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# **TII492 Intelligent Transport Systems (ITS) - Equipment Supply and Installation Framework - Generation 2 - Lot 2**

**Volume C: Pricing Document**

**June 26**

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## 1. Preambles to Bill of Quantities

<p><b>General Directions</b></p>	<p><b>1</b></p>	<p>The Requirements for Measuring and Pricing (RMP) in TII Publications (Standards) is published as a collective group of documents under the Construction and Commissioning activity within the TII Publications system. The Bill of Quantities has been prepared in accordance with the RMP.</p>
	<p><b>2</b></p>	<p>In the Bill of Quantities, the sub-headings and item descriptions identify the work covered by the respective items, read in conjunction with the matters listed against the relevant marginal headings “Item Coverage” in the different parts of the RMP, these Preambles and the amendments to the RMP immediately following these Preambles. The nature and extent of the work is to be ascertained by reference to the Works Requirements and Contract Conditions. The rates and prices entered in the Bill of Quantities shall be deemed to be the full inclusive value of the work covered by the several items including the following, unless expressly stated otherwise:</p> <ul style="list-style-type: none"> <li>(i) Labour and costs in connection therewith.</li> <li>(ii) The supply of materials, goods, storage and costs in connection therewith including delivery to Site. Taking delivery of materials and goods supplied by others, unloading, storage, and costs in connection therewith</li> <li>(iii) Plant and costs in connection therewith.</li> <li>(iv) Fixing, erecting and installing or placing of materials and goods in position.</li> <li>(v) Temporary Works.</li> <li>(vi) The effect on the phasing of the Works or any element of the Works to the extent set forth or reasonably implied in the documents on which the tender is based.</li> <li>(vii) General obligations, liabilities and risks involved in the execution of the Works set forth or reasonably implied in the documents on which the tender is based (The provision of insurances and bonds are deemed to be general obligations).</li> <li>(viii) Establishment charges, overheads and profit.</li> <li>(ix) Waste.</li> <li>(x) Attendance and transport for sampling and testing carried out by the Employer’s Representative, tests carried out by the Contractor in accordance with the particular requirements of Part 2 Appendix 1/5, and Part 4 Testing and Commissioning, CCTV Surveys, supplying results of tests carried out by the Contractor and providing test certificates.</li> <li>(xi) Supply and delivery of samples to the Employers Representative in accordance with the particular requirements of Appendix 1/6.</li> <li>(xii) Complying with Quality Assurance schemes and providing certificates of conformity.</li> <li>(xiii) Preparation and supply of plans, method statements, risk assessments detailed working drawings and the likes.</li> <li>(xiv) Awaiting approvals and or consents.</li> </ul>

		(xv) Complying with all Legal Requirements and ensure that the Contractor's Personnel comply with all Legal Requirements, including but not limited to those environmental, archaeological and health and safety requirements as set out in the Works Requirements and Contract Conditions.
<b>Measurement</b>	<b>3</b>	The measurement of work shall be computed net from the dimensions stated in the Contract unless otherwise stated in the RMP.  Where the tender documents provide for the Contractor to select the type of buried structure (where the structure is not within Designated Outlines) to be constructed then the measurement of all work in each area so affected shall be based upon the thinnest pavement construction and surfacing over structures permitted by the Contract in that area for the particular type of buried structure the Contractor has elected to construct.
<b>Pricing of Items</b>	<b>4</b>	Each individual item shall have a rate or price entered against it. Rates and prices shall be expressed to two decimal places.  Reserved Sums and Contract Sums for Specialists will be provided by the Contracting Authority.  Prices entered for attendance and management of specialist works will remain as tendered, even after the Reserved Sums are replaced with actual sums following the tendering of specialists works. These prices may not be less than zero.
<b>Alternative Specified Materials, Designs and Options Within Types of Pavement</b>	<b>5</b>	Not Used
<b>Privately and Publicly Owned Services or Supplies</b>	<b>6</b>	The information in the Contract as to the whereabouts of existing services and mains is believed to be correct but the Contractor shall not be relieved thereby of their obligations under the Contract. The Contractor shall include in their rates and prices for locating and taking measures for the support (including hand digging) and full protection of pipes, cables and other apparatus during the progress of the Works, obtaining the written consent of the appropriate authority to interrupt the service or supply and for keeping the Employer's Representative informed of all arrangements he makes with the owners of privately owned services or supplies, Statutory Undertakers and Public Authorities as appropriate.
<b>Labours</b>	<b>7</b>	Not Used
<b>Roadworks Overall Requirements</b>	<b>8</b>	The Contractor shall allow in their rates and prices for complying with requirements in respect of pavement construction, horizontal alignments, surface levels and surface regularity of pavement courses, cold weather working, use of surfaces by traffic and construction plant, and general requirements for sub-base and bases.
<b>Works Within and Below Any Water Condition</b>	<b>9</b>	The Contractor shall allow in their prices for any items of structures designed by the Contractor provided under CC-RMP-02500, for taking measures required to execute work in any condition where there is a presence of any type of water.
<b>Dealing with Flow</b>	<b>10</b>	The Contractor shall allow in their rates and prices for taking measures to deal with existing flow of water, sewage and the like.
	<b>11</b>	Not Used

<b>Site Limitations and Constraints</b>	<b>12</b>	The Contractor shall allow in their rates and prices for complying with any limitations and constraints of the Site.
<b>Hard Material</b>	<b>13</b>	For the purposes of the Contract the following are designated as Hard Material in accordance with Section 2 Definitions, paragraph 1(h), (i) and (ii).  (a) rock strata;  (b) those deposits designated by limits shown on Drawings;  (c) existing pavements, footways, paved areas (but excluding unbound materials) and foundations in masses in excess of 0.20 cubic metres.
<b>Equivalent Products and Materials</b>	<b>14</b>	(i) Where the Contractor offers an equivalent product or material in place of the one identified or specified, which is accepted for incorporation into the Works by the Employer's Representative, then the rates and prices in the Bill of Quantities shall be deemed to include for all the obligations and costs associated with the incorporation of the equivalent into the Works, including design, provision of data and drawings, certificates, awaiting approvals, resubmissions and modifications and amendments to the Works.  (ii) Unless specifically stated to the contrary in the Contract the measurement of the Works affected by the incorporation of the equivalent products and materials shall be based on the Tender documents and not on the Works as amended and completed to incorporate the equivalent products and materials.
<b>Permanent Works Designed by the Contractor</b>	<b>15</b>	Where the Contract requires part(s) of the Works to be designed by the Contractor, the rates and prices in the Bill of Quantities shall include for all the obligations and costs associated with the incorporation of the Contractor's design into the Works, including design, provision of data and drawings, certificates, awaiting approvals, resubmissions and modifications and amendments to the Works.
<b>Structures Designed by the Contractor</b>	<b>16</b>	Earthworks within the Designated Outlines shall not be included by the Employer in the earthworks schedules.
<b>Alterations for Road Authorities</b>	<b>17</b>	Not Used
<b>Amendments to the Requirements for Measuring and Pricing</b>	<b>18</b>	As per CC-RMP-00010 for the purposes of the Contract the Requirements for Measuring and Pricing is amended in accordance with the pages immediately following.
<b>Bill of Quantities</b>	<b>19</b>	The Employer shall be under no obligation to require the Contractor to carry out any Works under this Contract and may procure the carrying out of such Works in other ways, including by running separate tender competitions for such Works. Any quantities provided in this Pricing Document and/or any Tender Documents are notional quantities only and should not be taken as an indication of the likely scale or volume of Work Orders that will be ordered under the Contract. Where the Employer procures the carrying out of such Works by personnel other than the Contractor, this shall not in any way affect the Contractor's other obligations under the Contract, in particular (but without limitation) as regards the transmission of data and production of reports, and the

		<p>Contractor shall co-operate with such other persons in accordance with the provisions of sub-clause 4.1 of the Contract.</p>												
<p><b>Annual Indexation of Framework Rates</b></p>	<p><b>20</b></p>	<p>The rates in this Framework are fixed for one year from the date of the Framework Agreement and thereafter shall be subject to annual adjustment on each anniversary of the date of the Framework Agreement as described below.</p> <p>Starting on the 2nd anniversary of the date of the Framework Agreement and on each anniversary thereafter, the Framework Rates shall be adjusted by the following calculations:</p> <p>An adjustment to the Framework Rates using the Society of Chartered Surveyors Ireland Tender Price Index (SCSI TPI) calculated as:</p> $(\text{SCSI index at current anniversary} \div \text{SCSI index at prior anniversary} - 1) \times 100\% \times \text{Original Framework Rate.}$ <p>If the calculated percentage change is negative (i.e., the Current Anniversary Index is lower than the Prior Anniversary Index), no downward adjustment shall be made for that component in that anniversary year; negative index movements shall be disregarded and shall not reduce the Framework Rates.</p> <p><b>Table 1: Example calculation</b></p> <table border="1" data-bbox="587 1601 1461 1906"> <thead> <tr> <th>Item</th> <th>Prior Anniversary Index</th> <th>Current Anniversary index</th> <th>% Increase</th> <th>Calculation</th> <th>Result (€)</th> </tr> </thead> <tbody> <tr> <td>SCSI TPI (applies to whole Framework Rate)</td> <td>229</td> <td>235</td> <td><math>(235/229 - 1) \times 100 = 2.62\%</math></td> <td><math>2.62\% \times \text{original rate (€70)}</math></td> <td>€1.83 uplift</td> </tr> </tbody> </table>	Item	Prior Anniversary Index	Current Anniversary index	% Increase	Calculation	Result (€)	SCSI TPI (applies to whole Framework Rate)	229	235	$(235/229 - 1) \times 100 = 2.62\%$	$2.62\% \times \text{original rate (€70)}$	€1.83 uplift
Item	Prior Anniversary Index	Current Anniversary index	% Increase	Calculation	Result (€)									
SCSI TPI (applies to whole Framework Rate)	229	235	$(235/229 - 1) \times 100 = 2.62\%$	$2.62\% \times \text{original rate (€70)}$	€1.83 uplift									

		Notes on example calculation: starting Framework Rate = €70. After SCSJ adjustment, there is a €1.83 uplift. This applies to all rates excluding rates involving installation of safety barriers
<h2 style="color: blue;">Amendments to the Requirements for Measuring and Pricing</h2> <h3 style="color: blue;">CC-RMP-00100 – Preliminaries</h3>		
<b>Traffic Safety and Management</b>		
<b><u>Replace item coverage (a) with the following and add the following item coverages to paragraph 30:</u></b>		
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) Delete the text “Guidelines for the Control and management of Traffic at Roadworks” and replace with “Chapter 8 of the Traffic Signs Manual”;</li> <li>(b) Complying with the requirements contained in the Department of Transport Traffic Signs Manual 2024;</li> <li>(c) Temporary safety barrier between areas trafficked by construction vehicles and pedestrian areas (CC-RMP-00400 paragraph 29);</li> <li>(d) Liaison with Third Parties at adjacent roadworks/construction site to coordinate traffic management proposals/schemes between the sites;</li> <li>(e) Publicity in accordance with Appendix 1/17 and Appendix 1/18 of Volume A – Part 2: Works Specification</li> </ul>
<b>Facilities for Service Undertakers and Other Contractors</b>		
<b><u>Add the following to paragraph 58:</u></b>		
<b>Item Coverage</b>		(f) Security measures required in relation to temporarily exposed ducting.
<b><u>Add the following to paragraph 73</u></b>		
<b>As Built Records</b>		
<b>Item Coverage</b>	<b>73</b>	<ul style="list-style-type: none"> <li>(g) submission of as built records and drawings for formal review in AutoCAD DWG format and PDF format to the Employer’s Representative for review;</li> <li>(h) re-submission of as built records and drawings as required by Employer’s Representative;</li> <li>(i) everything necessary for the provision of as-built record drawings in accordance with Appendix 1/72 of Volume A – Part 2: Works Specification.</li> </ul>
<b><u>Introduce paragraphs 82 to 85:</u></b>		
<b>Independent Check Certificates for Temporary Works</b>		
<b>Unit</b>	<b>82</b>	<p>The unit of measurement shall be:</p> <ul style="list-style-type: none"> <li>(i) Provision of Independent Check Certificates for Temporary Works.....item.</li> </ul>

<b>Measurement</b>	<b>83</b>	The measurement of Independent Check Certificates for Temporary Works shall be in respect to Independent Check Certificates for Temporary Works in accordance with Clause 174AR of Volume A – Part 2: Works Specification and shall be measured once only.
<b>Itemisation</b>	<b>84</b>	Separate items shall be provided for Independent Check Certificates for Temporary Works in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1        Independent Check Certificates for Temporary Works
<b>Independent Check Certificates for Temporary Works</b>	<b>85</b>	The item for Independent Check Certificate for Temporary Works shall in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Provision of Independent Check Certificates for Temporary Works as required by Clause 174AR of Volume A Part 2: Specification; (b) Everything necessary for the Independent Check Certificates for Temporary Works.
<b><u>Introduce paragraphs 86 to 89:</u></b>		
<b>Dimensional Survey</b>		
<b>Units</b>	<b>86</b>	The unit of measurement shall be: Dimensional survey ..... number
<b>Measurement</b>	<b>87</b>	The measurement for dimensional survey shall be in respect of the complete dimensional survey for the different structure types to facilitate the installation of equipment
<b>Itemisation</b>	<b>88</b>	Separate items shall be provided for dimensional survey in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1        Dimensional survey II       1        Different structure type
<b>Dimensional Survey</b>	<b>89</b>	The item for dimensional survey shall in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Undertaking dimensional survey as specified in Clause 1537 1AR of Volume A – Part 2: Works Specification and take into account but not limited to the installation of the following equipment on existing infrastructure: (i) VMS Tactical Signage frames and closing off plate; (ii) VMS Strategic signage frames and closing off plate;

		<ul style="list-style-type: none"> <li>(iii) VMS Large Urban signage frames and closing off gate;</li> <li>(iv) VMS Small Urban signage frames and closing off gate;</li> <li>(v) AMI signage frames and closing off plate;</li> <li>(vi) CCTV pole;</li> <li>(vii) ANPR gantry members or poles;</li> <li>(viii) RSU gantry mounting extension poles;</li> <li>(ix) OHVD;</li> <li>(x) DWS;</li> <li>(xi) Point to Point communications;</li> <li>(xii) Equipment cabinet base mounting arrangement;</li> <li>(xiii) Any other locations where equipment is to be mounted onto existing infrastructure;</li> <li>(xiv) Ducting survey;</li> </ul> <ul style="list-style-type: none"> <li>(b) Everything necessary to carry out the dimensional survey;</li> <li>(c) Preparation of dimensional survey report and issuing them to the Employer's Representative;</li> <li>(d) Taking photographs;</li> <li>(e) Giving notice to Employer's Representative;</li> <li>(f) Carrying out dimensional surveys outside normal hours including evenings and weekends;</li> <li>(g) Liaison with Third Parties.</li> </ul>									
<b>Introduce paragraphs 90 to 93:</b>											
<b>Environmental Monitoring</b>											
<b>Units</b>	<b>90</b>	<p>The unit of measurement shall be:</p> <ul style="list-style-type: none"> <li>(i) Noise monitoring ..... item.</li> <li>(ii) Vibration monitoring ..... item.</li> <li>(iii) Dust monitoring ..... item.</li> </ul>									
<b>Measurement</b>	<b>91</b>	Noise and vibration monitoring shall be measured once only.									
<b>Itemisation</b>	<b>92</b>	Items shall be provided for noise and vibration monitoring in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:									
		<p>Group Feature</p> <table border="0"> <tr> <td>I</td> <td>1</td> <td>Noise monitoring</td> </tr> <tr> <td></td> <td>2</td> <td>Vibration monitoring</td> </tr> <tr> <td></td> <td>3</td> <td>Dust monitoring</td> </tr> </table>	I	1	Noise monitoring		2	Vibration monitoring		3	Dust monitoring
I	1	Noise monitoring									
	2	Vibration monitoring									
	3	Dust monitoring									
<b>Noise, Vibration and Dust Monitoring</b>	<b>93</b>	The item for noise, vibration and dust monitoring shall in accordance with the Preambles to the Bill of Quantities General Directions include for:									
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(j) installation and set-up of monitoring equipment;</li> <li>(k) monitoring of the performance and results of monitoring equipment;</li> <li>(l) preparation of reports;</li> <li>(m) delivery of reports;</li> <li>(n) removal of equipment on completion.</li> </ul>									

<b><u>Introduce the following paragraphs 94 to 97:</u></b>		
<b>Appointment of Professionals</b>		
<b>Units</b>	<b>94</b>	The unit of measurement shall be: (i) Appointment of professional.....item.
<b>Measurement</b>	<b>95</b>	Appointment of professionals shall be measured once only.
<b>Itemisation</b>	<b>96</b>	Items shall be provided for appointment of professionals in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Traffic Safety and Control Officer 2 Deputy Traffic Safety and Control Officer 3 Traffic Management Engineer
<b>Appointment of Professionals</b>	<b>97</b>	(o) The items for appointment of professionals in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Appointment of professionals; (b) Attendance of professionals; (c) Duties of professional in accordance with works requirements.
<b>Maximum Overhead on Subcontracted Additional Works</b>		
<b>Units</b>	<b>98</b>	percent (%)
<b>Measurement</b>	<b>99</b>	No quantity measurement applies. The “Overhead Cap” is a percentage figure that shall be used in valuing Subcontracted Additional Works during the Contract, applied to the verified net cost of the Subcontractor’s work (labour, plant, materials and agreed preliminaries of the Subcontractor only).  It shall not be applied to items already priced elsewhere in the Bill, nor to the Contractor’s own direct costs.
<b>Itemisation</b>	<b>100</b>	The Tenderer shall state a single maximum percentage (“the Overhead Cap”) to be applied to the verified net cost (exclusive of VAT and after trade/early payment discounts) of Subcontracted Additional Works instructed under the Contract. “Subcontracted Additional Works” means Additional Works/Variations executed by a Subcontractor where the main Contractor does not self perform  a) Contractor’s head office and site overhead in connection with the Subcontracted Additional Works,  (b) general management, supervision, planning, programming, procurement administration, document control and cost control relating to such works,  (c) insurances, bonds/guarantees, statutory contributions, finance charges and corporate compliance relating to such works,  (d) margin/profit on such works,  (e) attendance upon Subcontractors for such works, other than any specific attendances separately measured in the Bill.

		<p>Exclusions (not covered by the Overhead Cap and to be valued in accordance with the Works Requirements and the RMP where applicable):</p> <p>(i) the verified net cost of the Subcontractor’s work itself (to which the Cap is applied),</p> <p>(ii) traffic management or other items that are expressly measured elsewhere in the Bill,</p> <p>(iii) design fees, surveys, permits or tests that are separately measured or instructed to be priced elsewhere in the Bill,</p> <p>(iv) any reserved sums or specialist attendances expressly provided for in this Volume C.</p> <p>Pricing:</p> <p>(q) The percentage inserted by the Tenderer, which shall not be more than the maximum stated, shall constitute the maximum overhead addition permitted to be applied to verified net Subcontract costs for Subcontracted Additional Works for the duration of the Contract. No other percentage additions for overheads or profit shall be applied to such costs, save where expressly provided elsewhere in this Volume C.</p>
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**CC-RMP-00500 - Drainage & Service Ducts**

**Replace the existing note in paragraph 11 with the following:**

		<p>Note: For each item which includes Group III Feature 1 or 2, an associated rate shall be provided for adjustment of the rate for each 25mm of difference in excess of 150mm where the average depth to invert calculated from site measurement varies from that stated in the Bill of Quantities. The foregoing shall apply to both increases and decreases of average in excess of 150mm and will result in either a positive or negative adjustment of the rate. The adjustment of the rate will be limited to a maximum of 1% per 25mm of difference in excess of 150mm.</p> <p>Note: Perforated drainage pipes shall be measured as a Group I Feature 3.</p>
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**CC-RMP-01200 – Traffic Signs and Road Markings**

**Introduce paragraphs 65 to 68:**

**Supply of Dynamic Warning Signs**

<b>Units</b>	<b>65</b>	The unit of measurement shall be: (i) Supply of Dynamic Warning Signs..... number.
<b>Measurement</b>	<b>66</b>	The measurement of supply of dynamic warning signs shall be with respect to the supply of dynamic warning signs

<b>Itemisation</b>	<b>67</b>	Separate items shall be provided for supply of dynamic warning signs in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<p><b>Group Feature</b></p> <p>I        1        Supply of dynamic warning signs</p> <p>II       1        Different type of signs</p>
<b>Supply of Dynamic Warning Signs</b>	<b>68</b>	The items for supply of dynamic warning signs shall in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<p>(a) The design, supply and installation of Dynamic Warning Signs outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(b) transport and handling;</p> <p>(c) storage until handover.</p>
<b><u>Introduce paragraphs 69 to 72:</u></b>		
<b>Supply and Installation of Dynamic Warning Signs</b>		
<b>Units</b>	<b>69</b>	The unit of measurement shall be: (i) Supply and Installation of Dynamic Warning Signs..... number.
<b>Measurement</b>	<b>70</b>	The measurement of Dynamic Warning Signs shall be with respect to the supply and installation of Dynamic Warning Signs
<b>Itemisation</b>	<b>71</b>	Separate items shall be provided for dynamic warning signs in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<p><b>Group Feature</b></p> <p>I        1        Supply and Installation of Dynamic Warning Signs</p> <p>II       1        Different type of signs</p>
<b>Supply and Installation of Dynamic Warning Signs</b>	<b>72</b>	The items for supply and install dynamic warning signs shall in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<p>(a) The design, supply and installation of Dynamic Warning Signs outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(c) Maintenance of equipment up to the date of substantial completion of the installation;</p> <p>(d) Closing off pole;</p> <p>(e) Permanent traffic signs (CC-RMP-01200 paragraph 4);</p> <p>(f) Traffic Signal Poles (CC-RMP-01200 paragraph 29);</p> <p>(g) retention sockets;</p>

		<p>(h) Pre installation photographs;</p> <p>(i) Post installation photographs;</p> <p>(j) Provision of design documentation;</p> <p>(k) Reports and certificates;</p> <p>(l) Provision of data and drawings;</p> <p>(m) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</p> <p>(n) Amendments to the Works;</p> <p>(o) Certification by an independent Chartered Engineer;</p> <p>(p) Loading, transporting, unloading and positioning for re-erection;</p> <p>(q) Notices, labelling, numbering and lettering;</p> <p>(r) Alignment and sighting;</p> <p>(s) Complying with wiring regulations, earthing and inspections;</p> <p>(t) Data equipment, cabling and connections;</p> <p>(u) Mounting arrangements;</p> <p>(v) Preparation and supply of record drawings;</p> <p>(w) Giving notice to the Employer’s Representative;</p> <p>(x) Liaison and coordination with Third Parties;</p> <p>(y) Day and night works;</p> <p>(z) Modifications to the existing infrastructure for the installation of equipment;</p> <p>(aa) Suspension of the works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</p> <p>(bb) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</p> <p>(cc) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3.</p>
<b><u>Introduce paragraphs 73 to 76:</u></b>		
<b>Retention Sockets</b>		
<b>Units</b>	<b>73</b>	The unit of measurement shall be: (i) Retention Sockets.....number
<b>Measurement</b>	<b>74</b>	The measurement of retention sockets for future use shall be the complete installation
<b>Itemisation</b>	<b>75</b>	Separate items shall be provided for retention sockets in accordance with Section 3 of CC-RMP-00010 and the following:
		<p><b>Group Feature</b></p> <p>I        1 Retention sockets</p> <p>II       1 Different Types</p>
<b>Retention Sockets</b>	<b>76</b>	The items for retention sockets shall in accordance with the Preambles to the Bills of Quantities include for:

<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) Excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);</li> <li>(b) Excavation of unacceptable material (CC-RMP-00600 paragraph 19);</li> <li>(c) Excavation in hard material (CC-RMP-00600 paragraph 20);</li> <li>(d) Backfilling and compaction;</li> <li>(e) In-situ concrete (CC-RMP-01700 paragraph 4);</li> <li>(f) Formwork (CC-RMP-01700 paragraph 14);</li> <li>(g) Reinforcement (CC-RMP-01700 paragraph 25);</li> <li>(h) Ducts in bases;</li> <li>(i) Reinstatement of surfaces;</li> <li>(j) Disposal of material (CC-RMP-0600 paragraph 39);</li> <li>(k) Rivets, bolts, nuts, clips, clamps and the like;</li> <li>(l) Electrical equipment, wiring and connections, excluding network cabling;</li> <li>(m) Conduit including screwed and threaded connections, bends, tees, and the like and draw wires;</li> <li>(n) Threading cable through the duct, sleeves, conduit and the like;</li> <li>(o) Drilling;</li> <li>(p) Fixing;</li> <li>(q) Replacing items damaged during the foregoing operations;</li> <li>(r) All costs associated with the complete installation</li> </ul>
<b>CC-RMP-01500 – Motorway Communications</b>		
<b><u>Add the following to paragraph 10</u></b>		
<b>Communication Cable</b>	<b>10</b>	The items for communications cable shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(r) Making safe existing services;</li> <li>(s) Complying with wiring regulations and earthing;</li> <li>(t) Site records;</li> <li>(u) Surveys and recordings;</li> <li>(v) Proving and testing of ducts;</li> <li>(w) Notice to the Employer’s Representative.</li> </ul>
<b><u>Add the following to paragraph 15:</u></b>		
<b>Communications Cable Joints and Communications Cable Terminations</b>	<b>15</b>	The items for communications cable joints and communications cable terminations shall in accordance with the Preambles to Bill of Quantities General Directions include for:

<b>Item Coverage</b>		(p) Provision of jointing equipment; (q) Stripping and cleaving of fibre; (r) Fusion splicing of fibre; (s) Organising fibre and finishing joints;
<b><u>Add the following to paragraph 18</u></b>		
<b>Communications Equipment</b>	<b>18</b>	The items for communications equipment shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(dd) Giving of notice to the Employer's Representative; (ee) Communications cables (as this document paragraph 10) (ff) Communications cable joints and communications cable terminations (as this document paragraph 15) (gg) IP rate enclosures.
<b><u>Introduce paragraphs 38 to 193:</u></b>		
<b>Supply of Automatic Number Plate Recognition (ANPR) Cameras</b>		
<b>Units</b>	<b>38</b>	The unit of measurement shall be: (i) ANPR..... number
<b>Measurement</b>	<b>39</b>	The measurement of ANPR shall be in respect to the supply of ANPR
<b>Itemisation</b>	<b>40</b>	Separate items shall be provided for ANPR in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1        Automatic Number Plate Recognition (ANPR)
<b>Supply of Automatic Number Plate Recognition (ANPR) Camera</b>	<b>41</b>	The items for the supply of Automatic Number Plate Recognition (ANPR) Camera shall in accordance with the Preamble to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of Automatic Number Plate Recognition (ANPR) Camera and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Transport and handling; (c) Storage until hand over.
<b>Supply and Installation of Automatic Number Plate Recognition (ANPR) Cameras</b>		
<b>Units</b>	<b>42</b>	The unit of measurement shall be: (i) ANPR..... number
<b>Measurement</b>	<b>43</b>	The measurement of ANPR shall be in respect to the complete supply and installation of ANPR

<b>Itemisation</b>	<b>44</b>	Separate items shall be provided for ANPR in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<p><b>Group Feature</b></p> <p>I        1        Automatic Number Plate Recognition (ANPR)</p> <p>II       1        Different locations</p>
<b>Supply and Installation of Automatic Number Plate Recognition (ANPR) Camera</b>	<b>45</b>	The items for the supply and installation of Automatic Number Plate Recognition (ANPR) Camera shall in accordance with the Preamble to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The design, supply and installation of all Automatic Number Plate Recognition (ANPR) Cameras outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(c) Maintenance of equipment up to date of substantial Completion of the installation;</li> <li>(d) Provision of design documentation;</li> <li>(e) Reports and certificates;</li> <li>(f) Provision of data and drawings;</li> <li>(g) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</li> <li>(h) Amendments to the works;</li> <li>(i) Notices, labelling, numbering and lettering;</li> <li>(j) Alignment and sighting;</li> <li>(k) Service connections and commissioning;</li> <li>(l) Data equipment, cabling and connections;</li> <li>(m) Galvanised fixings and fittings;</li> <li>(n) Mounting arrangements;</li> <li>(o) Permanent traffic signs (CC-RMP-01200 paragraph 4)</li> <li>(p) Pre-installation photographs;</li> <li>(q) Post installation photographs;</li> <li>(r) Preparation and supply of record drawings;</li> <li>(s) Giving notice to the Employer’s Representative;</li> <li>(t) Liaison and coordination with Third Parties;</li> <li>(u) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</li> <li>(v) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</li> <li>(w) Day and night works;</li> <li>(x) Modifications to the existing infrastructure for the installation of equipment;</li> </ul>

		(y) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.
<b>Supply of Over Height Vehicle Detectors</b>		
<b>Units</b>	<b>46</b>	The units of measurement shall be: (i) Over Height Vehicle Detectors.....number.
<b>Measurement</b>	<b>47</b>	The measurement of Over Height Vehicle Detectors shall be with respect to the supply of Over Height Vehicle Detectors.
<b>Itemisation</b>	<b>48</b>	Separate items shall be provided for Over Height Vehicle Detectors in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I           1 Over Height Vehicle Detectors
<b>Supply of Over Height Vehicle Detectors</b>	<b>49</b>	The item for supply of Over Height Vehicle Detector shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The supply of Over Height Vehicle Detectors and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Transport and handling; (c) Storage until handover.
<b>Supply and Installation of Over Height Vehicle Detectors</b>		
<b>Units</b>	<b>50</b>	The units of measurement shall be: (i) Over Height Vehicle Detectors.....number.
<b>Measurement</b>	<b>51</b>	The measurement of Over Height Vehicle Detectors shall be with respect to the supply and installation of Over Height Vehicle Detectors.
<b>Itemisation</b>	<b>52</b>	Separate items shall be provided for Over Height Vehicle Detectors in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I           1 Over Height Vehicle Detectors II          1 Different locations
<b>Supply and Installation of Over Height Vehicle Detectors</b>	<b>53</b>	The item for supply and installation of Over Height Vehicle Detector shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Over Height Vehicle Detectors outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;

		<p>(c) Maintenance of equipment up to date of substantial Completion of the installation;</p> <p>(d) Provision of design documentation;</p> <p>(e) Reports and certificates;</p> <p>(f) Provision of data and drawings;</p> <p>(g) Submissions to the Employer's Representative, including resubmissions and modifications as required;</p> <p>(h) Amendments to the works;</p> <p>(i) Notices, labelling, numbering and lettering;</p> <p>(j) Alignment and sighting;</p> <p>(k) Disposal of material (CC-RMP-00600 paragraph 39);</p> <p>(l) Service connections and commissioning;</p> <p>(m) Complying with wiring regulations, earthing and inspections;</p> <p>(n) Threading cable through ducts, sleeves, conduits and the like;</p> <p>(o) Data equipment, cabling and connections;</p> <p>(p) Galvanised fixings and fittings;</p> <p>(q) Mounting arrangements;</p> <p>(r) Pre-installation photographs;</p> <p>(s) Post installation photographs;</p> <p>(t) Preparation and supply of record drawings;</p> <p>(u) Giving notice to the Employer's Representative;</p> <p>(v) Liaison and coordination with Third Parties;</p> <p>(w) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</p> <p>(x) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</p> <p>(y) Day and night works;</p> <p>(z) Modifications to the existing infrastructure for the installation of equipment;</p> <p>(aa)Protective system (CC-RMP-01900 paragraph 5);</p> <p>(bb)Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</p>
<b>Supply of Point to Point Communication Equipment</b>		
<b>Units</b>	<b>54</b>	The unit of measurement shall be:  (i) Supply of Point to Point Communication Equipment.....number.
<b>Measurement</b>	<b>55</b>	The measurement of Point to Point Communication Equipment shall be with respect to the supply of Point to Point Communication Equipment.
<b>Itemisation</b>	<b>56</b>	Separate items shall be provided for Point to Point Communication Equipment in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

		<b>Group Feature</b> I 1 Point to Point Communication Equipment
<b>Supply of Point to Point Communication Equipment</b>	<b>57</b>	The items for supply of Point to Point Communication Equipment shall in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of Point to Point Communications Equipment outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification; (b) Transport and handling; (c) Storage until handover.
<b>Supply and Installation of Point to Point Communication Equipment</b>		
<b>Units</b>	<b>58</b>	The unit of measurement shall be: (i) Supply of Point to Point Communication Equipment.....number.
<b>Measurement</b>	<b>59</b>	The measurement of Point to Point Communication Equipment shall be with respect to the supply of Point to Point Communication Equipment.
<b>Itemisation</b>	<b>60</b>	Separate items shall be provided for Point to Point Communication Equipment in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Point to Point Communication Equipment II 1 Different locations
<b>Supply and Installation of Point to Point Communication Equipment</b>	<b>61</b>	The items for supply and installation of Point to Point Communication Equipment shall in accordance with the Preambles to the Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Point to Point Communication Equipment, Point to Point Communication Equipment outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (c) Maintenance of equipment up to date of substantial Completion of the installation; (d) Provision of design documentation; (e) Reports and certificates; (f) Provision of data and drawings; (g) Submissions to the Employer's Representative, including resubmissions and modifications as required; (h) Amendments to the works;

		<ul style="list-style-type: none"> <li>(i) Notices, labelling, numbering and lettering;</li> <li>(j) Alignment and sighting;</li> <li>(k) Disposal of material (CC-RMP-00600 paragraph 39);</li> <li>(l) Service connections and commissioning;</li> <li>(m) Complying with wiring regulations, earthing and inspections;</li> <li>(n) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(o) Data equipment, cabling and connections;</li> <li>(p) Galvanised fixings and fittings;</li> <li>(q) Mounting arrangements;</li> <li>(r) Pre-installation photographs;</li> <li>(s) Post installation photographs;</li> <li>(t) Preparation and supply of record drawings;</li> <li>(u) Giving notice to the Employer’s Representative;</li> <li>(v) Liaison and coordination with Third Parties;</li> <li>(w) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</li> <li>(x) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</li> <li>(y) Day and night works;</li> <li>(z) Modifications to the existing infrastructure for the installation of equipment;</li> <li>(aa) Protective system (CC-RMP-01900 paragraph 5);</li> <li>(bb) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</li> </ul>
<b>Supply of Emergency Roadside Telephones (ERTs)</b>		
<b>Units</b>	<b>62</b>	The unit of measurement shall be: (i) Supply of ERTs.....number
<b>Measurement</b>	<b>63</b>	The measurement of ERTs shall be with respect to the supply of ERTs
<b>Itemisation</b>	<b>64</b>	Separate items shall be provided for Emergency Roadside Telephones (ERTs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I            1 Emergency Roadside Telephones (ERTs)
<b>Supply of Emergency Roadside Telephones</b>	<b>65</b>	The items for supply of Emergency Roadside Telephones shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) Supply of Emergency Roadside Telephones, Emergency Roadside Telephones outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) Transport and handling;</li> </ul>

		(c) storage until handover.
<b>Supply and Installation of Emergency Roadside Telephones (ERTs)</b>		
<b>Units</b>	<b>66</b>	The unit of measurement shall be: (i) Supply of ERTs.....number
<b>Measurement</b>	<b>67</b>	The measurement of ERTs shall be with respect the complete supply and installation of ERTs
<b>Itemisation</b>	<b>68</b>	Separate items shall be provided for Emergency Roadside Telephones (ERTs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Emergency Roadside Telephones (ERTs) II 1 Different locations
<b>Supply and Installation of Emergency Roadside Telephones</b>	<b>69</b>	The items for supply and installation of Emergency Roadside Telephones shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Emergency Roadside Telephones, Emergency Roadside Telephones outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (c) Maintenance of equipment up to date of substantial Completion of the installation; (d) Provision of design documentation; (e) Reports and certificates; (f) Provision of data and drawings; (g) Submissions to the Employer’s Representative, including resubmissions and modifications as required; (h) Amendments to the works; (i) Notices, labelling, numbering and lettering; (j) Alignment and sighting; (k) Excavation (CC-RMP-01700 paragraphs 17, 18 and 19); (l) Disposal of material (CC-RMP-00600 paragraph 39); (m) Service connections and commissioning; (n) Complying with wiring regulations, earthing and inspections; (o) Threading cable through ducts, sleeves, conduits and the like; (p) Data equipment, cabling and connections; (q) Galvanised fixings and fittings; (r) Mounting arrangements; (s) Pre-installation photographs; (t) Post installation photographs;

		<p>(u) Preparation and supply of record drawings;</p> <p>(v) Giving notice to the Employer’s Representative;</p> <p>(w) Liaison and coordination with Third Parties;</p> <p>(x) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</p> <p>(y) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</p> <p>(z) Day and night works;</p> <p>(aa) Modifications to the existing infrastructure for the installation of equipment;</p> <p>(bb) Concrete (CC-RMP-01700 paragraph 4 and 9);</p> <p>(cc) formwork (CC-RMP-01700 paragraph 14);</p> <p>(dd) reinforcement (CC-RMP-01700 paragraph 25);</p> <p>(ee) Protective system (CC-RMP-01900 paragraph 5);</p> <p>(ff) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</p>
<b>Supply of Variable Message Signs</b>		
<b>Units</b>	<b>70</b>	<p>The unit of measurement shall be:</p> <p>(i) Strategic VMS.....number</p> <p>(ii) Tactical VMS.....number</p> <p>(iii) Large Urban VMS.....number</p> <p>(iv) Small Urban VMS.....number</p> <p>(v) Advanced Matrix Indicator (AMI).....number</p> <p>(vi) Slip Road Signage.....number</p>
<b>Measurement</b>	<b>71</b>	The measurement of Variable Message Signs shall be with respect to the supply of Variable Message Signs.
<b>Itemisation</b>	<b>72</b>	Separate items shall be provided for Variable Message Signs (VMS) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<p><b>Group Feature</b></p> <p>I     1 Supply of VMS</p> <p>II    1 Supply of Strategic VMS</p> <p>      2 Supply of Tactical VMS.</p> <p>      3 Supply of Large Urban VMS comprising</p> <p>      4 Supply of Small Urban comprising</p> <p>      5 Supply of Advanced Matrix Indicator (AMI)</p> <p>      6 Supply of Slip Road Signage</p>
<b>Supply of Variable Message Signs (VMS)</b>	<b>73</b>	The items for Variable Message Signs (VMS) shall in accordance with the Preambles to Bill of Quantities General Directions include for:

<b>Item Coverage</b>		<p>(a) The design, supply and installation of Variable Message Sign – Strategic, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</p> <p>(b) The design, supply and installation of Variable Message Sign – Tactical, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</p> <p>(c) The design, supply and installation Variable Message Sign – Large Urban, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</p> <p>(d) The design, supply and installation of Variable Message Sign – Small Urban, outstation and mounting arrangements in accordance with Vol A - Part 3 – Technical Specification;</p> <p>(e) The design, supply and installation of Variable Message Sign – Advanced Matrix Indicator, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</p> <p>(f) transport and handling;</p> <p>(g) Storage until handover.</p>
<b>Supply and Installation of Variable Message Signs</b>		
<b>Units</b>	<b>74</b>	<p>The unit of measurement shall be:</p> <p>(i) Strategic VMS.....number</p> <p>(ii) Tactical VMS.....number</p> <p>(iii) Large Urban VMS.....number</p> <p>(iv) Small Urban.....number</p> <p>(v) Advanced Matrix Indicator (AMI).....number</p> <p>(vi) Slip Road Signage.....number</p>
<b>Measurement</b>	<b>75</b>	<p>The measurement of Variable Message Signs shall be with respect the complete supply and installation of Variable Message Signs.</p>
<b>Itemisation</b>	<b>76</b>	<p>Separate items shall be provided for Variable Message Signs (VMS) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:</p>
		<p><b>Group Feature</b></p> <p>I        1 Supply and installation of VMS</p> <p>II       1 Supply and installation of Strategic VMS</p> <p>          2 Supply and installation of Tactical VMS.</p> <p>          3 Supply and installation of Large Urban VMS</p> <p>          4 Supply and installation of Small Urban VMS</p> <p>          5 Supply and installation of Advanced Matrix Indicator</p> <p>          6 Supply and installation of Slip Road Signage</p>
<b>Supply and Installation of Variable Message Signs (VMS)</b>	<b>77</b>	<p>The items for Variable Message Signs (VMS) shall in accordance with the Preambles to Bill of Quantities General Directions include for:</p>
<b>Item Coverage</b>		<p>(a) The design, supply and installation of Variable Message Sign – Strategic, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</p>

	<ul style="list-style-type: none"> <li>(b) The design, supply and installation of Variable Message Sign – Tactical, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</li> <li>(c) The design, supply and installation of Variable Message Sign – Large Urban, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</li> <li>(d) The design, supply and installation of Variable Message Sign – Small Urban, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</li> <li>(e) The design, supply and installation Variable Message Sign – Advanced Matrix Indicator, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification;</li> <li>(f) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(g) Maintenance of equipment up to date of substantial Completion of the installation;</li> <li>(h) In the case of cable Marshalling Unit, IP66 rated enclosure;</li> <li>(i) Closing off plate;</li> <li>(j) Drop plates;</li> <li>(k) Cable trays;</li> <li>(l) Removal of mesh guards if required;</li> <li>(m) UPS;</li> <li>(n) Provision of design documentation;</li> <li>(o) Reports and certificates;</li> <li>(p) Provision of data and drawings;</li> <li>(q) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</li> <li>(r) Amendments to the works;</li> <li>(s) Notices, labelling, numbering and lettering;</li> <li>(t) Alignment and sighting;</li> <li>(u) Traffic Signal Poles (CC-RMP-01200 paragraph 29);</li> <li>(v) Permanent traffic signs (CC-RMP-01200 paragraph 4);</li> <li>(w) Drilling or forming holes and pockets in structures or foundations and casting in bolts, sockets, base plates and anchorage assemblies;</li> <li>(x) Sockets, base plates, anchorage assemblies, fixing to structures and foundations, including attachment systems which include retention sockets;</li> <li>(y) Service connections and commissioning;</li> <li>(z) Data equipment, cabling and connections;</li> <li>(aa)Galvanised fixings and fittings;</li> <li>(bb)Mounting arrangements;</li> <li>(cc)Pre-installation photographs;</li> <li>(dd)Post installation photographs;</li> <li>(ee)Preparation and supply of record drawings;</li> <li>(ff) Giving notice to the Employer’s Representative;</li> </ul>
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		(gg)Liaison and coordination with Third Parties; (hh)Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator; (ii) Everything necessary for the design, fabrication, installation, testing and integration of the signage; (jj) Day and night works; (kk)Modifications to the existing infrastructure for the installation of equipment; (ll) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.
<b>Supply of Closed-Circuit Television (CCTV) Cameras</b>		
<b>Units</b>	<b>78</b>	The unit of measurement shall be: (i) Supply of CCTV Cameras.....number
<b>Measurement</b>	<b>79</b>	The measurement of CCTV Cameras shall be with respect the supply of CCTV Cameras.
<b>Itemisation</b>	<b>80</b>	Separate items shall be provided for CCTV Cameras in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Supply of CCTV Cameras
<b>Supply of Closed-Circuit Television (CCTV) Cameras</b>	<b>81</b>	The items for supply of CCTV Cameras shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of CCTV Cameras, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification; (b) transport and handling; (c) Storage until handover.
<b>Supply and Installation of Closed-Circuit Television (CCTV) Cameras</b>		
<b>Units</b>	<b>82</b>	The unit of measurement shall be: (i) Supply and installation of CCTV Cameras.....number
<b>Measurement</b>	<b>83</b>	The measurement of CCTV Cameras shall be with respect the complete supply of CCTV Cameras.
<b>Itemisation</b>	<b>84</b>	Separate items shall be provided for CCTV Cameras in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Supply of CCTV Cameras II 1 Different locations
<b>Supply and Installation of Closed-Circuit</b>	<b>85</b>	The items for supply of CCTV Cameras shall in accordance with the Preambles to Bill of Quantities General Directions include for:

<b>Television (CCTV) Cameras</b>		
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The design, supply and installation of CCTV Cameras, outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(c) Maintenance of equipment up to date of substantial Completion of the installation;</li> <li>(d) Provision of design documentation;</li> <li>(e) Reports and certificates;</li> <li>(f) Provision of data and drawings;</li> <li>(g) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</li> <li>(h) Amendments to the works;</li> <li>(i) Loading, transporting, unloading and positioning for erection;</li> <li>(j) Notices, labelling, numbering and lettering;</li> <li>(k) Alignment and sighting;</li> <li>(l) Disposal of material (CC-RMP-00600 paragraph 39);</li> <li>(m) Service connections and commissioning;</li> <li>(n) Complying with wiring regulations, earthing and inspections;</li> <li>(o) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(p) Data equipment, cabling and connections;</li> <li>(q) fixings and fittings;</li> <li>(r) Mounting arrangements;</li> <li>(s) Pre-installation photographs;</li> <li>(t) Post installation photographs;</li> <li>(u) Preparation and supply of record drawings;</li> <li>(v) Giving notice to the Employer’s Representative;</li> <li>(w) Liaison and coordination with Third Parties;</li> <li>(x) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</li> <li>(y) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</li> <li>(z) Day and night works;</li> <li>(aa) Modifications to the existing infrastructure for the installation of equipment;</li> <li>(bb) Protective system (CC-RMP-01900 paragraph 5);</li> <li>(cc) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</li> </ul>
<b>Supply of Traffic Monitoring Unit (TMU)</b>		

<b>Units</b>	<b>86</b>	The unit of measurement shall be: (i) TMU.....number
<b>Measurement</b>	<b>87</b>	The measurement of Traffic Monitoring Unit (TMU) shall be with respect to the supply of Traffic Monitoring Unit (TMU)
<b>Itemisation</b>	<b>88</b>	Separate items shall be provided for supply of Traffic Monitoring Unit (TMUs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Supply of TMU
<b>Supply of Traffic Monitoring Unit (TMU)</b>	<b>89</b>	The items for supply of Traffic Monitoring Units (TMUs) shall in accordance with the Preambles to Bill of Quantities General Directions, include for:
<b>Item Coverage</b>		(a) Supply of Traffic Monitoring Units, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification; (b) transport and handling; (c) Storage until handover.
<b>Supply and Installation of Traffic Monitoring Unit (TMU)</b>		
<b>Units</b>	<b>90</b>	The unit of measurement shall be: (i) TMU.....number
<b>Measurement</b>	<b>91</b>	The measurement of Traffic Monitoring Unit (TMU) shall be with respect to the complete supply and installation of Traffic Monitoring Unit (TMU)
<b>Itemisation</b>	<b>92</b>	Separate items shall be provided for supply of Traffic Monitoring Unit (TMUs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Supply and Installation of TMU
<b>Supply and Installation of Traffic Monitoring Unit (TMU)</b>	<b>93</b>	The items for supply and installation of Traffic Monitoring Units (TMUs) shall in accordance with the Preambles to Bill of Quantities General Directions, include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Traffic Monitoring Unit (TMU), outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (c) Maintenance of equipment up to date of substantial Completion of the installation; (d) Provision of design documentation; (e) Reports and certificates; (f) Provision of data and drawings;

		<ul style="list-style-type: none"> <li>(g) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</li> <li>(h) Amendments to the works;</li> <li>(i) Notices, labelling, numbering and lettering;</li> <li>(j) Alignment and sighting;</li> <li>(k) Service connections and commissioning;</li> <li>(l) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(m) Data equipment, cabling and connections;</li> <li>(n) Galvanised fixings and fittings;</li> <li>(o) Mounting arrangements;</li> <li>(p) Pre-installation photographs;</li> <li>(q) Post installation photographs;</li> <li>(r) Preparation and supply of record drawings;</li> <li>(s) Giving notice to the Employer’s Representative;</li> <li>(t) Liaison and coordination with Third Parties;</li> <li>(u) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</li> <li>(v) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</li> <li>(w) Day and night works;</li> <li>(x) Modifications to the existing infrastructure for the installation of equipment;</li> <li>(y) Protective system (CC-RMP-01900 paragraph 5);</li> <li>(z) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</li> <li>(aa)Traffic Signal Poles (CC-RMP-01200 paragraph 29);</li> <li>(bb)drilling or forming holes and pockets in structures and casting in bolts, sockets, base plates and anchorage assemblies;</li> <li>(cc)sockets. Base plates, anchorage assemblies, fixing to structures and foundations, including attachment systems which include retention sockets;</li> <li>(dd)Excavation in hard material (CC-RMP-00600 paragraph 23);</li> <li>(ee)Marking out, cutting or forming slots, drying, damming, backfilling, cleaning and sealing;</li> <li>(ff) Chambers, boxes and pits (CC-RMP-00500 paragraph 33);</li> <li>(gg)Ducts (CC-RMP-00500 paragraph 12);</li> <li>(hh)Building in ends of ducts;</li> <li>(ii) Supports and foundation to cables;</li> <li>(jj) Communications cable (as this document paragraph 10);</li> <li>(kk)Complying with wiring regulations and earthing (other than earth electrodes);</li> </ul>
<p><b>Supply of Cycle Monitoring Unit (CMU)</b></p>		

<b>Units</b>	<b>94</b>	The unit of measurement shall be: (i) CMU..... number.
<b>Measurement</b>	<b>95</b>	The measurement of Cycle Monitoring Unit (CMU) shall be with respect to the complete supply of Cycle Monitoring Unit (CMU)
<b>Itemisation</b>	<b>96</b>	Separate items shall be provided for supply of Cycle Monitoring Unit (CMUs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1        Supply of CMU
<b>Supply of Cycle Monitoring Unit</b>	<b>97</b>	The items for the supply of Cycle Monitoring Units (CMUs) shall in accordance with the Preambles to Bill of Quantities General Directions, include for:
<b>Item Coverage</b>		(a) Supply of Cycle Monitoring Units, outstation and mounting arrangements in accordance with Vol A – Part 3 – Technical Specification; (b) transport and handling; (c) Storage until handover.
<b>Supply and Installation of Cycle Monitoring Unit (CMU)</b>		
<b>Units</b>	<b>98</b>	The unit of measurement shall be: (i) CMU.....number
<b>Measurement</b>	<b>99</b>	The measurement of Cycle Monitoring Unit (CMU) shall be with respect to the complete supply and installation of Cycle Monitoring Unit (CMU).
<b>Itemisation</b>	<b>100</b>	Separate items shall be provided for supply of Cycle Monitoring Unit (CMUs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1        Supply and Installation of CMU
<b>Supply and Installation of Cycle Monitoring Unit (CMU)</b>	<b>101</b>	The items for supply and installation of Cycle Monitoring Units (CMUs) shall in accordance with the Preambles to Bill of Quantities General Directions, include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Cycle Monitoring Unit (CMU), outstation and mounting arrangements in accordance with Volume A – Part 3 – Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (c) Maintenance of equipment up to date of substantial completion of the installation; (d) Provision of design documentation; (e) Reports and certificates;

		<ul style="list-style-type: none"> <li>(f) Provision of data and drawings;</li> <li>(g) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</li> <li>(h) Amendments to the works;</li> <li>(i) Notices, labelling, numbering and lettering;</li> <li>(j) Alignment and sighting;</li> <li>(k) Service connections and commissioning;</li> <li>(l) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(m) Data equipment’s, cabling and connections;</li> <li>(n) Galvanised fixings and fittings;</li> <li>(o) Mounting arrangements;</li> <li>(p) Pre-installation photographs;</li> <li>(q) Post-installation photographs;</li> <li>(r) Preparation and supply of record drawings;</li> <li>(s) Giving notice to the employer’s representative;</li> <li>(t) Liaison and coordination with Third Parties;</li> <li>(u) Suspension of the works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</li> <li>(v) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</li> <li>(w) Day and night works;</li> <li>(x) Modifications to the existing infrastructure for the installation of equipment;</li> <li>(y) Protective System (CC-RMP-01900 paragraph 5);</li> <li>(z) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification;</li> <li>(aa)drilling or forming holes and pockets in structures or foundations and casting in bolts, sockets, base plates and anchorage assemblies;</li> <li>(bb)Excavation in hard material (CC-RMP-00600 paragraph 23);</li> <li>(cc)Marking out, cutting or forming slots, drying, damming, backfilling, cleaning and sealing;</li> <li>(dd)Chambers, boxes and pits (CC-RMP-0500 paragraph 33);</li> <li>(ee)Ducts (CC-RMP-00500 paragraph 12);</li> <li>(ff) Building in ends of ducts;</li> <li>(gg)Forming drainage holes;</li> <li>(hh)Supports and foundation to cables;</li> <li>(ii) Communications cable (CC-RMP-01500 paragraph 10);</li> <li>(jj) Complying with wiring regulations and earthing (other than earth electrodes);</li> </ul>
<b>Supply of Automatic Incident Detectors (AIDs)</b>		
<b>Units</b>	<b>102</b>	The unit of measurement shall be:

		(i) Automatic Incident Detectors (AIDs)..... number
<b>Measurement</b>	<b>103</b>	The measurement of Automatic Incident Detection (AID) shall be with respect to the supply of Automatic Incident Detection (AID)
<b>Itemisation</b>	<b>104</b>	Separate items shall be provided for the supply of Automatic Incident Detectors (AIDs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Automatic Incident Detectors (AIDs) II 1 Different locations
<b>Supply of Automatic Incident Detectors (AIDs)</b>	<b>105</b>	The items for supply of Automatic Incident Detectors (AIDs) shall in accordance with the Preambles to Bill of Quantities include for:
<b>Item Coverage</b>		(a) Supply of Automatic Incident Detectors, outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) transport and handling; (c) Storage until handover
<b>Supply and Installation of Automatic Incident Detectors (AIDs)</b>		
<b>Units</b>	<b>106</b>	The unit of measurement shall be: (i) Automatic Incident Detectors (AIDs)..... number
<b>Measurement</b>	<b>107</b>	The measurement of Automatic Incident Detection (AID) shall be with respect to the complete supply and installation of Automatic Incident Detection (AID)
<b>Itemisation</b>	<b>108</b>	Separate items shall be provided for the supply of Automatic Incident Detectors (AIDs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Automatic Incident Detectors (AIDs) II 1 Different locations
<b>Supply and Installation of Automatic Incident Detectors (AIDs)</b>	<b>109</b>	The items for supply of Automatic Incident Detectors (AIDs) shall in accordance with the Preambles to Bill of Quantities include for:
		(a) The design, supply and installation of Traffic Monitoring Unit (TMU), outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (c) Maintenance of equipment up to date of substantial Completion of the installation; (d) Provision of design documentation; (e) Reports and certificates;

		<p>(f) Provision of data and drawings;</p> <p>(g) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</p> <p>(h) Amendments to the works;</p> <p>(i) Notices, labelling, numbering and lettering;</p> <p>(j) Loading, transporting, unloading and positioning for re-erection;</p> <p>(k) Alignment and sighting;</p> <p>(l) Disposal of material (CC-RMP-00600 paragraph 39);</p> <p>(m) Service connections and commissioning;</p> <p>(n) Complying with wiring regulations, earthing and inspections;</p> <p>(o) Threading cable through ducts, sleeves, conduits and the like;</p> <p>(p) Data equipment, cabling and connections;</p> <p>(q) fixings and fittings;</p> <p>(r) Mounting arrangements;</p> <p>(s) Pre-installation photographs;</p> <p>(t) Post installation photographs;</p> <p>(u) Preparation and supply of record drawings;</p> <p>(v) Giving notice to the Employer’s Representative;</p> <p>(w) Liaison and coordination with Third Parties;</p> <p>(x) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</p> <p>(y) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</p> <p>(z) Day and night works;</p> <p>(aa) Modifications to the existing infrastructure for the installation of equipment;</p> <p>(bb) Protective system (CC-RMP-01900 paragraph 5);</p> <p>(cc) NIMS integration in accordance Volume A – Part 3 – Technical Specification;</p> <p>(dd) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</p>
<b>Supply of Equipment Cabinets and Enclosures</b>		
<b>Units</b>	<b>110</b>	The unit of measurement shall be: (i) Equipment Cabinets and Enclosures.....number
<b>Measurement</b>	<b>111</b>	The measurement of Equipment Cabinets and Enclosures shall be with respect to the supply of Equipment Cabinets and Enclosures
<b>Itemisation</b>	<b>112</b>	Separate items for Equipment Cabinets and Enclosures shall be provided in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Equipment Cabinets and Enclosures

		II 1 Different locations
<b>Supply of Equipment Cabinets and Enclosures</b>	<b>113</b>	The items for supply of equipment cabinets and enclosures shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of Equipment Cabinets and Enclosures in accordance with Volume A – Part 3 – Technical Specification (b) transport and handling; (c) Storage until handover
<b>Supply and Installation of Equipment Cabinets and Enclosures</b>		
<b>Units</b>	<b>114</b>	The unit of measurement shall be: (i) Equipment Cabinets and Enclosures.....number
<b>Measurement</b>	<b>115</b>	The measurement of Equipment Cabinets and Enclosures shall be with respect to the complete supply and installation of Equipment Cabinets and Enclosures
<b>Itemisation</b>	<b>116</b>	Separate items for Equipment Cabinets and Enclosures shall be provided in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Equipment Cabinets and Enclosures 2 IP rated enclosures cabinet II 1 Different type III 1 Different locations
<b>Supply and Installation of Equipment Cabinets and Enclosures</b>	<b>117</b>	The items for supply of equipment cabinets and enclosures shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Traffic Monitoring Unit (TMU), outstation and mounting arrangements in accordance with Volume A – Part 3 – Technical Specification; (b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (c) Maintenance of equipment up to date of substantial Completion of the installation; (d) Provision of design documentation; (e) Reports and certificates; (f) Provision of data and drawings; (g) Submissions to the Employer's Representative, including resubmissions and modifications as required; (h) Amendments to the works; (i) Notices, labelling, numbering and lettering; (j) Loading, transporting, unloading and positioning for re-erection; (k) Alignment and sighting;

		<p>(l) Excavation (CC-RMP-00600 paragraphs 17, 18 &amp; 19);</p> <p>(m) Excavation in Hard Material (CC-RMP-00600 paragraph 20);</p> <p>(n) Disposal of material (CC-RMP-00600 paragraph 39);</p> <p>(o) In-situ Concrete (CC-RMP-01700 paragraph 4);</p> <p>(p) formwork (CC-RMP-01700 paragraph 14);</p> <p>(q) Reinforcement (CC-RMP-01700 paragraph 25);</p> <p>(r) Service connections and commissioning;</p> <p>(s) Complying with wiring regulations, earthing and inspections;</p> <p>(t) Threading cable through ducts, sleeves, conduits and the like;</p> <p>(u) Data equipment, cabling and connections;</p> <p>(v) fixings and fittings;</p> <p>(w) Mounting arrangements;</p> <p>(x) Pre-installation photographs;</p> <p>(y) Post installation photographs;</p> <p>(z) Preparation and supply of record drawings;</p> <p>(aa) Giving notice to the Employer’s Representative;</p> <p>(bb) Liaison and coordination with Third Parties;</p> <p>(cc) Suspension of the Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</p> <p>(dd) Everything necessary for the design, fabrication, installation, testing and integration of the signage;</p> <p>(ee) Day and night works;</p> <p>(ff) Modifications to the existing infrastructure for the installation of equipment;</p> <p>(gg) Protective system (CC-RMP-01900 paragraph 5);</p> <p>(hh) NIMS integration in accordance Volume A – Part 3 – Technical Specification;</p> <p>(ii) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</p>
<b>Supply of Fibre Access Switches</b>		
<b>Units</b>	<b>118</b>	The unit of measurement shall be: (i) Fibre Access Switches.....number
<b>Measurement</b>	<b>119</b>	The measurement of fibre access switches shall be the supply of fibre access switches.
<b>Itemisation</b>	<b>120</b>	Separate items shall be provided Fibre Access Switches in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<p><b>Group Feature</b></p> <p>I        1 Fibre Access Switches</p> <p>II       1 Different Types</p>

<b>Supply of Fibre Access Switches</b>	<b>121</b>	The items for supply of Fibre Access Switches shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of Fibre Access Switches and mounting arrangements in accordance with Volume A – Part 3 – Technical Specifications; (b) transport and handling; (c) Storage until handover.
<b>Supply and Installation of Fibre Access Switches</b>		
<b>Units</b>	<b>122</b>	The unit of measurement shall be: (i) Fibre Access Switches.....number
<b>Measurement</b>	<b>123</b>	The measurement of fibre access switches shall be the complete supply and installation of fibre access switches.
<b>Itemisation</b>	<b>124</b>	Separate items shall be provided Fibre Access Switches in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Fibre Access Switches II 1 Different locations
<b>Supply and Installation of Fibre Access Switches</b>	<b>125</b>	The items for supply of Fibre Access Switches shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The design, supply and installation of Fibre Access Switches in accordance with Volume A – Part 3 – Technical Specification; (b) Testing and commissioning in accordance with Volume A – Part 3 – Technical Specification; (c) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (d) Maintenance of equipment up to date of substantial Completion of the installation, communication cabling, making connection and terminations; (e) Notices, labelling, numbering and lettering; (f) Alignment and sighting; (g) Disposal of material (CC-RMP-00600 paragraph 39); (h) Service connections and commissioning; (i) Complying with wiring regulations, earthing and inspections; (j) Threading cable through ducts, sleeves, conduits and the like; (k) Data equipment, cabling and connections; (l) fixings and fittings; (m) Mounting arrangements; (n) Pre-installation photographs; (o) Post installation photographs; (p) Preparation and supply of record drawings;

		(q) Giving notice to the Employer’s Representative; (r) Liaison and coordination with Third Parties;; (s) Day and night works; (t) Protective system (CC-RMP-01900 paragraph 5); (u) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.
<b>Supply of Fibre Distribution Switches</b>		
<b>Units</b>	<b>126</b>	The unit of measurement shall be: (i) Fibre Distribution Switches.....number.
<b>Measurement</b>	<b>127</b>	The measurement of Fibre Distribution Switches shall be the supply of Fibre Distribution Switches.
<b>Itemisation</b>	<b>128</b>	Separate items shall be provided for Fibre Distribution Switches in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1 Fibre Access Switches II       1 Different locations
<b>Supply of Fibre Distribution Switches</b>	<b>129</b>	The items for Fibre Distribution Switches shall in accordance with the Preambles of Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of Fibre Distribution Switches and mounting arrangements in accordance with Volume A – Part 3 – Technical Specifications; (b) transport and handling; (c) Storage until handover;
<b>Supply and Installation of Fibre Distribution Switches</b>		
<b>Units</b>	<b>130</b>	The unit of measurement shall be: Fibre Distribution Switches.....number.
<b>Measurement</b>	<b>131</b>	The measurement of Fibre Distribution Switches shall be the complete supply and installation of Fibre Distribution Switches.
<b>Itemisation</b>	<b>132</b>	Separate items shall be provided for Fibre Distribution Switches in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1 Fibre Access Switches II       1 Different locations
<b>Supply and Installation of Fibre Distribution Switches</b>	<b>133</b>	The items for Fibre Distribution Switches shall in accordance with the Preambles of Bill of Quantities General Directions include for:

<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The design, supply and installation of Fibre Distribution Switches in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(c) Maintenance of equipment up to date of substantial Completion of the installation, communication cabling, making connection and terminations;</li> <li>(d) Notices, labelling, numbering and lettering;</li> <li>(e) Alignment and sighting;</li> <li>(f) Disposal of material (CC-RMP-00600 paragraph 39);</li> <li>(g) Service connections and commissioning;</li> <li>(h) Complying with wiring regulations, earthing and inspections;</li> <li>(i) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(j) Data equipment, cabling and connections;</li> <li>(k) fixings and fittings;</li> <li>(l) Mounting arrangements;</li> <li>(m) Pre-installation photographs;</li> <li>(n) Post installation photographs;</li> <li>(o) Preparation and supply of record drawings;</li> <li>(p) Giving notice to the Employer’s Representative;</li> <li>(q) Liaison and coordination with Third Parties;;</li> <li>(r) Day and night works;</li> <li>(s) Protective system (CC-RMP-01900 paragraph 5);</li> <li>(t) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</li> </ul>
<b>Supply of Fibre Media Converter</b>		
<b>Units</b>	<b>134</b>	The unit of measurement shall be: (i) Fibre Media Converter.....number
<b>Measurement</b>	<b>135</b>	The measurement of Fibre Media Converter shall be the supply of the Fibre Media Converter.
<b>Itemisation</b>	<b>136</b>	Separate items shall be provided for Fibre Media Converters in accordance with Section 3 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1 Fibre Media Converter II       1 Different locations
<b>Supply of Fibre Media Converter</b>	<b>137</b>	The items for Fibre Media Converters shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The supply of Fibre Media Converter equipment in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) transport and handling;</li> </ul>

		(c) Storage until handover.
<b>Supply and Installation of Fibre Media Converter</b>		
<b>Units</b>	<b>138</b>	The unit of measurement shall be: Fibre Media Converter.....number
<b>Measurement</b>	<b>139</b>	The measurement of Fibre Media Converter shall be the complete supply and installation of the Fibre Media Converter.
<b>Itemisation</b>	<b>140</b>	Separate items shall be provided for Fibre Media Converters in accordance with Section 3 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I 1 Fibre Media Converter II 1 Different locations
<b>Supply and Installation of Fibre Media Converter</b>	<b>141</b>	The items for Fibre Media Converters shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The design, supply and installation of Fibre Media Converters in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(c) Maintenance of equipment up to date of substantial Completion of the installation, communication cabling, making connection and terminations;</li> <li>(d) Notices, labelling, numbering and lettering;</li> <li>(e) Alignment and sighting;</li> <li>(f) Disposal of material (CC-RMP-00600 paragraph 39);</li> <li>(g) Service connections and commissioning;</li> <li>(h) Complying with wiring regulations, earthing and inspections;</li> <li>(i) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(j) Data equipment, cabling and connections;</li> <li>(k) fixings and fittings;</li> <li>(l) Mounting arrangements;</li> <li>(m) Pre-installation photographs;</li> <li>(n) Post installation photographs;</li> <li>(o) Preparation and supply of record drawings;</li> <li>(p) Giving notice to the Employer’s Representative;</li> <li>(q) Liaison and coordination with Third Parties;;</li> <li>(r) Day and night works;</li> <li>(s) Protective system (CC-RMP-01900 paragraph 5);</li> <li>(t) Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</li> </ul>
<b>Supply of Telecommunications Equipment</b>		

<b>Units</b>	<b>142</b>	The unit of measurement shall be: (i) POE Ethernet Extenders.....number (ii) Power Distribution Switches.....number (iii) Fibre Optic Splice Trays.....number (iv) Splicing Panel Trays.....number (v) Fibre Optic Patch Panels.....number
<b>Measurement</b>	<b>143</b>	The measurement of Telecommunications Equipment shall be the supply of Telecommunications Equipment.
<b>Itemisation</b>	<b>144</b>	Separate items for Telecommunications Equipment shall be provided in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1 POE Ethernet Extenders 2 Power Distribution Switches 3 Fibre Optic Splice Trays 4 Splicing Panel Trays 5 Fibre Optic Patch Panels II        1 Different locations
<b>Supply of Telecommunications Equipment</b>	<b>145</b>	The items for telecommunications equipment shall in accordance with the Preambles of Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) Supply of telecommunications equipment in accordance with Volume A – Part 3 – Technical Specification; (b) transport and handling; (c) Storage until handover.
<b>Supply and Installation of Telecommunications Equipment</b>		
<b>Units</b>	<b>146</b>	The unit of measurement shall be: (i) POE Ethernet Extenders.....number (ii) Power Distribution Switches.....number (iii) Fibre Optic Splice Trays.....number (iv) Splicing Panel Trays.....number (v) Fibre Optic Patch Panels.....number
<b>Measurement</b>	<b>147</b>	The measurement of Telecommunications Equipment shall be the complete supply, installation, testing and commissioning of Telecommunications Equipment.
<b>Itemisation</b>	<b>148</b>	Separate items for Telecommunications Equipment shall be provided in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1 POE Ethernet Extenders 2 Power Distribution Switches 3 Fibre Optic Splice Trays

		<p>4 Splicing Panel Trays</p> <p>5 Fibre Optic Patch Panels</p> <p>II 1 Different locations</p>
<b>Supply and Installation of Telecommunications Equipment</b>	<b>149</b>	The items for telecommunications equipment shall in accordance with the Preambles of Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<p>(a) The design, supply and installation of Fibre Media Converters in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(b) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(c) Maintenance of equipment up to date of substantial Completion of the installation, communication cabling, making connection and terminations;</p> <p>(d) Communication cabling, making connection and terminations;</p> <p>(e) In the case of gantry mounted Power Distribution Units (PDU's), IP66 rated PDU enclosure;</p> <p>(f) Notices, labelling, numbering and lettering;</p> <p>(g) Alignment and sighting;</p> <p>(h) Disposal of material (CC-RMP-00600 paragraph 39);</p> <p>(i) Service connections and commissioning;</p> <p>(j) Complying with wiring regulations, earthing and inspections;</p> <p>(k) Threading cable through ducts, sleeves, conduits and the like;</p> <p>(l) Data equipment, cabling and connections;</p> <p>(m) fixings and fittings;</p> <p>(n) Mounting arrangements;</p> <p>(o) Pre-installation photographs;</p> <p>(p) Post installation photographs;</p> <p>(q) Preparation and supply of record drawings;</p> <p>(r) Giving notice to the Employer's Representative;</p> <p>(s) Liaison and coordination with Third Parties;;</p> <p>(t) Day and night works;</p> <p>(u) Protective system (CC-RMP-01900 paragraph 5);</p>
<b>Supply of C-ITS Roadside Units (RSUs)</b>		
<b>Units</b>	<b>150</b>	The unit of measurement shall be: (i) C-ITS Roadside Units (RSUs).....item.
<b>Measurement</b>	<b>151</b>	The measurement of C-ITS Roadside Units (RSUs) shall be the supply of Roadside Units (RSUs).
<b>Itemisation</b>	<b>152</b>	Separate items shall be provided for C-ITS Roadside Units (RSUs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following;

		<p><b>Group Feature</b></p> <p>I 1 C-ITS Roadside Units (RSUs)</p> <p>II 1 RSU Types</p>
<b>Supply of C-ITS Roadside Units (RSUs)</b>	<b>153</b>	The items for C-ITS Roadside Units (RSUs) shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<p>(a) The supply of C-ITS Roadside Units (RSUs) equipment in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(b) transport and handling;</p> <p>(c) Storage until handover.</p>
<b>Supply and Installation of C-ITS Roadside Units (RSUs)</b>		
<b>Units</b>	<b>154</b>	The unit of measurement shall be: C-ITS Roadside Units (RSUs).....item.
<b>Measurement</b>	<b>155</b>	The measurement of C-ITS Roadside Units (RSUs) shall be the complete supply, installation, testing and commissioning of Roadside Units (RSUs).
<b>Itemisation</b>	<b>156</b>	Separate items shall be provided for C-ITS Roadside Units (RSUs) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following;
		<p><b>Group Feature</b></p> <p>I 1 C-ITS Roadside Units (RSUs)</p> <p>II 1 RSU Site Types</p>
<b>Supply and Installation of C-ITS Roadside Units (RSUs)</b>	<b>157</b>	The items for C-ITS Roadside Units (RSUs) shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<p>(a) The design, supply and installation of C-ITS Roadside Units (RSUs) equipment in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(b) Verification and update of RSU site designs;</p> <p>(c) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification;</p> <p>(d) Provision of RSU software update and (re)configuration for pilot PKI certificates and signatures;</p> <p>(e) Provision of specialist tools, test equipment and test harnesses required for installation, testing, integration and commissioning;</p> <p>(f) Cabling, including data connection, diagnostic and power supply;</p> <p>(g) Fixings and fittings, including extension pole and conversion barriers;</p> <p>(h) Mounting arrangements;</p> <p>(i) Pre-installation photographs;</p> <p>(j) Post installation photographs;</p>

		<ul style="list-style-type: none"> <li>(k) Maintenance and pilot support of C-ITS RSUs up to the date of substantial completion of the installation;</li> <li>(l) In the case of RSU Cable Management Unit, IP66 rated enclosure;</li> <li>(m) Reports and certificates;</li> <li>(n) RSU hardware and software licenses;</li> <li>(o) Evidence pack for RSU compliance with relevant standards, technical specifications and European regulations for C-ITS;</li> <li>(p) Provision of data and drawings;</li> <li>(q) Submissions to the Employer’s Representative, including resubmissions and modifications as required;</li> <li>(r) Amendments to the works;</li> <li>(s) Notices, labelling, numbering and lettering;</li> <li>(t) Alignment and sighting;</li> <li>(u) Disposal of material (CC-RMP-00600 paragraph 39);</li> <li>(v) Service connections and commissioning;</li> <li>(w) Complying with wiring regulations, earthing and inspections;</li> <li>(x) Threading cable through ducts, sleeves, conduits and the like;</li> <li>(y) Preparation and supply of record drawings;</li> <li>(z) Giving notice to the Employer’s Representative;</li> <li>(aa)Liaison and coordination with Third Parties;</li> <li>(bb)Suspension of Works with respect to the removal of temporary traffic management due to high traffic volumes as directed by the relevant TII appointed Road Operator;</li> <li>(cc)Everything necessary for the design, supply and installation of C-ITS services;</li> <li>(dd)Day and night works;</li> <li>(ee)Modifications to the existing infrastructure for the installation of equipment</li> <li>(ff) Protective system (CC-RMP-01900 paragraph 5);</li> <li>(gg)Integration with AFMS, ATMS, NIMS and other systems identified in Volume A – Part 3 – Technical Specification.</li> </ul>
<b>C-ITS Survey and ITS-G5 Radio Signal Coverage Planning</b>		
<b>Units</b>	<b>158</b>	<p>The unit of measurement shall be:</p> <ul style="list-style-type: none"> <li>(i) C-ITS Site surveys and ITS-G5 radio signal coverage planning.....item</li> <li>(ii) Verify RSU Site design.....number</li> </ul>
<b>Measurement</b>	<b>159</b>	The measurement for C-ITS survey and ITS-G5 radio signal coverage planning shall be respect of the complete survey and coverage plan accepted by the Employer’s Representative
<b>Itemisation</b>	<b>160</b>	Separate items shall be provided for C-ITS surveys and ITS-G5 radio signal coverage planning in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b>

		<ul style="list-style-type: none"> <li>I 1 Undertake C-ITS site surveys and ITS-G5 radio signal coverage planning</li> <li>I 2 Verify RSU Site design</li> </ul>
<b>C-ITS Survey and ITS-G5 Radio Signal Coverage Planning</b>	<b>161</b>	The items for C-ITS Surveys and ITS G-5 Radio Signal Coverage Planning shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) Undertaking site surveys and ITS-G5 radio signal coverage planning for RSU sites in accordance with Volume A – Part 3 – Technical Specification;</li> <li>(b) Preparation of survey report and ITS-G5 radio signal coverage plan, including antenna options and mounting arrangement and issuing them to the Employer’s Representative for review;</li> <li>(c) Re-submission of survey reports and ITS-G5 radio signal coverage plan as required;</li> <li>(d) Verification and confirmation of RSU site locations, including any amendment to the provisional locations;</li> <li>(e) Verification and confirmation of RSU site designs;</li> <li>(f) Taking photographs;</li> <li>(g) Giving notice to the Employer’s Representative;</li> <li>(h) Carrying out surveys outside normal working hours including evenings and weekends;</li> <li>(i) Liaison with Third Parties;</li> </ul>
<b>C-ITS Provision of RSU SIM Cards</b>		
<b>Units</b>	<b>162</b>	The units of measurement shall be: <ul style="list-style-type: none"> <li>(i) Provision of RSU SIM Cards..... number.</li> </ul>
<b>Measurement</b>	<b>163</b>	The measurement of C-ITS Provision of RSU SIM Cards shall be the complete procurement, installation and testing of RSU SIM Cards.
<b>Itemisation</b>	<b>164</b>	Separate items shall be provided for C-ITS Provision of RSU SIM Cards in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> <ul style="list-style-type: none"> <li>I 1 Provision of RSU SIM Cards</li> <li>I 2 RSU Cellular Data</li> </ul>
<b>C-ITS Provision of RSU SIM Cards</b>	<b>165</b>	The items for provision of RSU SIM Cards shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The procurement, installation and testing of new SIM cards within four weeks of receipt of direction from the Employer;</li> <li>(b) RSU cellular data for the duration of the Contract.</li> </ul>
<b>Supply of On-Board Units (OBU)</b>		
<b>Units</b>	<b>166</b>	The unit of measurement shall be: <ul style="list-style-type: none"> <li>(i) Supply of OBU.....number</li> </ul>

<b>Measurement</b>	<b>167</b>	The measurement of the supply of On-Board Units shall be the complete procurement of OBUs.
<b>Itemisation</b>	<b>168</b>	Separate items shall be provided for On-Board Units in accordance with Section 3 of CC-RMP-00100 paragraphs 3 and 4 and the following:
		<b>Group Feature</b> I        1 Supply of On-Board Units (RSUs)
<b>Supply of On-Board Units (OBU)</b>	<b>169</b>	The items for the supply of On-Board Units shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The supply of On-Board Units (OBUs) equipment in accordance with Volume A – Part 3 – Technical Specification; (b) transport and handling; (c) Storage until handover.
<b>Supply and Installation of On-Board Units (OBU)</b>		
<b>Units</b>	<b>170</b>	The unit of measurement shall be: (i) Supply and Installation of OBU..... number.
<b>Measurement</b>	<b>171</b>	The measurement of On-Board Units (OBUs) shall be the complete supply, installation, testing and commissioning of On-Board Units (OBUs).
<b>Itemisation</b>	<b>172</b>	Separate items shall be provided for On-Board Units (OBUs) in accordance with Section 3 of CC-RMP-00010 paragraph 3 and 4 and the following;
		<b>Group Feature</b> I        1 Supply and Installation of On-Board Units (RSUs)
<b>Supply and Installation of On-Board Units (OBU)</b>	<b>173</b>	The items for On-Board Units (OBUs) shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) The design, supply and installation of On-Board Units (OBUs) equipment in accordance with Volume A – Part 3 – Technical Specification; (b) Verification and update of OBU site designs (c) Documentation and training requirements in accordance with Volume A – Part 3 – Technical Specification; (d) Provision of OBU software update and (re)configuration for pilot PKI certificates and signatures; (e) Provision of specialist tools, test equipment and test harnesses required for installation, testing, integration and commissioning; (f) Cabling, including data connection, diagnostic and power supply; (g) Fixings and fittings, including extension pole and conversion barriers; (h) Mounting arrangements; (i) Pre-installation photographs; (j) Post installation photographs;

		<ul style="list-style-type: none"> <li>(k) Maintenance and pilot support of OBUs up to the date of substantial completion of the installation;</li> <li>(l) In the case of the OBU cable management unit, IP66 rate enclosure;</li> <li>(m) Reports and certificates;</li> <li>(n) OBU Hardware and software licenses;</li> <li>(o) Evidence pack for OBU compliance with relevant standards, technical specifications and European regulations for C-ITS,</li> <li>(p) Provision of data and drawings;</li> <li>(q) Submissions to the Employer’s Representative<sup>3</sup>, including re-submissions and modifications as required;</li> <li>(r) Amendments to the works;</li> <li>(s) Notices, labelling, numbering and lettering;</li> <li>(t) Alignment and sighting;</li> <li>(u) Disposal of material (CC-RMP-00600 paragraph 39);</li> <li>(v) Service connections and commissioning;</li> <li>(w) Complying with wiring regulations, earthing and inspections;</li> <li>(x) Threading cable through ducts and sleeves conduits and the like;</li> <li>(y) Preparation and supply of record drawings.</li> </ul>
<b>Pole Mounted Enclosure</b>		
<b>Units</b>	<b>174</b>	The unit of measurement shall be: (i) Pole mounted enclosure.....number.
<b>Measurement</b>	<b>175</b>	The measurement of Pole Mounted Enclosures shall be the complete supply, installation, testing and commissioning of Pole Mounted Enclosures
<b>Itemisation</b>	<b>176</b>	Separate items shall be provided for Pole Mounted Enclosures in accordance with Section 3 of CC-RMP-00010 paragraph 3 and 4 and the following:
		<b>Group Feature</b> I        1        Pole Mounted Enclosures II       1        Different Types
<b>Pole Mounted Enclosure</b>	<b>177</b>	The items for Pole Mounted Enclosures shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		<ul style="list-style-type: none"> <li>(a) The design, supply and installation of Pole Mounted Enclosures in Volume A – Part 3 – Technical Specification;</li> <li>(b) Provision of specialist tools, test equipment and test harnesses required for installation, testing, integration and commissioning;</li> <li>(c) Mounting arrangements;</li> <li>(d) Notices, labelling, numbering and lettering;</li> <li>(e) Service connections and commissioning;</li> <li>(f) Threading cable through ducts and sleeves conduits and the like;</li> <li>(g) Preparation and supply of record drawings;</li> </ul>

		<ul style="list-style-type: none"><li>(h) Pre-installation photographs;</li><li>(i) Post installation photographs;</li><li>(j) Reports and certificates;</li><li>(k) Cabling, including data connection, diagnostic and power supply;</li><li>(l) Fixings and fittings, including extension pole and conversion barriers;</li><li>(m) Everything necessary to facilitate the Employer's Representative, including re-submissions and modifications as required;</li><li>(n) Alignment and testing;</li><li>(o) Complying with wiring regulations, earthing and inspections;</li></ul>
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## **2. Volume C Pricing Document**

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 1 - Preliminaries**

**Series 100 - Preliminaries**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Traffic Safety and Management</b>				
1.1.1	Traffic Safety and Management as per App. 1/17 & App. 1/19 of Volume A Part 2 and in accordance with the Works Requirements	Item	1		0
1.1.2	Taking measures for the construction, maintenance and removal of contraflow arrangement, as per App. 1/18 of Volume Part 2 and in accordance with the Works Requirements	Item	1		0
	<b>Project Supervisor for The Construction Stage</b>				
1.1.3	Acceptance of Appointment as Project Supervisor for the Construction Stage as per Volume A Part 1 Section 5.4	Item	1		0
	<b>Temporary Diversion For Traffic</b>				
1.1.4	Taking measures for the construction of temporary diversion of traffic, at locations proposed by the Contractor, as per App. 1/18 of Volume A Part 2 and in accordance with the Works Requirements	Item	1		0
1.1.5	Maintenance of measures for the construction of temporary diversion for traffic, at locations proposed by the Contractor, as per App. 1/18 of Volume Part 2 and in accordance with the Works Requirements	Item	1		0
1.1.6	Removal of measures for the construction of temporary diversion for traffic, at locations proposed by the Contractor, as per App. 1/18 of Volume Part 2 and in accordance with the Works Requirements	Item	1		0
	<b>Progress Photographs</b>				
1.1.7	Set of progress photographs, Digital Colour prints, as per App. 1/22 of Volume A Part 2 and in accordance with the Works Requirements	No.	1		0
	<b>Road Sweeping and Cleaning</b>				
1.1.8	Road sweeping and cleaning, as per App. 1/19 and in accordance with the Works Requirements	Item	1		0
	<b>Emergency Services</b>				
1.1.9	Emergency Services, as per App. 1/17 and in accordance with the Works Requirements	No.	1		0
	<b>Total Page: 1</b>				0

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 1 - Preliminaries**

**Series 100 - Preliminaries**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Facilities for Local Authority, Public or Private Utility Undertakers and Other</b>				
1.1.10	Facilities for Service Undertakers and other Contractors, Electric Supply Board (ESB) and their Contractors, as per App. 1/16 and in accordance with the Works Requirements	Item	1		0
1.1.11	Facilities for Service Undertakers and other Contractors, EIR and their Contractors, as per App. 1/16 and in accordance with the Works Requirements	Item	1		0
1.1.12	Facilities for Service Undertakers and other Contractors, Uisce Éireann and their Contractors, as per App. 1/16 and in accordance with the Works Requirements	Item	1		0
1.1.13	Facilities for Service Undertakers and other Contractors, Gas Networks Ireland (GNI) and their Contractors, as per Clause 116.6AR and in accordance with the Works Requirements	Item	1		0
	<b>Safety File</b>				
1.1.14	Safety file, as per Volume A Part 1 Section 5.4 and in accordance with the Works Requirements	Item	1		0
	<b>As Built Records</b>				
1.1.15	As Built Records, as per App. 1/72 and in accordance with the Works Requirements	Item	1		0
	<b>Environmental Monitoring</b>				
1.1.16	Noise Monitoring, as per App. 1/9 and in accordance with the Works Requirements	Item	1		0
1.1.17	Vibration Monitoring, as per App. 1/9 and in accordance with the Works Requirements	Item	1		0
1.1.18	Dust Monitoring, as per App. 1/9 and in accordance with the Works Requirements	Item	1		0
	<b>Appointment of Professionals</b>				
1.1.19	Traffic Safety and Control Officer, as per App. 1/17 and in accordance with the Works Requirements	Item	1		0
1.1.20	Deputy Traffic and Safety and Control Officer, as per App. 1/17 and in accordance with the Works Requirements	Item	1		0

	<b>Total Page: 2</b>				0
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**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 1 - Preliminaries**

**Series 100 - Preliminaries**

<b>ItemID</b>	<b>Item Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate</b>	<b>Amount €</b>
1.1.21	Traffic Management Engineer, as per App. 1/17 and in accordance with the Works Requirements	Item	1		0
	<b>Independent Check Certificates For Temporary Works</b>				
1.1.22	Independent Check Certificates for Temporary Works, as per App. 1/74 and in accordance with the Works Requirements	Item	1		0
	<b>Dimensional Surveys</b>				
1.1.23	Dimensional survey of existing portal gantry structures, as per App. 0/1 1536AR - 1537.1 AR and in accordance with the Works Requirements	No.	2		0
1.1.24	Dimensional survey of existing cantilever structures, as per App. 0/1 1536AR - 1537.1 AR and in accordance with the Works Requirements	No.	2		0
1.1.25	Dimensional survey of existing equipment poles, as per App. 0/1 1536AR - 1537.1 AR and in accordance with the Works Requirements	No.	3		0
1.1.26	Dimensional survey of existing equipment cabinet base, as per App. 01 1536AR - 1537.1 AR and in accordance with the Works Requirements	No.	3		0
1.1.27	Dimensional survey of existing ducting, as per App. 01 1536AR - 1537.1 AR and in accordance with the Works Requirements	No.	3		0
	<b>Works By Other Contractors</b>				
1.1.28	Works by other Contractors, as per App. 1/71 and in accordance with the Works Requirements	Item	1		0
	<b>Property Condition Surveys</b>				
1.1.29	Property Condition Surveys, as per Clause 136.1 and in accordance with the Works Requirements	Item	1		0
	<b>Additional subcontractor works overhead</b>				
1.1.30	Maximum Overhead on Subcontracted Additional Works (Maximum of 15%)	Percent (%)	1		0

	<b>Total Page: 3</b>				0
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**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 1 - Preliminaries**

<b>Summary</b>	
Total Page: 1	0
Total Page: 2	0
Total Page: 3	0
<b>TOTAL CARRIED FORWARD TO GENERAL SUMMARY</b>	<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 2 - Roadworks - Main Carriageway**

**Series 500 - Drainage and Service Ducts**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Drains Sewers, Piped Culverts and Service Ducts (Excluding Filter Drains, Narrow Filter Drains and Fin Drains)</b>				
2.1.1	Type C, non-trafficked ducts, 2 x 100mm diameter, depth to invert not exceeding 2 meters, average depth to invert 1400mm, backfill and surround in accordance with table 3.2 of CC-SPW-00500, as per dwg no. CC-SCD-00562	m	1		0
2.1.2	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		
2.1.3	Local Ducts, 2 x 100mm diameter, depth to invert not exceeding 2 metres, average depth to invert 1400mm, backfill and surround to Granular Material as per MCDRW Clause 503.3(i), as per dwg no. CC-SCD-01511-01	m	1		0
2.1.4	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		
2.1.5	Longitudinal Ducts, 4 x 100mm diameter, depth to invert not exceeding 2 metres, average depth to invert 1400mm, backfill and surround to Granular Material as per MCDRW Clause 503.3(i), as per dwg no. CC-SCD-01510-01	m	1		0
2.1.6	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		
2.1.7	Transverse Ducts, Type A, 4 x 100mm diameter, depth to invert not exceeding 2 metres, average depth to invert 1400mm, backfill and surround to ST2 Concrete to MCDRW Clause 2602, as per dwg no. CC-SCD-01512-01	m	1		0

	<b>Total Page: 4</b>				0
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**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 2 - Roadworks - Main Carriageway**

**Series 500 - Drainage and Service Ducts**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
2.1.8	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		
2.1.9	Transverse Ducts, Type B, 4 x 100mm diameter, depth to invert not exceeding 2 metres, average depth to invert 1400mm, backfill and surround to Granular Material as per MCDRW Clause 503.3(i), as per dwg no. CC-SCD-01512-01	m	1		0
2.1.10	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		
2.1.11	Longitudinal Ducts, 4 x 100mm diameter, depth to invert not exceeding 2 metres, average depth to invert 1400mm, construction as per detail on dwg no. CC-SCD-01513-01	m	1		0
2.1.12	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		
2.1.13	Transverse Ducts, 4 x 100mm diameter, depth to invert not exceeding 2 metres, average depth to invert 1400mm, construction as per detail on dwg no. CC-SCD-01506-01	m	1		0
2.1.14	Adjustment on the Item above for variation greater than 150mm above or below the average depth of 1400mm per 25mm of variation in excess of 150mm  Refer to, and comply with, the associated Preamble to the Bill of Quantities.	m	RATE ONLY		

	<b>Total Page: 5</b>				0

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 2 - Roadworks - Main Carriageway**

**Series 500 - Drainage and Service Ducts**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Chambers and Gullies</b>				
2.1.15	Comms I Chamber, cast in-situ ST4 concrete to MCDRW Clause 2602, 1300mm x 850mm, depth to invert exceeding 1 metre but not exceeding 2 metres, Cover and Frame to comply with IS EN 124, as per dwg no. CC-SCD-01515-01	No.	3		0
2.1.16	Comms II Chamber, cast in-situ ST4 concrete to MCDRW Clause 2602, 750mm x 675mm, depth to invert exceeding 1 metre but not exceeding 2 metres Cover and Frame to comply with IS EN 124, as per dwg no. CC-SCD-01517-01	No.	3		0
2.1.17	Comms III Chamber, cast in-situ ST4 concrete to MCDRW Clause 2602, 600mm x 450mm, depth to invert exceeding 1 metre but not exceeding 2 metres, Cover and Frame to comply with IS EN 124, as per dwg no. CC-SCD-01518-01	No.	3		0
2.1.18	Carriageway Chamber for Detector Loop Tails, 200mm x 150mm, depth to invert exceeding 1 metre but not exceeding 2 metres, precast concrete, as per dwg no. CC-SCD-01540-01	No.	3		0
2.1.19	Signal Duct Chamber, 300mm internal diameter, precast concrete, depth to invert exceeding 1 metre but not exceeding 2 metres, 300mm cover to IS EN 124 Class B, as per dwg no. CC-SCD-01541-01	No.	3		0

	<b>Total Page: 6</b>				0

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 2 - Roadworks - Main Carriageway**

**Series 1100 - Footways and Paved Areas**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Kerbs, Channels, Edgings, Combined Drainage and Kerb Blocks and Linear Drainage Channel Systems</b>				
2.2.1	Precast Half Batter Kerb, 250mm x 125mm x 914mm, on ST4 In-situ Concrete, straight or curved exceeding 12 metres, as per dwg no. CC-SCD-01564-01	m	100		0
	<b>Footways and Paved Areas</b>				
	<u>Paving Slabs for ERT Plinth</u>				
2.2.2	Paved Areas, Pre-cast Blister Tactile Surface Slabs, 600mm x 600mm x 100mm, on 50mm concrete, 100mm CL 804 material, surfaces sloping at 10 degrees or less to the horizontal, as per dwg no. CC-SCD-01563-01, CC-SCD-01564-01	m2	100		0
	<u>Concrete Path From Equipment Cabinet To Extend to Maintenance Vehicle Lay-by Area &amp; Cantilever</u>				
2.2.3	Footways, 200mm concrete path, surfaces sloping at 10 degrees or less to the horizontal, as per dwg no. CC-SCD-01508-01	m2	200		0
	<u>Parking Bays</u>				
2.2.4	Footways, In-situ footway, 200mm thick, on 100mm granular sub-base material type B, surfaces sloping at 10 degrees or less to the horizontal, as per dwg no. CC-SCD-01105-01	m2	200		0

	<b>Total Page: 6</b>				0

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 2 - Roadworks - Main Carriageway**

**Series 1700 - Structural Concrete**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>In-Situ Concrete</b>				
	<u>Equipment Cabinet Plinth Layout</u>				
2.3.1	In-situ Concrete, Minimum C30/37 Concrete, as per dwg no. CC-SCD-01508-01	m3	5		0
	<u>Plinth for Multi Pole Layout</u>				
2.3.2	In-situ Concrete, Minimum C30/37 Concrete, as per dwg no. CC-SCD-1570-01	m3	5		0
	<u>Plinth for Single Pole Layout</u>				
2.3.3	In-situ Concrete, Minimum C30/37 Concrete, as per dwg no. CC-SCD-01569-01	m3	5		0
	<u>Plinth for Pole Layout Without Cabinet</u>				
2.3.4	In-situ Concrete, Minimum C30/37 Concrete, as per dwg no. CC-SCD-01571-01	m3	5		0

	<b>Total Page: 7</b>				0

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 2 - Roadworks - Main Carriageway**

<b>Summary</b>	
Total Page: 4	0
Total Page: 5	0
Total Page: 6	0
Total Page: 7	0
<b>TOTAL CARRIED FORWARD TO GENERAL SUMMARY</b>	<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 3 - Traffic Signs and Road Markings**

**Series 1200 - Traffic Signs and Road Markings**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Supply of Dynamic Warning Signs</b>				
3.1.1	Supply of School Warning Signs, with remote operations and remote fault reporting capabilities as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.2	Supply of School Warning Signs, without remote operations or remote fault reporting capabilities as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.3	Supply of Wrong Way Driver Warning Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.4	Supply of Bend Warning Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.5	Supply of Queue Warning Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.6	Supply of Periodic School Limit Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.7	Supply of Driver Feedback Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.8	Supply of Prism Variable Message Sign, as per Volume A Part 3 - Technical Specification - Section 3 - Prism Variable Message signs and in accordance with the Works Requirements. This shall be based on a 100km/h motorway sign in accordance with the Traffic Signs Manual	no.	10		0
	<b>Supply and Installation of Dynamic Warning Signs</b>				

3.1.9	Supply and Installation of School Warning Signs, with remote operations and remote fault reporting capabilities as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.10	Supply and Installation of School Warning Signs, without remote operations or remote fault reporting capabilities as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.11	Supply and Installation of Wrong Way Driver Warning Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.12	Supply and Installation of Bend Warning Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.13	Supply and Installation of Queue Warning Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
3.1.14	Supply and Installation of Periodic School Limit Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	10		0
	<b>Total Page: 8</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 3 - Traffic Signs and Road Markings**

**Series 1200 - Traffic Signs and Road Markings**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
3.1.12	Supply and Installation of Driver Feedback Sign, as per Volume A Part 3 - Technical Specification - Section 3 - DWS and in accordance with the Works Requirements	no.	3		0
	<b>Traffic Signal Poles</b>				
3.1.13	CCTV Pole, height 15m, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01, CC-SCD-01571-01, Volume A Part 3: Technical Specification - Section 12 - CCTV and in accordance with the Works Requirements	no.	3		0
3.1.14	CCTV Pole (Supply Only), height 15m, as per Volume A Part 3: Technical Specification - Section 12 - CCTV and in accordance with the Works Requirements	no.	3		0

3.1.15	CCTV Pole, height 18m, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01, CC-SCD-01571-01, Volume A Part 3: Technical Specification - Section 12 - CCTV and in accordance with the Works Requirements	no.	3		0
3.1.16	CCTV Pole (Supply Only), height 18m, as per Volume A Part 3: Technical Specification - Section 12 - CCTV and in accordance with the Works Requirements	no.	3		0
3.1.17	ANPR Pole, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01 & CC-SCD-01571-01, Volume A Part 3: Technical Specification - Section 11 - ANPR and in accordance with the Works Requirements	no.	3		0
3.1.18	ANPR Pole (Supply Only), as per Volume A Part 3: Technical Specification - Section 11 - ANPR and in accordance with the Works Requirements	no.	3		0
3.1.19	10 metre wind down pole, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01 & CC-SCD-01571-01	no.	3		0
3.1.20	10 metre wind down pole (Supply Only)	no.	3		0
3.1.21	6 metre collapsible pole, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01, CC-SCD-1571-01	no.	3		0
3.1.22	6 metre collapsible pole (Supply Only)	no.	3		0
3.1.23	Renewable Energy Poles, height 9.5m, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01, CC-SCD-01571-01 & CC-SCD-05142-01	no.	3		0
3.1.24	Renewable Energy Poles, height 9.5m (Supply Only)	no.	3		0
	<b>Total Page: 9</b>				<b>0</b>

### TII492 ITS Equipment Supply & Installation Framework

#### Bill Part 3 - Traffic Signs and Road Markings

##### Series 1200 - Traffic Signs and Road Markings

ItemID	Item Description	Unit	Quantity	Rate	Amount €
3.1.25	Renewable Energy Poles, height 7.6m, installation as per dwg no. CC-SCD-01569-01, CC-SCD-01570-01, CC-SCD-01571-01 & CC-SCD-05142-01	no.	3		0
3.1.26	Renewable Energy Poles, height 7.6m (Supply Only)	no.	3		0



**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1400 - Electrical Work For Road Lighting and Traffic Signs**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Feeder Pillars</b>				
4.1.1	ESB Pillars (Supply Only), Governed by the National Code of Practice for Customer Interface (ESB Networks) with a Latest Edition (2019–2025) – DOC-030303-AEN. ESB’s Electrical Services Guidebook (2014) detailing metering vault, hockey-stick duct, pillar placement, clearances, and duct protection, and Volume A Part 3: Technical Specification - Section 13 item 2.4	no.	3		0

4.1.2	Isolation Pillars (Supply Only), Governed by the National Code of Practice for Customer Interface (ESB Networks) with a Latest Edition (2019–2025) – DOC-030303-AEN. ESB’s Electrical Services Guidebook (2014) detailing metering vault, hockey-stick duct, pillar placement, clearances, and duct protection, and Volume A Part 3: Technical Specification - Section 13 item 2.4	no.	3		0
4.1.3	ESB Pillars, Governed by the National Code of Practice for Customer Interface (ESB Networks) with a Latest Edition (2019–2025) – DOC-030303-AEN. ESB’s Electrical Services Guidebook (2014) detailing metering vault, hockey-stick duct, pillar placement, clearances, and duct protection, and Volume A Part 3: Technical Specification - Section 13 item 2.4	no.	3		0
4.1.4	Isolation Pillars, Governed by the National Code of Practice for Customer Interface (ESB Networks) with a Latest Edition (2019–2025) – DOC-030303-AEN. ESB’s Electrical Services Guidebook (2014) detailing metering vault, hockey-stick duct, pillar placement, clearances, and duct protection, and Volume A Part 3: Technical Specification - Section 13 item 2.4	no.	3		0
	<b>Earth Electrodes</b>				
4.1.5	Earth electrodes, as per dwg no. CC-SCD-01508-01 and CC-GSW-01400	no.	3		0
	<b>Total Page: 11</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	<b>Communications Cabling and Trench for Communications Cable</b>				
4.2.1	Communications cable, 6mm <sup>2</sup> , 3 core, XLPE/SWA/PVC, as per Volume A Part 3 - Section 13	m	200		0
4.2.2	Communications cable, 10mm <sup>2</sup> , 3 core, XPPE/SWA/PVC, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	200		0

4.2.3	Communications cable, 16mm <sup>2</sup> , 3 core, XPLE/SWA/PVC, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	200		0
4.2.4	Communications cable, 25mm <sup>2</sup> , 3 core, XLPE/SWA/PVC, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	200		0
4.2.5	Communications cable, 35mm <sup>2</sup> , 3 core, XLPE/SWA/PVC, armoured, in duct, in carriageways, footways and paved areas	m	200		0
4.2.6	Communications cable, 50mm <sup>2</sup> , 3 core, XLPE/SWA/PVC, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	200		0
4.2.7	Communications cable, 70mm <sup>2</sup> , 3 core, XLPE/SWA/PVC, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	200		0
4.2.8	Communications cable, armoured CAT6 cable, in carriageways, footways and paved areas as per Volume A: Part 3 - Technical Specification - Section 10 - RSU	m	30		0
4.2.9	Communications cable, 8 core, fibre optic cable, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	2000		0
4.2.10	Communications cable, 12 core, fibre optic cable, armoured, in duct, in carriageways, footways and paved areas, as per Volume A Part 3 - Section 13	m	2000		0
4.2.11	Communications cable, 48 core, fibre optic cable, armoured, in duct, in carriageways, footways and paved areas, as per Volume A - Part 3 - Technical Specification - Section 15 - Telecoms and in accordance with the Works Requirements	m	3000		0
	<b>Total Page: 12</b>				

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
4.2.12	Communications cable, 96 core, fibre optic cable, armoured, in duct, in carriageways, footways and paved areas, as per Volume A - Part 3 - Technical Specification - Section 15 - Telecoms and in accordance with the Works Requirements	m	3000		0
	<b>Communications Cable Joints and Communications Cable Terminations</b>				

4.2.13	Communications cable terminations, 6mm <sup>2</sup> , 3 core, XLPE/SWA/MDPE, armoured power cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.14	Communications cable terminations, 10mm <sup>2</sup> , 3 core, XLPE/SWA/MDPE, armoured power cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.15	Communications cable terminations, 16mm <sup>2</sup> , 3 core, XLPE/SWA/MDPE, armoured power cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.16	Communications cable terminations, 35mm <sup>2</sup> , 3 core, XLPE/SWA/MDPE, armoured power cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.17	Communications cable terminations, 50mm <sup>2</sup> , 3 core, XLPE/SWA/MDPE, armoured power cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.18	Communications cable terminations, 70mm <sup>2</sup> , 3 core, XLPE/SWA/MDPE, armoured power cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.19	Communications cable terminations, armoured CAT 6 Data cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.20	Communications cable terminations, armoured 8 core optical fibre cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.21	Communications cable terminations, armoured 12 core optical fibre cable, as per Volume A Part 3 - Section 13	no.	3		0
4.2.22	Communications cable terminations, armoured 48 core optical fibre cable, as per Volume A - Part 3 - Technical Specification - Section 15 - Telecoms	no.	3		0
4.2.23	Communications cable terminations, armoured 96 core optical fibre cable, as per Volume A - Part 3 - Technical Specification - Section 15	no.	3		0
	<b>Communications Equipment</b>				
4.2.24	Power Distribution Unit, as per CC-SCD-01508 and CC-GSW-01400	no.	3		0
4.2.25	48 core OF Splice Panels, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Total Page: 13</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
4.2.26	Optical Distribution Frame, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
4.2.27	Optical Fibre Connectors, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0

4.2.28	Optical Fibre Adapters, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply of Access Fibre Switch</b>				
4.2.29	Supply of Access Fibre Switch, Industrial/Rugged PoE/PoE+ 4 ports + SFP x 2, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
4.2.30	Supply of Access Fibre Switch, Industrial/Rugged PoE/PoE+ 8 ports + SFP x 2, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply and Installation of Access Fibre Switch</b>				
4.2.31	Supply and Installation of Access Fibre Switch, Industrial/Rugged PoE/PoE+ 4 ports + SFP x 2, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
4.2.32	Supply and Installation of Access Fibre Switch, Industrial/Rugged PoE/PoE+ 8 ports + SFP x 2, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply of Distribution Fibre Switch</b>				
4.2.33	Supply of Distribution Fibre Switch, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply and Installation of Distribution Fibre Switch</b>				
4.2.34	Supply and Installation of Distribution Fibre Switch, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply of Fibre Media Converter</b>				
4.2.35	Supply of Fibre Media Converter, as per DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply and Installation of Fibre Media Converter</b>				
4.2.36	Supply and Installation of Fibre Media Converter, as per Volume A: Part 3 - Technical Specification, DN-ITS-03029 and CC-SPW-01500	no.	3		0
	<b>Supply of Emergency Roadside Telephone</b>				
4.2.37	Supply of Emergency Roadside Telephone, as per Volume A: Part 3 - Technical Specification - Section 7 - ERT and in accordance with the Works Requirements	no.	30		0
	<b>Total Page: 14</b>				<b>0</b>
	<b>Supply and Installation of Emergency Roadside Telephone</b>				
4.2.38	Supply and Installation of Emergency Roadside Telephone, as per Volume A: Part 3 - Technical Specification - Section 7 - ERT and in accordance with the Works Requirements	no.	30		0



4.2.39	Supply of Strategical Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.40	Supply of Tactical Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.41	Supply of Large Urban Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.42	Supply of Small Urban Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.43	Supply of Advanced Matrix Indicator, as per Volume A: Part 3 - Technical Specification - Section 2 - AMI and in accordance with the Works Requirements	no.	3		0
4.2.44	Supply of Slip Road Signage, as per Volume A: Part 3 - Technical Specification - Section 2 - AMI and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of Variable Message Signs</b>				
4.2.45	Supply and Installation of Strategical Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.46	Supply and Installation of Tactical Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.47	Supply and Installation of Large Urban Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.48	Supply and Installation of Small Urban Sign, as per Volume A: Part 3 - Technical Specification - Section 1 - VMS and in accordance with the Works Requirements	no.	3		0
4.2.49	Supply and Installation of Advanced Matrix Indicator (AMI), as per Volume A: Part 3 - Section 2 - AMI and in accordance with the Works Requirements	no.	3		0
4.2.50	Supply and Installation of Slip Road Signage, as per Volume A: Part 3 - Section 2 and in accordance with the Works Requirements	no.	3		0
	<b>Total Page: 16</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
	Supply of Traffic Monitoring Unit (TMU)				

4.2.51	Supply of 2 lane TMU (4 loops), as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.52	Supply of 4 lane TMU (8 loops), as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.53	Supply of 6 lane TMU (12 loops), as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.54	Supply of 8 lane TMU (16 loops), as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.55	Supply of 10 lane TMU (20 loops), as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of Traffic Monitoring Unit (TMUs)</b>				
4.2.56	Supply and installation of loop feeder cable including all required jointing, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	m	30		0
4.2.57	Inductive Loop Slot cutting, saw cutting and cable laying and sealing, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	m	30		0
4.2.58	Supply of 2 lane TMU (4 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.59	Supply of 4 lane TMU (8 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.60	Supply of 6 lane TMU (12 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
	<b>Total Page: 17</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
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4.2.61	Supply of 8 lane TMU (16 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
4.2.62	Supply of 10 lane TMU (20 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 4 - TMU and in accordance with the Works Requirements	no.	3		0
<b>Supply of Cycle Monitoring Unit (CMU)</b>					
4.2.63	Supply of 1 lane CMU (2 loops), as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	no.	3		0
4.2.64	Supply of 2 lane CMU (2 loops), as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	no.	3		0
4.2.65	Supply of 2 lane CMU (4 loops), as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	no.	3		0
<b>Supply and Installation of Cycle Monitoring Unit (CMUs)</b>					
4.2.66	Supply and installation of loop feeder cable including all required jointing, as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	m	30		0
4.2.67	Inductive Loop Slot cutting, saw cutting and cable laying and sealing, as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	m	30		0
4.2.68	Supply and Installation of 1 lane CMU (2 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	no.	3		0
4.2.69	Supply and Installation of 2 lane CMU (2 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	no.	3		0
<b>Total Page: 18</b>					<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
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4.2.70	Supply and Installation of 2 lane CMU (4 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 5 - CMU and in accordance with the Works Requirements	no.	3		0
	<b>Supply of Automatic Incident Detectors</b>				
4.2.71	Supply of 2 lane AID (4 loops), as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.72	Supply of 4 lane AID (8 loops), as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.73	Supply of 6 lane AID (12 loops), as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.74	Supply of 8 lane AID (16 loops), as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.75	Supply of 10 lane AID (20 loops), as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of Automatic Incident Detectors (AIDs)</b>				
4.2.76	Supply and installation of loop feeder cable including all required jointing, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	m	30		0
4.2.77	Inductive Loop Slot cutting, saw cutting and cable laying and sealing, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	m	30		0
4.2.78	Supply and Installation of 2 lane AID (4 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.79	Supply and Installation of 4 lane AID (8 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
	<b>Total Page: 19</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
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4.2.80	Supply and Installation of 6 lane AID (12 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.81	Supply and Installation of 8 lane AID (16 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
4.2.82	Supply and Installation of 10 lane AID (20 loops), including slot cutting, cabling sealant and traffic management, as per Volume A: Part 3 - Technical Specification - Section 6 - AID and in accordance with the Works Requirements	no.	3		0
	<b>Supply of Automatic Number Plate Recognition Cameras (ANPR)</b>				
4.2.83	Supply of Automatic Number Plate Recognition Cameras, as per Volume A: Part 3 - Technical Specification - Section 10 - ANPR and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of Automatic Number Plate Recognition Cameras (ANPR)</b>				
4.2.84	Supply and Installation of Automatic Number Plate Recognition Cameras, as per Volume A: Part 3 - Technical Specification - Section 10 - ANPR and in accordance with the Works Requirements	no.	3		0
	<b>Supply of Closed Circuit Television (CCTV) Cameras</b>				
4.2.85	Supply of CCTV Camera, as per Volume A: Part 3 - Technical Specification - Section 11 - CCTV and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of Closed Circuit Television (CCTV) Cameras</b>				
4.2.86	Supply and Installation of CCTV Camera, as per Volume A: Part 3 - Technical Specification - Section 11 - CCTV and in accordance with the Works Requirements	no.	3		0
	<b>Total Page: 20</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
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<b>Summary</b>	
Total Page: 11	0
Total Page: 12	0
Total Page: 13	0
Total Page: 14	0
Total Page: 15	0
Total Page: 16	0
Total Page: 17	0
Total Page: 18	0
Total Page: 19	0
Total Page: 20	0
Total Page: 21	0
<b>TOTAL CARRIED FORWARD TO GENERAL SUMMARY</b>	<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 5 - C-ITS**

**Series 1500 - Motorway Communications**

ItemID	Item Description	Unit	Quantity	Rate	Amount €
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	<b>Supply of Road Side Units (RSUs)</b>				
5.1.1	Supply of C-ITS Road Side Units, ITS-G5/ITS Motorway Network Configuration, as per Volume A: Part 3 - Section 9 - RSU and in accordance with the Works Requirements	no.	3		0
5.1.2	Supply of C-ITS Road Side Units, ITS-G5/ITS Cellular Network Configuration, as per Volume A: Part 3 - Section 9 - RSU and in accordance with the Works Requirements	no.	3		0
5.1.3	Supply of C-ITS Road Side Units, ITS-G5/ITS Mobile RSU Configuration, as per Volume A: Part 3 - Section 9 - RSU and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of Road Side Units (RSUs)</b>				
5.1.4	Supply and Installation of C-ITS Road Side Units, ITS-G5/ITS Motorway Network Configuration, as per Volume A: Part 3 - Section 9 - RSU and in accordance with the Works Requirements	no.	3		0
5.1.5	Supply and Installation of C-ITS Road Side Units, ITS-G5/ITS Cellular Network Configuration, as per Volume A: Part 3 - Section 9 - RSU and in accordance with the Works Requirements	no.	3		0
5.1.6	Supply and Installation of C-ITS Road Side Units, ITS-G5/ITS Mobile RSU Configuration, as per Volume A: Part 3 - Section 9 - RSU and in accordance with the Works Requirements	no.	3		0
	<b>C-ITS Provision of RSU SIM Cards</b>				
5.1.7	Provision of RSU Sim Cards, RSU Cellular Data, as per Volume A Part 3 - Technical Specification - Section 9 - RSU	no.	3		0
	<b>Supply of On-Board Units (OBU)</b>				
5.1.8	Supply of On-Board Units, as per Volume A: Part 3 - Technical Specification - Section 8 - OBU and in accordance with the Works Requirements	no.	3		0
	<b>Supply and Installation of On-Board Units (OBU)</b>				
5.1.9	Supply and Installation of On-Board Units, as per Volume A: Part 3 - Technical Specification - Section 8 - OBU and in accordance with the Works Requirements	no.	3		0
	<b>Total Page: 22</b>				<b>0</b>

**TII492 ITS Equipment Supply & Installation Framework**

**Bill Part 5 - C-ITS**

<b>Summary</b>	
Total Page: 22	0
<b>TOTAL CARRIED FORWARD TO GENERAL SUMMARY</b>	<b>0</b>

<b>General Summary</b>
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Total: Bill Part 1 - Preliminaries	0
Total: Bill Part 2 - Roadworks - Main Carriageway	0

Total: Bill Part 3 - Traffic Signs and Road Markings	0
Total: Bill Part 4 - Electrical Work For Traffic Signs and Motorway Communications	0
Total: Bill Part 5 - C-ITS	0
<b>Total of Tender</b>	€0.00
Adjustment Item (not exceeding 5% of Total of Tender excluding VAT)	0
Tender Total (excluding VAT) (carried forward to Form of Tender)	€0.00