

Síochána reserve the right to modify, remove or postpone the implementation of a particular Construction Stage traffic management system if deemed necessary by traffic conditions at any time during the works.

22. Not Required

23. Not Required

24. Not Required

25. Not Required

26. Not Required

27. The Design and Construction of any temporary safety barriers used in systems of traffic management shall be in accordance with IS EN 1317 and NRA TD 19 of the DMRB. Temporary safety barriers shall be temporary vertical concrete barrier (TVCB) or 'Varioguard' or equivalent Approved and shall be installed in accordance with the manufacturer's instructions. Temporary vertical concrete barrier and "Varioguard" shall conform to the requirements of the Traffic Signs Manual Chapter 8.

28. The Contractor shall coordinate, facilitate and provide access for local residents and property owners for the duration of the works.

29. The Contractor shall appoint a liaison officer who will be responsible for advising local residents of proposed traffic management plans. The Liaison officer is required to carry out a leaflet drop to all residences/commercial holdings affected by the proposed traffic restrictions, 7 days prior to implementing any traffic management plan and prior to any and all subsequent changes to traffic restrictions. A contact number for the Liaison Officer is to be provided on all public notices and leaflets.

30. The Contractor shall supply telephone numbers of a minimum of 3 Contractor's personnel who can be contacted by the Gardai or the Employers Representative, both during and outside normal working hours, and who shall be responsible for rectifying any traffic management should the need arise or instigating whatever action shall be reasonably required in the event of an emergency.

31. The Contractor shall be subject to the full statutory procedures outlined in the Roads Regulations, 1994. The Contractor shall note that there is no guarantee that a road closure will be granted by the relevant Road Authority.

Existing Carriageway Markings – General

32. Not Required

33. Not Required

34. Not Required

35. Not Required

Signing – General

36. The Contractor shall comply with the following constraints, as a minimum:

- (i) The Contractor is responsible for the supply, erection, maintenance and removal of all traffic management measures and signage associated with the works.
- (ii) The Contractor shall ensure that all traffic signs required to be lit by external lighting are lit during periods when road vehicles are required by Law to display lights. The Contractor shall be responsible for ensuring that all signs and traffic signals shall be covered when not in use.
- (iii) All permanent traffic signs conflicting with Temporary Traffic Management shall be covered by a suitable method and shall be uncovered on removal of the Temporary Traffic Management measures.
- (iv) All signing shall have a minimum mounting height of 1.5m. Adjacent to footways the minimum mounting height shall be 2.3m.
- (v) All posts shall conform to Chapter 8 of the Traffic Signs Manual. All signs shall be new or good second hand condition to the approval of the Employer's Representative. Signs shall be inspected prior to use. Illumination of signs shall be to standards required by Chapter 8 of the Traffic Signs Manual in areas of street lighting and shall take steps to avoid dazzle.
- (vi) All signs shall be erected with due regard to visibility splays, sight lines to other signs and adequate clearance from traffic lanes and shall be located to avoid causing obstruction.
- (vii) Signs erected within Temporary Traffic Management measures shall carry a reflective strip on the rear face positioned to ensure their visibility for Site related traffic at night.

Starting Date Signing

37. Not Required

Mandatory/Advisory Speed Limit Signing

38. Not Required

39. Not Required

Vehicle Recovery Unit Signing

40. Not required.

Lighting of Vehicles and Equipment

41. The Contractor shall at all times be responsible for the lighting of vehicles and Construction related equipment and all necessary floodlighting. All floodlighting shall be of a type, and shall be installed in such a manner, that ensures that there shall be no dazzle caused to any drivers on live carriageways.
42. Road danger lamps, where mounted on cones, shall be of a bracket type mounted below the level of the top of the cone to assist stability of the cone or of an equivalent Approved type.

Temporary Lighting

43. Temporary lighting shall be provided and maintained by the Contractor during the hours of darkness and at all other times of poor visibility to illuminate the following, as a minimum:
 - (a) All working spaces wherever Works are in progress.
 - (b) All locations where the merging and / or diverging of traffic lanes or lane switching forms part of the Temporary Traffic Management measures.

Maintenance Requirements

44. The Contractor shall be responsible for the maintenance of all public roads, site access roads and temporary diversions along the works until issue of the Certificate of Substantial Completion. In addition, maintenance of public roads, including cleaning and sweeping, outside the Site boundary will be necessary if resulting from spillage or contamination of roads by construction traffic coming to/from the Site.
45. The Contractor shall maintain arrangements whereby he can quickly call out personnel outside of normal working hours to carry out work needed for an emergency. The Employer's Representative shall be provided with a list of names, addresses and telephone numbers of the Contractor's staff who are responsible for organising such emergency work.
46. In the event of an accident occurring within the site, and once broken down or damaged vehicles and debris have been removed, the Contractor shall, on the direction of the Employer's Representative, restore the road surface to its original condition, to the satisfaction of the Employer's Representative. The Contractor shall submit to the

Employer's Representative within 48 hours fully detailed and separate records of equipment, labour and materials used for restoration and reinstatement.

47. The Contractor shall ensure that all signs, cones, barriers, delineators and bollards used in connection with the works shall be cleaned regularly, or as necessary. The Contractor shall ensure that all reflective patches and sleeves on cones or other delineators are replaced at regular intervals or as necessary.
48. The Contractor shall be responsible for maintaining the running traffic carriageway and any pedestrian routes adjacent to the Works in a clean and safe condition at all times.

Site Vehicles, Personnel and Equipment

49. No vehicles are permitted to drive against the normal flow of traffic or to face oncoming traffic except with the prior written Approval of the Employer's Representative for the performance of essential activities.
50. Vehicles shall only enter or leave working areas of the Site and Off-Site Areas via Approved accesses and egresses as outlined in Numbered Appendix 1/19 of the Specification, Book 1 of Volume A, Works Requirements. Construction related vehicles, or the vehicles of the Contractor's Principal Sub-Contractors or suppliers, shall not be permitted to use such roads, accesses or temporary carriageways within the Site or Off-Site Areas while they are open to use by public vehicles.
51. All vehicles and equipment engaged in the Works, or entering / exiting the working areas shall be fitted with a roof mounted amber flashing beacon.
52. Roof mounted amber flashing lamps shall be operated a minimum of 200m in advance of the access when entering or exiting a public road. Roof mounted flashing lamps shall also be operated when travelling through the Site when not on a public road. The use of vehicle hazard warning lights shall not be used as an alternative to the roof mounted amber beacon.
53. All drivers including those delivering equipment and materials shall be given clear instructions regarding the traffic arrangements applicable at any particular time and shall comply with the provisions of this Numbered Appendix 1/17 of the Specification, Book 1 of Volume A, Works Requirements.
54. Heavy commercial vehicles used on Site by the Contractor, its Principal Sub-Contractors or suppliers shall be fitted with an audible reversing warning device.
55. The Contractor shall comply with all statutory requirements for processing of orders for Traffic Management and temporary diversions with the relevant authority.
56. The Contractor shall provide all information required in connection with traffic orders. Proposals for any Temporary Traffic Management Scheme requiring traffic orders shall

show the alignments or routes for traffic and proposals, as a minimum, for signing, lighting, road markings, reflecting road studs, duct and cable runs. Such proposals shall be on drawings to a scale of 1:1000 or 1:500, as necessary. The proposals should include details of proposed sign faces and their sizes to a typical scale of 1:50 or 1:20. The Contractor shall also provide a minimum of 3 number drawings where a traffic order has to be made or authorisation of a non-prescribed sign is required.

57. The Contractor shall be responsible for the payment of all charges associated with the preparation and publication of all road related orders, permissions and the like. The Contractor shall be responsible for the preparation and conformity of all necessary documentation required by the relevant authority and for the payment of all charges arising from the advertising of traffic orders.

58. Not Required

59. Not Required

60. Roads including footpaths, cycle tracks and other traffic routes, described above or listed in Appendices 1/17, 1/18, and 1/19 are the responsibility of:

Authority: Carlow County Council
Address: County Buildings, Athy Road, Carlow
Tel. No. 059 9170300
Contact: Ray Wickham

Traffic Safety and Management Requirements - General Requirements

61. Unless otherwise approved in writing by the Employer's Representative and consented to by Carlow County Council and the Gardaí, the erection and removal of any Temporary Traffic Management measures shall not be carried out before 8:00 and after 19:00.
62. Notwithstanding any other requirements of the Contract, the Contractor shall notify in advance the local ambulance officer and the local fire officer of any road closures, temporary traffic lights, and other Traffic Management proposals so that disruption to emergency ambulance response can be minimised.
63. Not Required
64. The Contractor shall not take down existing local or advance direction signs or regulatory or information signs without first either providing temporary signs displaying the same information or replacement permanent signs.

65. Strict measures shall be put in place at construction access points in order to mitigate the risk of haul vehicles dropping fill or other construction material onto the existing carriageway whilst hauling material to the site and also whilst exiting the site back onto the public road network. Such measures must include:
- (a) Wheel Wash Facilities shall be provided on site at all times to ensure the wheels of every haul vehicle are kept clean and free of construction debris.
 - (b) Road Sweeper/Cleaner shall be available on site at all times to clean up any spillage from construction vehicles occurring on the road carriageway and to ensure that the road carriageway is kept clean and free of construction debris.
 - (c) Measures to control dust generated by construction vehicles shall be provided on site.
66. Access for construction traffic to the site shall be safely facilitated. Access points shall be carefully positioned to avoid locations of poor visibility and conflict with existing accesses. The following provisions shall be made in terms of traffic management at construction access points:
- (a) Advance warning signage of construction access points shall be adequately signed on the i.e. construction vehicle access ahead.
 - (b) Construction access gates shall remain closed when not in use.
 - (c) A site safety notice shall be erected at construction access points.
 - (d) Temporary traffic management measures deployed during the hours of darkness shall serve to highlight the precise location of the construction access. Such measures shall include additional traffic cones, road danger lamps and/or reflectorised signage.
 - (e) Routine inspections shall be carried out to ensure that signage and visibility splays are not obstructed.
 - (f) Roads immediately outside site accesses shall be regularly inspected for cleanliness, and cleaned as necessary. Any damage to roads caused by construction traffic shall be repaired as necessary; and
 - (g) Within the site, sufficient space shall be allocated to allow vehicles to turn around safely on-site.
67. Not Required
68. Not Required
69. Not Required
70. The Contractor's Traffic Management proposals shall ensure that construction joints in the surface course comply with specification requirements.
71. The Contractor shall be responsible for the maintenance of all public roads, site access roads and temporary diversions within the Site and Off-Site Areas until issue of the relevant Substantial Completion Certificate.

- 72. Not Required
- 73. The Contractor shall keep a daily record of all Defects, the times when they were identified or reported to him, the action taken to correct the Defects, and the times when they were successfully corrected. A copy of this record shall be forwarded to the Employer's Representative on the following day, until the completion of those Works requiring the Lane Closure.
- 74. Not Required
- 75. Not Required
- 76. Not Required
- 77. Notwithstanding any consents or approvals granted for the Construction Stage Traffic Management Plan by Carlow County Council's Roads Department, An Garda Síochána and the emergency services; Carlow County Council and An Garda Síochána reserve the right to modify, remove or postpone the implementation of a particular Construction Stage Traffic Management system if deemed necessary by traffic conditions at any time during the works.

APPENDIX 1/18 TEMPORARY DIVERSIONS FOR TRAFFIC**General Requirements**

1. The Contractor shall provide for the Design, Construction and maintenance of all temporary roadways that shall be necessary for the temporary diversion of traffic wherever the Construction of the Works interferes with existing public or private roads or other ways over which there shall be a public or private right of way, whether vehicular or pedestrian.
2. Before submitting a formal application for any statutory orders or Approvals required to be made or notices required to be published for temporary diversions / alterations, the Contractor shall consult with the relevant Road Authority, Relevant Persons, Interested Parties, Garda Síochána, emergency services, Bus Éireann, and private bus companies and shall then submit an outline of its requirements to the Employer's Representative for comment.
3. Following receipt of such comments from the Employer's Representative, the Contractor shall modify its proposals as required and shall submit a formal application to the Road Authority for any statutory orders required to be made or for notices to be published.
4. The Contractor shall allow a minimum period of 6 weeks for the orders to be made and notices to be published.
5. All risks associated with the obtaining of such orders and notices and the like shall rest with the Contractor.
6. The Contractor shall supply details of the following, as a minimum, for each temporary road diversion, at least 28 days prior to the Construction of the diversion:
 - (a) The phasing of the Construction of the Works; and
 - (b) Drawings showing the Traffic Management layouts including, but not limited to, the following:
 - (i) Position of traffic signs and signals;
 - (ii) Width of Lanes;
 - (iii) Working areas;
 - (iv) Safety zones;
 - (v) Access and egress points from the Site and Off-Site Areas for Construction related vehicles and the like;
 - (vi) Crossovers;
 - (vii) Provision for emergency vehicles;
 - (viii) Temporary lighting;
 - (ix) Details of temporary barriers; and
 - (x) Facilities for pedestrians, cyclists and other non-motorised users.
7. Temporary lights powered by a generator shall not be permitted within 100m of any occupied property.
8. The Contractor shall give the Employer's Representative at least 14 days advance notice of any phased Works which shall be required during the Lane Closures and shall not alter, or adjust, the traffic during this period.

Particular Requirements

9. A full road closure will be permitted subject to the local access for those within work zone.

APPENDIX 1/19 ROUTEING OF VEHICLES**Permitted Access Routes to and from the Site**

1. The Contractor shall comply with these restrictions on the routeing of vehicles under the control of the Contractor, his subcontractors and suppliers when planning and programming the Works.
2. The Contractor shall provide, erect and maintain such traffic signs, lamps, barriers, and the like, complying with Clause 117 of the Specification as may be required to ensure the observance of the requirements and restrictions detailed in this Appendix 1/19 of the Specification, Book 1 of Volume A, Works Requirements.
3. The Contractor shall restrict the movement of Contractor's equipment and materials to and from the Site to permitted access routes.
4. The Contractor, his sub-contractors and suppliers shall use only the permitted access routes for all purposes in connection with the Works (including import of acceptable and disposal of unacceptable materials) unless otherwise agreed in writing by the Employer's Representative.
5. Permitted access routes to and from the Site shall be via the existing National and Regional Road network only. Construction generated traffic is not permitted to use local roads to access the site.
6. The Contractor shall provide the Employer's Representative and the local An Garda Síochána with a 24 hour emergency contact number, and shall respond immediately to the requests of the Employer's Representative and/or An Garda Síochána.
7. The Contractor is deemed to have inspected and examined the Site and its surroundings at Tender Stage and to have satisfied himself as to the nature and means of access to the Site. In the event of the Contractor not being satisfied with the Permitted Access Routes to and from the Site, the Contractor is obliged under the Contract to provide for all expenses and charges for temporary wayleaves required by the Contractor in connection with access to the Site.

Emergency Vehicle Routes

8. Where lane closures are in place, the Contractor shall devise a strategy such that Emergency Vehicles can traverse through the Works area without delay. These arrangements shall be communicated to the Emergency Services prior to the works, and appropriate means shall be provided for rapid clearing of the route from obstruction by construction vehicles, machinery, materials, as well as general traffic.

Movement of Machinery and Equipment across Public Roads

9. The provisions for the Contractor's haul route crossings of public roads detailed in this Appendix shall be read in conjunction with the requirements of Appendix 1/17.

The Use of Permanent Works by Construction Traffic

10. The finished pavement forming part of the permanent works may be used to carry construction traffic only when the Contractor has taken measures to protect it from damage.
11. Subject and without prejudice to the Conditions, the Contractor shall submit his proposals with regard to the protection of the permanent works in accordance with Clause 4.7 of the Conditions at least 28 days before it is proposed to use any of the finished pavement forming part of the permanent works to carry construction traffic. The proposal shall include supporting calculations; details of any loadings, proposed protective measures and any other information required by the Employer's Representative in order to fully assess the proposal. The Contractor shall not implement the proposals without the prior approval of the Employer's Representative.
12. The approval of the Employer's Representative to proposals to use finished pavement forming part of the permanent works for construction traffic shall not relieve the Contractor of his responsibilities under the Contract.

APPENDIX 1/23 SUBSTANCES HAZARDOUS TO HEALTH**General**

The Contractor shall be required to provide temporary screening to protect members of the general public, including motorists and other road users, in close proximity to the works. The screening shall be of sufficient construction to protect the public from any substances potentially hazardous to health, which are either being used by the Contractor or are a result of the works.

Once erected, the screening shall reduce the concentrations of these substances within the air to levels which are below European Union guidelines. Any monitoring necessary shall be the responsibility of the Contractor.

The following list details materials which may require such particular precautions:

- (a) Concrete dust;
- (b) Cement dust;
- (c) Siloxane, Silane and coatings;
- (d) Paint;

This list is not fully comprehensive and further materials will fall within the scope of this requirement.

The Contractor shall submit to the Employer's Representative his proposals for complying with the above requirements 14 days in advance of the use of the potentially hazardous material.

- 1.6 All work shall be carried out with due regard to the Safety, Health and Welfare at work (Construction) Regulations 2013 or any subsequent relevant legislation.
- 1.7 The Contractor shall provide the Employer's Representative with a copy of his Safety Statement and shall revise it as necessary in the light of any revised or additional obligations required by law. The statement shall include the Contractor's detailed procedures to be followed in the event of any accident including minor incidents.
- 1.8 The Contractor shall give the Employer's Representative not less than 14 days' notice of his intention to commence work using or generating any of the materials identified in UK DMRB Departmental Advice Note SA 8/94 Use of Substances Hazardous to Health in Highway Construction. Such notice shall include details of the proposed measures to ensure that the recommendations for the protection of the public given in SA 8/94 are met. Compliance with this Appendix does not relieve the Contractor of his statutory duties to protect members of the public from exposure to substances hazardous to health.

2.0 Ionising Radiations.

- 2.1 Nuclear gauges for the testing of compaction of bituminous pavement layers shall be used only when permitted by the Engineer.

APPENDIX 1/24: Quality Management Schemes

The following is the list of accepted quality management schemes referred to in sub-Clauses 104.3 and 104.4.

Description: Manufacture of Thermoplastic Roadmarking Materials

Certification Body: The Certification & Inspection Dept
National Standards Authority of Ireland,
Eolas,
Glasnevin,
Dublin 9.

Specification: All Works shall be in accordance with the relevant clauses of the 1200 series of the Specification for Road Works and shall be manufactured to comply with all of the appropriate requirements of the following Standards:

- EN 1436:1998- Road Marking Materials- Road marking performance for road users.
- BS 3262 Hot-applied thermoplastic road marking materials, Part 2: Specification for road performance;
- BS EN 1871 Road marking materials. Physical properties;
- BS 6088 Specification for solid glass beads for use with road marking compounds and for other industrial uses;

Note: 1. The manufacture of road marking materials to BS3262, BS EN 1436, BS EN 1871 and BS EN 1790 shall be subject to product certification requirements (refer to Appendix 1/25 – Marked Schemes).

Description: Manufacture of Road Studs and Delineators.

Certification Body: The Certification & Inspection Dept
National Standards Authority of Ireland,
Eolas,
Glasnevin,
Dublin 9

Specification: All Works shall be in accordance with the relevant clauses of the 1200 series of the Specification for Road Works and shall be manufactured to comply with all of the appropriate requirements of the following Standards:

- EN 1463:1998- Retroreflecting Road Studs.

Description: Manufacture of Glass beads.

Certification Body: The Certification & Inspection Dept
National Standards Authority of Ireland,
Eolas,
Glasnevin,
Dublin 9

Specification: All Works shall be in accordance with the relevant clauses of the 1200 series of the Specification for Road Works and shall be manufactured to comply with all of the appropriate requirements of the following Standards:

- EN 1423:1998- Road Marking Materials-Drop on Materials-Glass Beads, Antiskid Aggregates and Mixtures of the Two.
- EN 1424:1998- Road Marking Materials-Premix Glass Beads.

Description: Manufacture of Bitumen Products.

Certification Body: The Certification & Inspection Dept
National Standards Authority of Ireland,
Eolas,
Glasnevin,
Dublin 9

Specification: All Works shall be in accordance with the relevant clauses of the 1200 series of the Specification for Road Works and shall be manufactured to comply with all of the appropriate requirements of the following standards:

- BS 434 Part 1:1984, Bitumen Road Emulsions
- BS 3690 Part 1:1989, Bitumen for Building and Civil Engineering.

Description: Production of Asphalt Mixes

Certification Body: The Certification & Inspection Dept
National Standards Authority of Ireland,
Eolas,
Glasnevin,
Dublin 9

Specification: The supply of asphalt shall comply with the Specification, in particular the 900 Series and the relevant Clauses of Series 1100 and the following Standards;

- BS 594987, Asphalt for roads and other paved areas, Part 1. Specification for transport, laying and compaction and type testing protocols.
- IS EN 13108-1, Bituminous mixtures – Material specifications- Part 1:Asphalt concrete
- IS EN 13108-4, Bituminous mixtures – Material specifications- Part 4:Hot Rolled Asphalt
- IS EN 13108-20, Bituminous mixtures – Material specifications- Part 20:Type Testing
- IS EN 13108-21, Bituminous mixtures – Material specifications- Part 21: Factory Production Control

Description: Temporary Traffic Management

Certification bodies: (to the approval of the NRA)

Specification: Traffic management shall be in accordance with the 100 Series of the Specification, the Drawings referred to in the Contract and Chapter 8 of the Traffic Signs Manual, published 2010 by Department of Transport.

Note: This Scheme requires training on an approved course. All traffic management operatives are required to carry a registration card indicating what types of traffic management they have been trained to carry out.

APPENDIX 1/25 PRODUCT CERTIFICATION SCHEMES

The Contractor shall establish a product management scheme to comply with the IS EN 9000 series which shall be third party certificated by a certification body satisfying the requirements of IS EN 45000 series.

The Contractor shall provide Certificates of conformity to the Employer's Representative.

The following shall be the list of accepted product certification schemes accepted in the Contract and referred to in clauses 104.4 and 104.6 of the Specification.

(a) Marked Schemes

- (i) Irish Standard Mark (ISM) Product Certification Scheme;
- (ii) National Standards Authority of Ireland (NSAI) Agrément Certification Scheme;
- (iii) CE Marking;
- (iv) UK Kite mark/Safety mark; and
- (v) Other equivalents, subject to the Approval of the Employer's Representative.

Table 1/25: List of Accepted Product Certification Schemes

Title		Specification Series
Safety Barriers and Pedestrian Guardrails		400
Pipes for drainage and service ducts		500
Chambers	Concrete	500
	Manhole steps	
	Covers, grates and frames	
Gullies and pipe junctions	Cast iron and steel	500
	Precast concrete	
Gabions		600
Road Pavements – Bituminous Bound Materials		900
Permanent Traffic Signs		1200
Thermoplastic road marking materials		1200
Traffic delineators		1200
Temporary traffic cones and cylinders		1200
Cabling and installation for lighting		1400
Lighting units		1400
Drilling fluid for cast-in-place piles		1600
Cement - all types		1700
Admixtures (IS EN 934)		1700/2400
Silane (to comply with clause 1709)		1700
Steel reinforcing		1700
Fabricated reinforcement		1700
Prestressing tendons		1700
Parapet (including posts)		2200
Stainless steel		2400
Bedding mortar materials		2600

In accordance with Series 900 of the Specification for Roadworks, all bituminous materials shall be produced in plants that are independently accredited to ISEN 9001 or equivalent quality management system. Products specified in accordance with IS EN 13108 shall be CE marked.

Evaluation of conformity shall be carried out in accordance with the appropriate sections of IS EN13108.

Appendix 1/26: Irish Agrément Board Roads and Bridges Certificates

The following shall be a list of types of work, goods or materials for which proprietary products shall be required to have either an Irish Agrément Board Roads Certificate or a British Board of Agrément Certificate or an appropriate European Alternative

Description	Specification Clause
Drainge pipes, gullies and fittings	500 Series
Binders, binder modifiers and enhanced binders	900 Series
Bituminous sprays	900 Series

APPENDIX 1/70 AS-BUILT RECORD DRAWINGS (Not Required)

For the purpose of compiling the As-Built Record Drawings, the Contractor shall carry out a full topographical survey, referenced to the Irish Transverse Mercator Grid System to show sufficient information of the constructed scheme. Information shall include, but not be limited to earthworks profiles, manholes, pavements, walls, landscaping, signs and road markings. The Contractor shall submit for Approval the list of elements/information to be surveyed to the Employer's Representative prior to undertaking the topographical survey.

The survey shall be supplied in AutoCAD dwg format with levels included on all points.

The Contractor shall provide, for review by the Employer's Representative, 1 No. hard copy of the survey within 4 weeks of Substantial Completion of the works and 1 No. soft copy in AutoCad dwg format.

Drawings shall also be supplied (in the same format and timescale as the survey) giving the following information:

- a) Structures
Drawings showing comprehensive information in respect of structures are to be kept. All aspects that may have relevance to health and safety are recorded as part of these records and reference should be made to them for such information (if applicable).
- b) Drainage
Drawings showing comprehensive information in respect of drainage are to be kept including pipe sizes, gradients, depths, chamber sizes, outfall locations and levels, bedding materials etc. All aspects that may have relevance to health and safety are recorded as part of these records and reference should be made to them for such information.
- c) Fencing/Safety Barrier
Drawings showing the location of fencing, including type of fence, protection given and any special features such as additional netting shall be kept. This drawing shall also show the location and types of safety barrier including details of the post fixings.
- d) Utility Companies Equipment
Drawings showing location, depth, size and type of equipment of all utilities including ESB, Eircom, (both overhead and underground) shall be kept.

The Contractor shall supply all additional As-Built Record Drawings as requested by the Employer's Representative that are required to fulfil the Contractor's obligations under the Contract.

APPENDIX 1/71 INFORMATION REQUIRED FOR THE SAFETY FILE

The information detailed below is required from the Contractor for the Safety File, in accordance with Clause 2.4.5 of the Conditions.

Site Clearance

Locations and details of on/off site tips, along with copies of tip Licences, consignment notices, waste transport licences. (if applicable)

Structures, Structural Elements and Other Features to be Designed by the Contractor

Details and drawings showing comprehensive information in respect of structures, structural elements and other features to be designed by the Contractor are to be kept (refer to Appendix 1/11 for a list of these structural elements and other features). All aspects that may have relevance to health and safety are to be recorded as part of these records and reference should be made to them for such information (if applicable).

As-built Utility Information

Drawings showing location, depth, size and type of equipment of all utilities (both overhead and underground), including the location of uncharted utilities uncovered during the Works, and their treatment.

APPENDIX 7/1 PERMITTED PAVEMENT OPTIONS

1. Carriageway Location: (See drawings site locations and details)
2. Grid for checking surface levels of pavement courses, if different from the requirements of sub-clause 702.4

N/A	Longitudinal Dimension
N/A	Traverse Dimension
3. Surface regularity (CI 702.7 and CI 702.8):

N/A	Category of Road Long. Reg.	[A]
N/A	Trans. Reg.	
4. Requirements for coarse aggregates – Polished Stone Value (PSV), Aggregate Abrasion Value (AAV) (Series 900, March 2015, CI 3.2.2, 5.2.2, 6.2.2, 8.4.1.1, 8.6.1.1):

	Yes (To be agreed)
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5. Requirements for pre-coated chippings – Polished Stone Value (PSV) for general use mixtures, PSV for mixtures for roundabouts, Aggregate Abrasion Value (AAV) (Series 900, March 2015, CI 4.2.4):

N/A	
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6. Requirement for testing for Polished Stone Value using the friction after polishing test (NRA HD 300 Clause 2.25):

	Yes
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7. Freezing and thawing (soundness) category if different from the requirements of Series 900, March 2015, Tables 1, 4, 7, 10 and 17:

	N/A
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8. Compaction control and extraction of cores if different from the requirements of Series 900, March 2015, Cl. 10.1.9, 10.1.9.1, 10.1.9.2, 10.1.9.3, 10.1.9.4:

	N/A
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9. Requirements for monitoring resistance to permanent deformation of HRA (Series 900, March 2015, Cl. 10.1.10.2):

	N/A
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10. Sealant to be applied to the whole of any freestanding edge on the outside of the finished pavement on the low side of the camber (Series 900, March 2015, Cl. 10.1.8):

	Yes
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11. Any tests additional to those required by IS EN 13108–20, IS EN13108–21 or the relevant SRW (Series 900, March 2015, Cl. 1.2, 1.3):

	No
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12. Whether sub-base material may be spread in more than one layer (CI 802.4).

	No
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APPENDIX 7/2 EXCAVATION AND REINSTATEMENT OF EXISTING SURFACES**Tie-ins**

Locations of existing paved areas which require to be trimmed, regulated and reinstated to match levels where new and existing pavements abut are located at either end of the scheme locations, and their exact extent shall be agreed in writing with the Engineer.

The overbreak requirement in paved areas shall be mechanically cut to clean straight lines and shall be sufficient to remove all damaged and defaced surfacing. The cut edges in flexible construction, including the exposed parts of kerbs below final pavement level and metalwork, shall be painted with 100 sec. cut back bitumen.

APPENDIX 7/4 BOND COATS, TACK COATS AND OTHER BITUMINOUS SPRAYS**1 Specified Requirements for surface preparation in addition to Series 900 [Series 900 Clause 10.1.4].**

Location	All bituminous layers (to include existing surfaces, cold milled surfaces and freshly laid surfaces) are to receive bond coat prior to overlay.
Type of binder	C65BP 3 Bond Coat in accordance with Clause 10.1.4 of the specification and ISEN 13808
Rate of Spread	Minimum of 0.3kg/m ² of residual binder
Blinding Material	None

All bituminous layers (to include existing surfaces, cold milled surfaces) are to receive bond coat prior to overlay. Bond coats are to be Cationic Bitumen Emulsion in accordance with Clause 10.1.4 and ISEN 13808 and shall be applied as per the NRA Specification.