SOUTH WAIRARAPA DISTRICT COUNCIL

Kia Reretahi Tātau

Contract Number C1257

Pedestrian Crossing Lighting Upgrade

RFT released: 04 April 2024

Deadline for Questions: 03 May 2024

Deadline for Proposals: 12 pm, 12 May 2024

Contract Description

1.1 General Description of the Works

The Contract is for the installation of street lighting at all pedestrian crossings with Greytown, Martinborough and Featherston within the South Wairarapa District

1.2 Description of Site and Access

The site locations are within urban road reserves.

1.3 Details of the Contract

The Contract Works includes, but is not limited to:

- Supply and installation of pedestrian street light poles.
- Supply and installation of luminaires.
- Trenching and backing of power supply cables.
- Connecting to power cable networks.
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1.4 TENDER EVALUATION

1.4.1 The RFT is lowest price conforming.

1.4.2 Tenderers shall provide sufficient information relevant to this Contract for a proper evaluation of their:

- Relevant Skills including Health and Safety
- Resources
- Methodology

The total submission for the Non-price attributes shall be limited to 20 single-sided A4 sized pages of ordinary type (12 point Times New Roman or similar).

Health and safety

The systems and methods available within the Tenderer's organisation together with personnel with appropriate skills to effectively manage the Tenderer's obligations under the Health and Safety at Work Act (2015).

In particular, the tenderer's:

- Health & Safety Form;
- Contract Safety Management Plan;
- Contract Traffic Management Plan;
- Safety Management Systems;
- Health and safety record over the last three years, including Lost Time Injuries, Serious Harm and Near Misses;
- Contract Safety Manager; training and qualifications and relevant experience

Tenderers should note that should a Fail be allocated to their Health and Safety Attributes, then their tender will be excluded from further consideration.

Relevant Skills

The competence of the personnel that the Tenderer proposes to use, with particular regard to their skills and experience in areas relevant to the outputs being purchased. This shall include both their technical and managerial skills relative to their nominated Contract role, and their commitment (hours and %) to the Contract. Key personnel for this Contract include:

- Contractors Representative
- Contract Manager
- Site Supervisor
- Health and Safety Manager
- Quality Manager
- Traffic Management Supervisor
- Landscape planting Subcontractor.

The Tenderer shall confirm that all of the nominated personnel in the tender submission are available to undertake the works. Nominated personnel shall not be changed with the prior written acceptance of the principal.

CVs of key **named personnel and sub Contract personnel** are to be provided as an appendix to the submission. For brevity, the content of the CVs shall be pertinent to the skills claimed and shall not exceed two pages. CVs are to include reference to any relevant technical qualifications and the date/s obtained. CVs must contain a statement that key personnel are available and committed to the project if awarded.

Personnel other than key personnel need not be named, but the number of personnel, their designation, their commitment to this Contract (hours and %) and their expertise shall be advised.

An organisation chart showing the structure and relationship between the key personnel showing the connection to the principal's project team and staff shall be included with the tender submission. The accountabilities and the authorities that key named management personnel will have shall be included.

Where key personnel are detailed, the Tenderer shall provide contact phone numbers and names of clients that are familiar with these personnel whilst undertaking work of similar nature to the Contract role that they are being proposed for.

Resources

The equipment, including facilities and intellectual property that the Tenderer proposes to use to deliver the outputs. Tenderer's **MUST** be able to identify they have sufficient resources available and dedicated to performing the Contract, including:

- Number of on the ground staff
- Number and quality of plant including their suppliers and whether dedicated to the Contract.
- Offices and location
- IT systems and software used to manage the Contract works.
- Plant
- Training of staff
- Back up plant and ground staff
- Current Supplier and sub-Contractor arrangements
- Current works-in-progress, details of current commitments and outstanding tender offers/pending workloads.
- Commitment and availability of staff and proposed sub-Contractors.

Tenderers shall indicate whether they or their key personnel or key sub-Contractors have any existing or anticipated conflicts of interest or other work commitments that may impact on the performance of the project.

Tenderers who do not provide a list of current commitments or do not disclose any anticipated conflicts of interest or pending work commitments will be excluded from further consideration.

The same information requested above shall also be provided for nominated subContractors.

The Tenderer shall confirm that all of the ground staff and resources in the tender submission are available to undertake the works.

Details of plant, equipment and materials to be provided by Subcontractors shall be included in this attribute, separately identified. The Tenderer does not need to own all the plant and equipment but should demonstrate that sufficient resource of the appropriate type can be provided.

The brand, model, age and condition of all significant plant and equipment proposed for this Contract shall be provided. Tenderers shall note that failure to provide this information in a meaningful manner may result in a lower score for this attribute or exclusion from further consideration. A national schedule of available plant holdings is unlikely to satisfy the attribute requirements.

Resources which will be dedicated to this Contract are to be clearly identified as shall the proposed location of all resources, whether dedicated to, or available for use within, the Contract.

Tenderers must also provide details of their systems, including:

- Compliance with Acts: Tenderers should include a statement of how the requirements of the Health and Safety in Employment Act, HASAW Act, the Resource Management Act and Construction Contracts Act will be met.
- Management Training: Tenderers shall detail the management training given to staff at various levels.
- Communication: Tenderers shall detail the systems proposed for communication with the public and stakeholders, internal communication, and communication between the Contractor and the Engineer.
- Recording, Reporting and Invoicing: Tenderers shall detail the systems for recording, reporting and invoicing.
- Quality Systems: Tenderers shall demonstrate the ability to carry out the Contract to the quality performance levels required and shall also supply copies of certificates to confirm their accreditation and compliance with ISO 9001, The Quality plan shall be consistent with TQS2.
- Programming: Tenderers shall detail their management systems that demonstrate the ability to work within and achieve programme timelines. Details must include how the tenderer proposes to meet project deadlines if work is falling behind programme.
- Health and safety including hazard identification and management.

At the conclusion of the Contract the Contractor's performance shall be evaluated under each of the above items relative to the information supplied and the Contract performance requirements.

Methodology

The procedures the Tenderer proposes to use to achieve the specified end result. This methodology **must be specific** to this Contract and include but not limited to:

- How the Tenderer proposes to work with the principal and appointed consultants on a day to day basis;
- Reporting.
- Processing of payment claims and variations.
- Management of sub-contractors and suppliers.
- Management of the works within the worksite.
- Working with the Principal and the Consultant team to ensure a quality project.
- Communications with the Principal and Consultant.
- Programming. Note a detailed Gantt chart **MUST** be submitted with the Tenderer’s tender which identifies resources to be utilised and the critical path.
- Site Safety and Traffic Management.

- Phasing of the works. Tenders are to include diagrams to show phasing and works areas which are to be included as an Appendix.
- Minimising disruption to the general public.
- Financial management.
- Environmental management.
- Site facilities and compounds.

This methodology statement will demonstrate to the Principal the Tenderer's understanding of the Contract works and of the principal's requirements.

1.6 Site Facilities Available

The Contractor shall make its own arrangements for the supply of water and power to the site and shall pay all charges for these connections and for the supply costs.

The Contractor shall provide an adequate number of restrooms for the persons employed in accordance with the Ministry of Health requirements.

1.7 Known Significant hazards.

The Contractor shall observe the requirements of the NZTA Code of Practice for Temporary Traffic Management (COPTTM). A copy is available for inspection, during regular office hours, at the offices of Calibre, 17 Perry Street, Masterton.

Greytown School and The Orchards Retirement Village are adjacent to the site therefore, the Contractors temporary traffic management plan shall specifically address measures to ensure the safety of school children, elderly residents and others in the proximity of the site.

Live and redundant underground services may be present within the road corridor. Therefore, and before commencing any work, the Contractor shall positively identify and locate all live and redundant services within the road corridor and ensure they have been disconnected.

1.8 Consents and Approvals

A Resource Consent is not required.

1.9 TRAFFIC CONTROL AND MANAGEMENT

The Contractor shall apply for and obtain a Corridor Access Request (CAR) and shall comply in all respects with its requirements.

1.10 STYLE OF CONTRACT

The Contract is an NZS3910:2013 - Measure and Value Contract. The various items making up the physical work are scheduled and will be paid on the quantity measured and approved by the Engineer.

Where items are scheduled as Lump Sums (L.S) payment shall be made on the estimated portion of the works completed at months end, unless and except where otherwise described in this Contract.

The Contractor shall be responsible for continuously monitoring the Contract Works, programming, undertaking Quality Assurance testing in accordance with the Quality Management Plan, see below, and ensuring that the specified outcome is achieved in all respects.

Quality control, QA, is an integral part of this Contract. The cost of re-work or system failure creates cost for the principal due to extra supervision, the need to respond to public complaints, lost time, and inconvenience. The principal places a high value on avoiding re-work.

1.11 SITE SPECIFIC HEALTH AND SAFETY PLAN

In addition to submission of its company Health and Safety Plan, the Tenderer shall submit a Draft Site-Specific Health and Safety Plan with their Tender.

The successful Tenderer shall update and submit its Site-Specific Health and Safety Plan within 5-working days of acceptance of tender and in any event before the Contractor establishes on site. The Site-Specific Health and Safety Plan shall be reviewed by the Engineer and requested amendments advised to the Contractor who shall make amendments as appropriate or discuss the suggested amendments with the Engineer. Under no circumstances shall the Contractor establish on-site or commence work until the Site-Specific Health and Safety Plan is approved by the Engineer.

During the Contract period the Contractor shall maintain and update the Site-Specific Health and Safety Plan as appropriate to reflect any issues that may have arisen. A Risk Register shall be maintained by the Contractor and updated on a regular basis, and this document together with the updated Site-Specific Health and Safety Plan, shall be “tabled” at meetings with the Engineer.

Contract Conditions of Tendering

NZS 3910:2013 Conditions of contract for building and civil engineering construction

Schedule to Conditions of Tendering

The Conditions of Tendering are those set out in NZS 3910:2013.

Clause numbers refer to Conditions of Tendering clauses.

Contract for:	**C1257 Pedestrian Crossing Lighting Upgrade**

Clause *in Conditions of Tendering*	**Title and subject matter**	**Specific condition data** *(Expand cells if required)*
102	**Issue of documents**	
102.2	Is a Tender Documents deposit required?	No
	If yes, the amount of the Tender Documents deposit shall be:	($) *Click to enter amount*
103	**Tenderers to inform themselves**	
103.1	Is an appointment required to view the Site?	No
	If yes, the appointment details are:	*Click to enter address* *Click to enter appointment date* *Click to enter appointment time*
105	**Submission of tenders**	
105.1	Tenders shall close at:	Tender Link, GETS Tender box 19 Kitchner Street Martinborough
		12 May 2017
		Noon 12.00pm
	Are electronic tenders acceptable?	Yes
	If yes, tenders will be acceptable in the following electronic form:	*(specify type of file for example Word, PDF)* PDF
105.3(c)	Is supplementary information required to be submitted with the tender?	Yes
	If yes, the supplementary information required to be submitted with the tender is:	As required to the RFT

Clause *in Conditions of Tendering*	**Title and subject matter**	**Specific condition data** *(Expand cells if required)*
105.3(e)	Are the percentages for On-site Overheads and for Off-site Overheads and Profit required to be nominated in the tender?	No *(See 9.3.8, 9.3.9, & 9.3.10 of the General Conditions)*
	Is the Working Day rate in compensation for time-related On-site Overheads and Off-site Overheads and Profit incurred in relation to an extension of time required to be nominated in the tender?	No *(See 9.3.11 of the General Conditions)*
	Is the percentage for processing of Variations required to be nominated in the tender?	No *(See 9.3.15 of the General Conditions)*
	Are the percentages for On-site Overheads and for Off-site Overheads and Profit to be added to Net Cost for the Contract Works or any Separable Portion in a cost reimbursement contract required to be nominated in the tender?	No *(See 2.4.1 of the General Conditions)*
105.7	Are the rates included in the Schedule of Prices fully inclusive of all allowances for On-site Overheads and for Off-site Overheads and Profit?	Yes *(see 9.3.8, 9.3.9, & 9.3.10 of the General Conditions)*
107	**Tender evaluation**	
107.1	The tender evaluation method shall be:	Lowest price conforming

Contract Agreement

CONTRACT FOR	**Pedestrian Crossing Lighting Upgrade**	*(Contract name)*
CONTRACT NUMBER	**C 1257**	*(Number)*
THIS AGREEMENT is made on	*Click to enter a date*	
BETWEEN	*Click to enter text*	*('the Contractor')*
AND	**South Wairarapa District Council**	*('the Principal')*

IT IS AGREED as follows:

1. The Contractor shall carry out the obligations imposed on the Contractor by the Contract.
2. The Principal shall pay the Contractor the sum of $ or such greater or lesser sum as shall become payable under the Contract together with goods and services tax at the times and in the manner provided in the Contract.
3. Each party agrees to the terms and conditions as set out in the Contract.
4. The Contract comprises the following documents:
   (a) This Contract Agreement;
   (b) The notification of acceptance of tender or award of Contract;
   (c) The following post-tender documents *(identify any agreed post-tender documents to be included, for example correspondence or minutes or pre-award meetings dealing with tender tags, and so on)*:

   Click to enter text

   (d) The Contractor's tender;
   (e) Notices to tenderers *(Give details with dates)*;

   Click to enter text

   (f) Schedule 1: Special Conditions of Contract – Specific Conditions of Contract;
   (g) Schedule 2: Special Conditions of Contract – Other Conditions of Contract;
   (h) The General Conditions of Contract NZS 3910:2013 (including other Schedules);
   (i) Specifications issued prior to the Date of Acceptance of Tender;
   (j) Drawings issued prior to the Date of Acceptance of Tender;
   (k) The Schedule of Prices; ☐ *(Select if NOT applicable)*
   (l) The Schedule to the Conditions of Tendering;
   (m) The Conditions of Tendering; and
   (n) The following additional documents *(Identify any additional documents to be included)*:

   Click to enter text

5. This Contract shall constitute the entire agreement between the parties. This Contract supersedes all prior negotiations, representations, and warranties, except insofar as the same are expressly incorporated herein.

SIGNED BY *Click to enter text or paste signature* Authorised Signatory of Contractor

SIGNED BY *Click to enter text or paste signature* Authorised Signatory of Principal

Schedule 1 – Special Conditions of Contract – Specific Conditions of Contract

Contract for:	C1257 Pedestrian Crossing Lighting Upgrade

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
1.	**INTERPRETATION**	
1.2	**Definitions**	
	The Principal is:	The Principal is South Wairarapa District Council
	of:	19 Kitchener Street, P.O. Box 6, Martinborough 5741
1.2, 10.2	**Separable Portions**	
	• Are there any Separable Portions in this Contract?	No
	• If yes, the Separable Portions are as follows and as further defined in the Contract:	*Click to enter reference*
2.	**THE CONTRACT**	
2.1	**Type of contract**	
2.1.1	This Contract is a:	*(select one to apply (a), (b), or (c))*
	(a) Lump sum contract governed by 2.2;	☐
	(b) Measure and value contract governed by 2.3;	☒
	(c) Cost reimbursement contract governed by 2.4.	☐
2.4	**Cost reimbursement contract**	
2.4.1	Allowance(s) which are to be added to Net Cost in a cost reimbursement contract or for parts of the Contract Works which are required to be carried out on a cost reimbursement basis: *(If percentages are shown as zero or nil, allowances for overheads and profit are deemed to be included in Net Cost.)*	
	• Allowance for On-site Overheads:	0 (%)
	• Allowance for Off-site Overheads and Profit:	0 (%)
2.4.4	Indicative estimates of the Contract Price:	
	Are indicative estimates required?	No
2.5	**Local authority contracts, contracts in public places, and road contracts**	
2.5.1	Is this Contract a local authority contract to which 2.5.2 applies?	Yes

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
2.5.3	Is this Contract a contract in a public place to which B1 and B2 of Appendix B apply?	No
2.5.4	Is this Contract a road contract to which Appendix B applies?	No
	If yes, the allowance under B3 shall be:	*Click to enter number* *(number of Working Day)*
2.6	**Evidence of Contract**	
2.6.2	How is the Contract Agreement to be executed?	*(select one to apply, (a) or (b))*
	(a) As stated in 2.6.2;	☐
	(b) In accordance with the following other requirements:	☒ Jointly signed by both parties
2.7	**Documents prepared by the Engineer or Principal**	
2.7.1	Copies of the Contract shall be supplied without charge to the Contractor in the following electronic form:	Yes
2.8	**Documents prepared by the Contractor**	
2.8.2	Copies of documents referred to in 2.8.2 shall be supplied without charge to the Engineer:	
	• Number of hard copy sets:	2
	• In the following electronic form:	1 in PDF
3.	**BONDS**	
3.1	**Contractor's Bond**	
3.1.1	Is a Contractor's Bond required?	No
3.1.2	If yes, the amount of the Contractor's Bond shall be:	($)
3.2	**Principal's Bond**	
3.2.1	Is a Principal's Bond required?	No
3.2.2	If yes:	
	• The amount of the Principal's Bond shall be:	($) *Click to enter amount*
	• The surety for the Principal's Bond shall be:	*Click to enter text*
5.	**GENERAL OBLIGATIONS**	
5.4	**Possession of the Site**	
5.4.1	The Contractor shall be given possession of the Site	*(select one to apply, (a) or (b))*
	(a) 10 Working Days after the Date of Acceptance of Tender:	☐
	(b) On the following date:	☒ 1 July 2024
5.4.3	Limits on the Contractor's right of entry to adjoining properties are:	Subject to Council's Contractor's prior agreement and appproval

Clause *In General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
5.5	**Separate Contractors**	
5.5.1	Separate Contractors who may be carrying out work on the Site concurrently with the Contract Works are:	SWDC network maintenance contractors
5.5.2	Are facilities for Separate Contractors required?	No
	If yes, details of facilities required are:	N/A
5.6	**Care of the works and Site**	
5.6.6(g)	Further risks specifically excepted are:	Nil
5.10	**Programme**	
5.10.4	Is the programme required to be a Comprehensive Programme?	Yes
5.10.4(e)	If yes, other requirements for the Comprehensive Programme are:	Martinborough square lights install first
5.10.5	The Comprehensive Programme shall use the following software:	*Click to enter text*
5.10.6	Updates of the Comprehensive Programme shall be provided at the following intervals:	*Click to enter text*
5.11	**Compliance with laws**	
5.11.3	Exceptions to the Principal's obligations to obtain licences under 5.11.3 are:	N/A
5.11.4	Exceptions to the Contractor's obligation to give notices and obtain other licences under 5.11.4 are:	N/A
5.17	**Safety plan**	
	Is a Site-specific safety plan required to be prepared by the Contractor?	No
5.18	**Quality plan**	
	Is a quality plan required to be prepared by the Contractor?	Yes
5.19	**Traffic management plan**	
	Is a traffic management plan required to be prepared by the Contractor?	Yes
5.20	**As-built drawings and operation and maintenance manuals**	
5.20.1(a)	Are as-built drawings required to be prepared by the Contractor?	Yes
5.20.1(b)	Are operation and maintenance manuals required to be prepared by the Contractor?	No
6.	**THE ENGINEER**	
6.1	**Appointment of Engineer**	
6.1.2	The Engineer is:	TBA
	whose professional qualification is:	*Click to enter text*

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
8.	**INSURANCES**	
8.1	**General**	
8.1.1	The party identified below shall arrange the following insurances referred to in the following clauses:	
	8.3 or 8.8 Construction	Contractor
	8.8 Existing structure(s) and contents	Not required
	8.4 Plant	Contractor
	8.5 or 8.9 Public liability	Contractor
	8.5.2 Motor vehicle liability	Contractor
	8.6 Professional indemnity	Not required
8.1.6	The following forces of nature shall be specifically insured under 8.3 or 8.8 as applicable:	
	(a) Landslip:	No
	(b) Earthquake:	No
	(c) Tsunami:	No
	(d) Tornado:	No
	(e) Cyclone:	No
	(f) Storm:	No
	(g) Flood:	No
	(h) Lightning strike:	No
	(i) Volcanic activity:	No
	(j) Hydrothermal activity:	No
	(k) Geothermal activity:	No
8.3, 8.8	**Construction insurance** *(These items are required to be completed whether the Contractor or the Principal is the insuring party (see 8.1 above))*	
8.3.2, 8.8	The following shall have their respective interests noted in the construction insurance policy:	
8.3.3, 8.8	Where construction insurance is required *(see 8.1 above)*, the amount of insurance to be effected for the Contract Works and Materials shall be for not less than the sum of the Contract Price, after the acceptance of the tender or other offer, plus the following allowances:	
	(a) An allowance for the Cost of demolition, disposal and preparation for replacement work, equal to:	*(select one to apply, (i) or (ii))*
	(i) The amount in the right hand column:	☐ ($) *Click to enter amount*
	(ii) The percentage in the right hand column of the Contract Price adjusted as above:	☒ 10 (%)

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
	(b) An allowance for professional fees including the Cost of clerks of works and inspectors, equal to:	*(select one to apply, (i) or (ii))*
	(i) The amount in the right hand column:	☐ ($) *Click to enter amount*
	(ii) The percentage in the right hand column of the Contract Price adjusted as above:	☒ 15 (%)
	(c) An allowance for items to be incorporated in the Contract Works, the Cost of which is not included in the Contract Price, equal to:	*(select one to apply, (i) or (ii))*
	(i) The amount in the right hand column	☒ ($) 50,000
	(ii) The percentage of the Contract Price adjusted as above, stated in the right hand column:	☐ *Click to enter %* (%)
	(d) An allowance for an increase in the Contract Price due to Variations equal to:	*(select one to apply, (i) or (ii))*
	(i) The amount in the right hand column:	☐ ($) *Click to enter amount*
	(ii) The percentage of the Contract Price adjusted as above, stated in the right hand column:	☐ 0 (%)
	(e) An allowance for increased construction Costs due to inflation equal to:	*(select one to apply, (i) or (ii))*
	(i) The amount in the right hand column:	☐ ($) *Click to enter amount*
	(ii) The percentage of the Contract Price adjusted as above, stated in the right hand column:	☐ 0 (%)
8.4	**Contractor arranged Plant insurance**	
	Where Plant is required to be insured (see 8.1 above):	*(select one to apply, (a) or (b))*
	(a) The Contractor shall insure the following items of Plant on the Site for the amounts stated:	☒ *Click to enter specific items*
	(b) The Contractor shall insure each item of Plant on the Site having a current market value of more than:	☒ ($) 50,000
8.5	**Contractor arranged public liability insurance**	
8.5.1	Where required (see 8.1 above), public liability insurance shall be effected by the Contractor for an amount not less than:	☒ ($) 2,000,000
	Such public liability insurance may include sub-limits:	
	• For liability arising out of vibration, weakening or removal of support, of not less than:	($) *Click to enter amount*
	• For liability under the Forest and Rural Fires Act 1977, of not less than:	($) *Click to enter amount*
8.5.2	Where required (see 8.1 above), motor vehicle third party liability insurance shall be effected for an amount not less than:	($) *Click to enter amount*

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
8.6	**Contractor arranged professional indemnity insurance**	
8.6.1	Where required (see 8.1 above), professional indemnity insurance for design by the Contractor shall be effected for an amount not less than:	
	• For any one claim:	($)
	• And for an amount in the aggregate of:	($) *Click to enter amount*
8.6.2	Sub-limits of liability for design of parts of the Contract Works by Subcontractors shall be not be less than: *(list specific part(s) of Contract Works and applicable $ sub-limits for any one claim and for an amount in the aggregate, or state if not required)*	*Click to enter text*
8.8	**Principal arranged construction insurance** *(refer also to 8.3)*	
	In accordance with 8.7.2, the insurance policy wording title for 8.8.1 and 8.8.2 (a), (b), and (c) is:	*Click to enter text*
	In accordance with 8.7.2, the extraordinary exclusions, conditions, warranties or endorsements to the policy for 8.8.1 and 8.8.2 (a), (b), and (c) are:	*Click to enter text*
8.8.1	Where the Principal is required to effect construction insurance (see 8.1 above):	
	The lead insurer is:	*Click to enter text*
	Address of lead insurer:	*Click to enter text*
	The Nominal Deductibles are:	
	• For damage arising out of the Contract Works:	*Click to enter text*
	• For other claims:	*Click to enter text*
	• For natural perils:	*Click to enter text*
8.8.2(a)	The existing structures are:	*Click to enter text*
	• The replacement value to be insured is:	($) *Click to enter amount*
	• The lead insurer is:	*Click to enter text*
	• Address of lead insurer:	*Click to enter text*
	The Nominal Deductibles are:	
	• For damage arising out of the Contract Works:	*Click to enter text*
	• For other claims:	*Click to enter text*
	• For natural perils:	*Click to enter text*
8.8.2(b)	Other structures in the vicinity are:	*Click to enter text*
	• The replacement value to be insured is:	($) *Click to enter amount*
	• The lead insurer is:	*Click to enter text*
	• Address of lead insurer:	*Click to enter text*

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
	The Nominal Deductibles are:	
	• For damage arising out of the Contract Works:	*Click to enter text*
	• For other claims:	*Click to enter text*
	• For natural perils:	*Click to enter text*
8.8.2(c)	Contents insurance:	
	• The replacement value to be insured is:	($) *Click to enter amount*
	• The lead insurer is:	*Click to enter text*
	• Address of lead insurer:	*Click to enter text*
	The Nominal Deductibles are:	
	• For damage arising out of the Contract Works:	*Click to enter text*
	• For other claims:	*Click to enter text*
	• For natural perils:	*Click to enter text*
8.9	**Principal's option to insure public liability**	
8.9.1	Where required (see 8.1 above), the Principal shall effect public liability insurance for an amount not less than:	($) *Click to enter amount*
	The lead insurer is:	*Click to enter text*
	Address of lead insurer:	*Click to enter text*
	The Nominal Deductible is:	*Click to enter text*
	In accordance with 8.7.2:	
	• the policy wording title is:	*Click to enter text*
	• extraordinary exclusions, conditions, warranties, or endorsements to the policy are:	*Click to enter text*
8.9.2	Such public liability insurance may include sub-limits for: *(specify as applicable or state 'not applicable')*	
	• Liability arising out of vibration, weakening or removal of support:	($) *Click to enter amount*
	• Liability under the Forest and Rural Fires Act 1977:	($) *Click to enter amount*

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
9	**VARIATIONS**	
9.3	**Valuation of Variations**	
9.3.9	For On-site Overheads:	*(select one to apply, (a) or (b))*
	(a) The prices and rates in the Schedule of Prices are inclusive of full allowance for On-site Overheads;	☒
	(b) The prices and rates in the Schedule of Prices are exclusive of On-site Overheads and the allowance for On-site Overheads to be added in accordance with 9.3.9 is:	☐ *(select one to apply, (i), (ii), (iii), or (iv))*
	(i) Agreed percentage:	☐ *Click to enter %* (%)
	(ii) As nominated in the Schedule of Prices;	☐
	(iii) As nominated in the Contractor's tender;	☐
	(iv) A reasonable percentage.	☐
9.3.10	For Off-site Overheads and Profit:	*(select one to apply, (a) or (b))*
	(a) The prices and rates in the Schedule of Prices are inclusive of full allowance for Off-site Overheads and Profit;	☒
	(b) The prices and rates in the Schedule of Prices are exclusive of Off-site Overheads and Profit and the allowance for Off-site Overheads and Profit to be added in accordance with 9.3.10 is:	☐ *(select one to apply, (i), (ii), (iii), or (iv))*
	(i) Agreed percentage:	☐ *Click to enter %* (%)
	(ii) As nominated in the Schedule of Prices;	☐
	(iii) As nominated in the Contractor's tender;	☐
	(iv) A reasonable percentage.	☐
9.3.11	For time-related Cost, the Working Day rate in compensation for time-related On-site Overheads and Off-site Overheads and Profit in relation to an extension of time to be applied in accordance with 9.3.11 is:	*(select one to apply, (a), (b), (c), or (d))*
	(a) Agreed rate per Working Day:	☐ ($) *Click to enter amount*
	(b) As nominated in the Schedule of Prices;	☐
	(c) As nominated in the Contractor's tender;	☒
	(d) Reasonable compensation.	☐

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
9.3.15	For processing of Variations, the percentage to be paid in accordance with 9.3.15 is:	*(select one to apply, (a), (b), (c), or (d))*
	(a) Agreed percentage:	☒ 5 (%)
	(b) As nominated in the Schedule of Prices;	☐
	(c) As nominated in the Contractor's Tender;	☐
	(d) The reasonable Cost of processing Variations.	☐
10.	**TIME FOR COMPLETION**	
10.2	**Due Date for Completion**	
10.2.1	The periods to be used for calculating the Due Date for Completion are:	
	(a) For the Contract Works:	182 *(Working Days)*
	(b) For any Separable Portions:	*(Working Days)* *Click to enter details*
10.4	**Practical Completion Certificate**	
10.4.5	Prior to issue of the Practical Completion Certificate:	*(Select one to apply, (a), (b), or (c))*
	(a) Producer Statements in the form of Schedule 6 are required;	☒
	(b) Producer Statements as set out in the following parts of the Contract are required:	☐ *Click to add reference*
	(c) Producer Statements are not required.	☐
10.5	**Damages for late completion**	
10.5.1	Liquidated damages shall be applied as follows:	
	• In respect of the Contract Works:	*Click to enter amount* *($ per Working Day)*
	• In respect of any Separable Portion(s):	*Click to enter amount* *($ per Working Day for each Separable Portion)* *Click to enter details*
10.6	**Bonus for early completion**	
10.6.1	Is a bonus to be payable?	No
	• If yes, the bonus for the Contract Works is:	*Click to enter amount* *($ per Working Day)*
	• If yes, bonuses for any Separable Portions are:	*Click to enter amount* *($ per Working Day)*
11.	**DEFECTS LIABILITY**	
11.1	**Defects Notification Period**	
	The Defects Notification Period shall be: (3 Months unless otherwise stated)	
	• For the Contract Works:	12 Months
	• For any Separable Portions:	*Click to enter text*

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
11.3	**Final Completion Certificate**	
11.3.2	Prior to issue of the Final Completion Certificate:	*(select one to apply, (a), (b), or (c))*
	(a) Producer Statements in the form of Schedule 6 are required;	☒
	(b) Producer Statements as set out in the following parts of the Contract are required:	☐ *Click to add reference*
	(c) Producer Statements are not required.	☐
11.5	**Warranties**	
11.5.1		*(select one to apply, (a) or (b))*
	(a) No warranties are required;	☒
	(b) The Contractor shall provide warranties as set out in the Contract for the following items of work:	☐
11.6	**Guarantees**	
11.6.1, 11.6.2		*(select one to apply, (a) or (b))*
	(a) No guarantees are required;	☒
	(b) The Contractor shall provide guarantees in the following form:	☐ *Click to state form*
12.	**PAYMENTS**	
12.1	**Contractor's payment claims**	
12.1.3(b)(iii)	**Advances for Materials delivered to the Site**	*(select one to apply, (a) or (b))*
	(a) Advances for Materials delivered to the Site but which have yet to be incorporated in the Contract Works shall not be made;	☐
	(b) Advances for Materials delivered to the Site but which have yet to be incorporated in the Contract Works shall be made, subject to the following conditions:	☒ Submission of suppliers invoice
12.1.3(b)(iv)	**Advances for Temporary Works or Plant**	*(select one to apply, (a) or (b))*
	(a) Advances for Temporary Works or Plant shall not be made;	☒
	(b) Advances for Temporary Works or Plant shall be made, subject to the following conditions:	☐ *Click to state any conditions*

Clause *In General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
12.1.3(b)(iv)	**Advances for Materials not yet on Site**	*(select one to apply, (a) or (b))*
	(a) Advances for Materials not on Site shall not be made;	☒
	(b) Advances for Materials not yet on Site shall be made, subject to the following conditions:	☐ *Click to state any conditions*
12.3	**Retention monies**	
12.3.1, 12.3.2	The percentage to be retained from each progress payment and the limit of the total sums retained shall be in accordance with the following:	*(select one to apply, (a) or (b))*
	(a) For the Contract Works, a total retention of: • 10% on the first $200,000, and • 5% on the next $800,000, and • 1.75% on amounts in excess of $1,000,000, and • With a maximum total retention when aggregated of $200,000, and • With a defects liability retention of half the total retention.	☒
	(b) The retention scale in the right hand column:	☐ *Click to enter scale*
12.3.3	**Bond in lieu of retention**	*(select one to apply, (a) or (b))*
	(a) The Contractor may provide a bond in lieu of retentions;	☒
	(b) The Contractor may not provide a bond in lieu of retentions.	☐
12.8	**Cost fluctuations**	*(select one to apply, (a), (b), or (c))*
	(a) Cost fluctuations shall not be paid;	☒
	(b) Cost fluctuations shall be paid in accordance with Appendix A;	☐
	(c) Cost fluctuations shall be paid in accordance with the method described in:	☐ *Click to add reference*
12.13	**Goods and services tax**	
12.13.2	Payment Schedules provided by the Engineer:	*(select one to apply, (a) or (b))*
	(a) Shall not be in the form of a tax invoice;	☐
	(b) Shall be in the form of a buyer created tax invoice and the parties agree not to issue any other tax invoice for items covered by the Payment Schedule.	☒
13.	**DISPUTES**	
13.4	**Arbitration**	
13.4.3	If required, the arbitrator shall be nominated by the following Person:	*Click to enter text*

Clause *in General Conditions*	Title and subject matter	Specific condition data *(Expand cells if required or add a reference to further detail provided in Schedule 2.)*
15.	SERVICE OF NOTICES	
15.1.2	For the purpose of service of written notice:	
	(a) The address of the Principal is:	
	Postal address:	PO Box 6 martinborough
	Delivery address:	19 Kitchner Street Martinborough
	Mark for the attention of:	Tim Langley
	Email address:	Tim.langley@swdc.govt.nz
	Other agreed means of electronic communication and address detail:	*Click to enter text*
	(b) The address of the Contractor is:	
	Postal address:	*Click to enter text*
	Delivery address:	*Click to enter text*
	Mark for the attention of:	*Click to enter text*
	Email address:	*Click to enter text*
	Other agreed means of electronic communication and address detail:	*Click to enter text*
	(c) The address of the Engineer is:	
	Postal address:	TBC
	Delivery address:	TBC
	Mark for the attention of:	TBC
	Email address:	TBC
	Other agreed means of electronic communication and address detail:	*Click to enter text*

Schedule 5 – Form of Contractor's bond in lieu of retentions

Contract for	**C1257 Pedestrian Crossing Lighting Upgrade**	
THIS DEED is made on	*Click to enter a date*	
BY	*Click to enter text*	
of	*Click to enter text*	*('the Contractor')*
AND	*Click to enter text*	
of	*Click to enter text*	*('the surety')*
	Click to enter text	*(Address of surety for service)*

IT IS MADE IN THE FOLLOWING CIRCUMSTANCES

A The Contractor has entered into an agreement with *Click to enter text* of *Click to enter text* ('the Principal') to carry out and fulfil the obligations imposed on the Contractor ('the Contract').

B The Contractor has agreed to provide the Principal with security in the form of a bond in lieu of retentions additional to any other bond required under the Contract.

C Words and phrases with capital initial letters that are not otherwise defined in this bond shall have the meaning set out in the Contract.

BY THIS DEED

1. **THE** Contractor and surety are jointly and severally held and bound to the Principal in the sum of $NZ *Click to enter amount* and bind themselves, their successors and assigns jointly and severally for the payment of that sum.

2. **THE** conditions of this bond are that it shall be released if and when:
   (a) The Final Completion Certificate has been issued for the Contract Works in accordance with 11.3 of the General Conditions; or
   (b) The surety receives a notice from the Principal releasing the Contractor and the surety from this bond.

3. **EXCEPT** as provided in clause 2 above this bond shall be and remain in full force and effect.

4. **THE** surety shall not be released from any liability under this bond:
   (a) By any alteration in the terms of the Contract;
   (b) By any alteration in the extent or nature of the Contract Works to be completed, delivered, and having defects remedied;
   (c) By any allowance of time by the Principal or by the Engineer appointed by the Principal under the Contract; or
   (d) By any forbearance or waiver by the Principal or by the Engineer in respect of any of the Contractor's obligations or in respect of any default on the part of the Contractor.

5. **THIS** bond shall be governed by New Zealand law.

In witness of which this deed has been executed.

SIGNED on behalf of the surety by:

Click to enter text or paste signature

Director

Click to enter text or paste signature

Director

SIGNED on behalf of the Contractor by:

Click to enter text or paste signature

Director

Click to enter text or paste signature

Director

NOTE – This bond shall be executed by the Contractor and by the surety in the manner required for execution of a deed. Any of these parties which are a company shall execute the bond by having it signed, under the name of the company, by two or more directors. If there is only one director, it is sufficient if the bond is signed under the name of the company by that director, but the signature shall be witnessed by another person. The witness shall not only sign but shall also add his or her occupation and address. Alternatively, companies may execute under power of attorney. Any party which is a body corporate (other than a company) shall execute in the same manner as a company by persons in a comparable position to a company director or otherwise in accordance with section 9 of the Property Law Act 2007. In the case of a party who is an individual, the party shall sign and the signature shall be witnessed by another person. The witness shall not only sign but shall also add his or her occupation and address.

Schedule 7 – Information on Contractor arranged construction insurance

To whom it may concern:

From *Click to enter text* *(Name of insurance company)*

Click to enter text *(Branch)*

Click to enter text *(Address)*

We confirm having effected construction insurance for:

Click to enter text *(The Contractor)*

South Wairarapa District Council *(The Principal)*

In respect of **C1257 Pedestrian Crossing Lighting Upgrade** *(Project title)*

Policy wording title is *Click to enter text*

The following provisions apply:

☒ Project specific policy

☐ Annual run-off policy

☐ Annual cut-off policy

We advise that special terms, copy attached, have been applied to this policy *Select yes or no*

8.1.6

The following forces of nature are insured:

☐ landslip	☐ earthquake	☐ tsunami
☐ tornado	☐ cyclone	☐ storm
☐ flood	☐ lightning strike	☐ volcanic activity
☐ hydrothermal activity	☐ geothermal activity	

8.3.3

The sums insured are (GST exclusive):

Contract Price		$	*Click to enter amount*
(a)	Costs of demolition	$	*Click to enter amount*
(b)	Professional fees	$	*Click to enter amount*
(c)	Value of items to be incorporated	$	*Click to enter amount*
(d)	An allowance for an increase in construction costs	$	*Click to enter amount*
(e)	An allowance for increased reconstruction costs	$	*Click to enter amount*
	TOTAL SUM INSURED	$	*Click to enter amount*

The policy deductibles are (GST inclusive):	$	*Click to enter amount*
Non-earthquake	$	*Click to enter amount*
Natural disaster *Click to enter %* % of *Click to enter text* minimum of	$	*Click to enter amount*
Other (name) *Click to enter text*	$	*Click to enter amount*

8.2.3(a)

Construction period	from	*Click to enter a date*	to	*Click to enter a date*
Insurance maintenance period	*Click to enter text*			
Policy expiry date	*Click to enter a date*			

Policy cover terms included are:

8.2.2	Discretionary cancellation clause	*Select yes or no*
8.2.3	Reinstatement provision on building and contents	*Select yes or no*
8.2.3	Severally insured	*Select yes or no*
	No settlement delay due to exercise of subrogation	*Select yes or no*
8.2.4	Void *ab initio* for non-payment of premium without prior notification	*Select yes or no*

Policy extensions included are:				Sub-limit (if applicable)
8.3.1	Transit (in New Zealand)	*Select yes or no*	$	*Click to enter amount*
8.3.1	Materials in storage (in New Zealand)	*Select yes or no*	$	*Click to enter amount*
	Testing and commissioning	*Select yes or no*	$	*Click to enter amount*
	Expediting expenses	*Select yes or no*	$	*Click to enter amount*
	Overseas airfreight	*Select yes or no*	$	*Click to enter amount*

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp *Click to enter text* **Date** *Click to enter a date*

(Or name of insurance broking company confirming cover)

SIGNED BY *Click to enter text or paste signature*

SIGNATORY TITLE *Click to enter text*

(Clause numbers refer to NZS 3910:2013 and are for information only.)

Schedule 8 – Information on Contractor arranged Plant insurance

To whom it may concern:

From *Click to enter text* *(Name of insurance company)*

Click to enter text *(Branch)*

Click to enter text *(Address)*

We confirm having effected Plant insurance for:

Click to enter text *(The Contractor)*

In respect of *Click to enter text* *(Project title)*

Policy wording title is *Click to enter text*

We advise that special terms, copy attached, have been applied to this policy *Select yes or no*

The following provisions apply:

☐ Annual policy

☐ Project specific policy

Policy expiry date *Click to enter a date*

8.4

The sums insured are (GST exclusive):

☐ All items of Plant Sum insured $ *Click to enter amount*

OR

☐ Valued schedule of construction Plant insured (copy attached)

The policy deductible (GST inclusive) is: $ *Click to enter amount*

Policy cover terms included are:

8.2.2	Discretionary cancellation clause	*Select yes or no*
8.2.3(a)	Reinstatement provision	*Select yes or no*
8.2.4	Void *ab initio* for non-payment of premium without prior notification	*Select yes or no*
	No settlement delay due to exercise of subrogation	*Select yes or no*

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp *Click to enter text* **Date** *Click to enter a date*

(Or name of insurance broking company confirming cover)

SIGNED BY *Click to enter text or paste signature*

SIGNATORY TITLE *Click to enter text*

(Clause numbers refer to NZS 3910:2013 and are for information only.)

Schedule 9 – Information on public liability insurance

To whom it may concern:

From *Click to enter text* *(Name of insurance company)*

Click to enter text *(Branch)*

Click to enter text *(Address)*

We confirm having effected public liability insurance to indemnify the Principal and the Contractor against legal liability to third parties for damage, loss or injury caused by an act or omission of the Contractor arising out of the performance of the Contract Works.

Click to enter text *(The Contractor)*

South Wairarapa District Council *(The Principal)*

In respect of **C1257 Pedestrian Crossing Lighting Upgrade** *(Project title)*

Policy wording title is *Click to enter text*

We advise that special terms, copy attached, have been specifically applied to this project *Select yes or no*

The following provisions apply:

☐ Annual policy

☐ Project specific policy

Policy expiry date *Click to enter a date*

8.5, 8.9

The limit of indemnity (GST exclusive)	$	*Click to enter amount*
Sub-limit insured for (GST exclusive)		
Vibration, removal, or weakening of support	$	*Click to enter amount*
Forest and Rural Fires Act 1977	$	*Click to enter amount*
Underground services	$	*Click to enter amount*
Deductible (GST inclusive) is	$	*Click to enter amount*
Deductible for vibration, removal, or weakening of support (GST inclusive)	$	*Click to enter amount*
Deductible for underground services (GST inclusive)	$	*Click to enter amount*

The policy also covers liability arising out of:

The ownership/use of Plant not required to be registered for road use	*Select yes or no*
The use of hired Plant	*Select yes or no*
The ownership/use of watercraft over 8 m	*Select yes or no*
The ownership/use of aircraft	*Select yes or no*
The use of explosives	*Select yes or no*

3.2, 8.7

Policy cover terms included are:

Reinstatement provisions	*Select yes or no*
Number of reinstatements	*Click to enter number*
Discretionary cancellation clause	*Select yes or no*
Void *ab intio* for non-payment of premium without prior notification	*Select yes or no*
Severally insured	*Select yes or no*
No settlement delay due to exercise of subrogation	*Select yes or no*

We undertake that this policy will not be cancelled or amended by us without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp *Click to enter text* **Date** *Click to enter a date*

(Or name of insurance broking company confirming cover)

SIGNED BY *Click to enter text or paste signature*

SIGNATORY TITLE *Click to enter text*

(Clause numbers refer to NZS 3910:2013 and are for information only.)

The policy also covers liability arising out of:

The ownership/use of Plant not required to be registered for road use	*Select yes or no*
The use of hired Plant	*Select yes or no*
The ownership/use of watercraft over 8 m	*Select yes or no*
The ownership/use of aircraft	*Select yes or no*
The use of explosives	*Select yes or no*

3.2, 8.7

Policy cover terms included are:

Reinstatement provisions	*Select yes or no*
Number of reinstatements	*Click to enter number*
Discretionary cancellation clause	*Select yes or no*
Void *ab intio* for non-payment of premium without prior notification	*Select yes or no*
Severally insured	*Select yes or no*
No settlement delay due to exercise of subrogation	*Select yes or no*

We undertake that this policy will not be cancelled or amended by us without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp *Click to enter text* **Date** *Click to enter a date*

(Or name of insurance broking company confirming cover)

SIGNED BY *Click to enter text or paste signature*

SIGNATORY TITLE *Click to enter text*

(Clause numbers refer to NZS 3910:2013 and are for information only.)

Schedule 10 – Information on Contractor arranged motor vehicle insurance

To whom it may concern:

From *Click to enter text* *(Name of insurance company)*

Click to enter text *(Branch)*

Click to enter text *(Address)*

We confirm having effected motor fleet insurance for

Click to enter text *(The Contractor)*

In respect of **C1257 Pedestrian Crossing Lighting Upgrade** *(Project title)*

Policy wording title is *Click to enter text*

We advise that special terms, copy attached, have been applied to this policy *Select yes or no*

The following provisions apply:

☒ Annual policy

☐ Project specific policy

Policy expiry date *Click to enter a date*

8.5.2

The limits of liability are (GST exclusive):

Section 2 – Liability $ *Click to enter amount*

For any one occurrence arising out of the same event

The policy deductibles are:

Section 2 – Liability (GST inclusive) $ *Click to enter amount*

Plus under age penalties

8.2

Policy cover terms included are:

Section 2 Liability automatic reinstatement *Select yes or no*

Discretionary cancellation clause *Select yes or no*

Void *ab initio* for non-payment of premium without prior notification *Select yes or no*

No settlement delay due to exercise of subrogation *Select yes or no*

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp *Click to enter text* **Date** *Click to enter a date*

(Or name of insurance broking company confirming cover)

SIGNED BY *Click to enter text or paste signature*

SIGNATORY TITLE *Click to enter text*

(Clause numbers refer to NZS 3910:2013 and are for information only.)

Schedule 11 – Information on Contractor arranged professional indemnity insurance

To whom it may concern:

From *Click to enter text* *(Name of insurance company)*

Click to enter text *(Branch)*

Click to enter text *(Address)*

We confirm having effected professional indemnity insurance for:

Click to enter text *(The Contractor)*

In respect of **C1257 Pedestrian Crossing Lighting Upgrade** *(Project title)*

Policy wording title is *Click to enter text*

We advise that special terms, copy attached, have been applied to this policy *Select yes or no*

The following provisions apply:

☐ Annual policy

☐ Project specific policy

Policy expiry date *Click to enter a date*

8.6.1

The limit of indemnity (GST exclusive) $ *Click to enter amount* any one occurrence

$ *Click to enter amount* in the aggregate during the period of insurance.

Deductible (GST inclusive) $ *Click to enter amount*

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp *Click to enter text* **Date** *Click to enter a date*

(Or name of insurance broking company confirming cover)

SIGNED BY *Click to enter text or paste signature*

SIGNATORY TITLE *Click to enter text*

(Clause numbers refer to NZS 3910:2013 and are for information only.)

Schedule 15 – Practical Completion Certificate

This Practical Completion Certificate is issued under 10.4.3(a) or 10.4.4.

Contract for	***C1257 Pedestrian Crossing Lighting Upgrade***	*(Contract name and number if applicable)*
Principal	**South Wairarapa District Council**	*(Insert name of Principal)*
Contractor	*Click to enter text*	*(Insert name of Contractor)*

This certificate relates to:

☐ (a) The whole of the Contract Works referred to above;

☐ (b) The following Separable Portion

(Specify Separable Portion if applicable)

Receipt of the Contractor's notice dated *Click to enter a date* and issued in accordance with 10.4.2 is acknowledged.

In accordance with ☐ 10.4.3(a) or ☐ 10.4.4 *(select one)*, the Engineer certifies that the Contract Works or Separable Portion to which this certificate relates qualify for a Practical Completion Certificate under 10.4, notwithstanding that there may be minor omissions and/or minor defects (as listed in the attached schedule) which satisfy the criteria in 10.4.1 (a), (b), and (c).

The Contractor is required to remedy all of the listed omissions or defects within the period stated in the attached schedule against the relevant omission or defect, or at the latest within *Click to enter days* Working Days of the date of this certificate.

Practical Completion was achieved

on *Click to enter a date* at *Click to enter time.*

Signed by the Engineer	*Click to enter text or paste signature*
Name	*Click to enter text*
Date	*Click to enter a date*

SCHEDULE

The following omissions and/or defects have been assessed as being of a minor nature satisfying the criteria in 10.4.1(a), (b), and (c) and were identified during an inspection carried out by the Engineer or Engineer's Representative on *Click to enter a date*

(List minor omissions and defects)

Click to enter text

Schedule 16 – Final Completion Certificate

This certificate is a Final Completion Certificate issued under 11.3.1.

Contract for	***C1257 Pedestrian Crossing Lighting Upgrade***	*(Contract name and number if applicable)*
Principal	**South Wairarapa District Council**	*(Insert name of Principal)*
Contractor	*Click to enter text*	*(Insert name of Contractor)*

This certificate relates to:

☒ (a) The whole of the Contract Works referred to above;

☐ (b) The following Separable Portion

(Specify Separable Portion if applicable)

In accordance with 11.3.1, the Engineer certifies that the Contract Works or Separable Portion to which this certificate relates qualify for a Final Completion Certificate issued under 11.3

on *Click to enter a date* at *Click to enter time.*

Signed by the Engineer	*Click to enter text or paste signature*
Name	*Click to enter text*
Date	*Click to enter a date*

Schedule of Quantities

South Wairarapa District Council

Pedestrian Crossing Lighting Upgrade

Schedule Of Quantities

	Item	Description	Unit	Quantity	Rate Excl. GST	Amount Excl. GST
	100. PRELIMINARY, GENERAL & ADMINISTRATION					
	101	On-site establishment, dis-establishment and project management. (includes but not limited to preparation of site specific Heath and Safety, Contract Quality Plans and Environmental Management Plans)	LS	1		$0.00
	102	Survey and setting out of the works	LS	1		$0.00
	103	Insurances	LS	1		$0.00
	104	Maintenance	LS	1		$0.00
	105	Permit and fees	LS	1		$0.00
	106	Construction Management Plans	LS	1		$0.00
	107	Quality Assurance Testing	LS	1		$0.00
	108	Contract Administration and Site management	LS	1		$0.00
	109	Traffic Conrol throughout the contract period	LS	1		$0.00
	Total Carried to Summary					**$0.00**
	200. SREET LIGHT INSTALLATION					
	2.1	**Martinborough Square**				
	201	Supply and install street light poles	ea	18		$0.00
	202	Supply and install luminaires	ea	12		$0.00
	203	Relocate existing Luminaire from adjacet pole to new pole	ea	3		$0.00
	204	Trench and install underground power supply under Hotmix path	m	20		$0.00
	205	Trench and install underground power supply under road carriageway	m	30		$0.00
	206	Trench and install underground power supply under grass berm	m	150		$0.00
	207	Connect to existing power supply	ea	18		$0.00
	Total Carried to Summary					**$0.00**

	2.2	**Jellicoe Street Martinborough**				
	201	Supply and install street light poles	ea	2		$0.00
	202	Supply and install luminaires	ea	2		$0.00
	204	Trench and install underground power supply under Hotmix path	m	60		$0.00
	207	Connect to existing power supply	ea	2		$0.00
	Total Carried to Summary					**$0.00**
	2.3	**Dublin Street Martinborough**				
	201	Supply and install street light poles	ea	2		$0.00
	202	Supply and install luminaires	ea	2		$0.00
	204	Trench and install underground power supply under Hotmix path	m	10		$0.00
	207	Connect to existing power supply	ea	2		$0.00
	Total Carried to Summary					**$0.00**
	2.4	**Birdwood Street Featherston**				
	201	Supply and install street light poles	ea	2		$0.00
	202	Supply and install luminaires	ea	1		$0.00
	206	Trench and install underground power supply under grass berm	m	2		$0.00
	207	Connect to existing power supply	ea	2		$0.00
	208	Trench and install underground power supply under concrete	m	15		$0.00
	Total Carried to Summary					**$0.00**
	2.5	**Bell Street Featherston**				
	201	Supply and install street light poles	ea	2		$0.00
	202	Supply and install luminaires	ea	2		$0.00
	204	Trench and install underground power supply under Hotmix path	m	30		$0.00
	206	Trench and install underground power supply under grass berm	m	20		$0.00
	207	Connect to existing power supply	ea	2		$0.00
	208	Trench and install underground power supply under concrete	m	15		$0.00
	Total Carried to Summary					**$0.00**
	2.6	**Kuratawhiti Street Greytown**				
	201	Supply and install street light poles	ea	1		$0.00
	202	Supply and install luminaires	ea	1		$0.00
	206	Trench and install underground power supply under grass berm	m	2		$0.00
	207	Connect to existing power supply	ea	1		$0.00

	208	Trench and install underground power supply under concrete	m	15		$0.00
	Total Carried to Summary					**$0.00**
	2.7	**Reading Street Greytown**				
	201	Supply and install street light poles	ea	2		$0.00
	202	Supply and install luminaires	ea	2		$0.00
	206	Trench and install underground power supply under grass berm	m	25		$0.00
	207	Connect to existing power supply	ea	2		$0.00
	Total Carried to Summary					**$0.00**
	2.7	**East Street Greytown**				
	201	Supply and install street light poles	ea	3		$0.00
	202	Supply and install luminaires	ea	3		$0.00
	204	Trench and install underground power supply under Hotmix path	m	30		$0.00
	207	Connect to existing power supply	ea	3		$0.00
	Total Carried to Summary					**$0.00**
	Schedule of Prices Summary					
	Item	**Description**		**Amount $**		
	1	Preliminary, General and Administration		**$0.00**		
	2	Street Light Installation		**$0.00**		
		Sub Total		**$0.00**		
		10% Contingency to be expended in whole or in part as directed by the Engineer		**$0.00**		
		TOTAL (Excluding GST)		**$0.00**		

Contract Specification

TABLE OF CONTENTS

Contract Description ii
PART 1 GENERAL 1
1 SCOPE AND GENERAL 1
1.1 Application 1
1.2 Associated Documents 2
1.3 Definitions and Acronyms 2
2 GENERAL 4
3 OWNERSHIP OF ASSETS 5
4 ELECTRICAL STANDARDS AND REQUIREMENTS 5
5 HEALTH AND SAFETY AND ENVIRONMENTAL MANAGEMENT 5
6 HEALTH AND SAFETY 6
7 LIGHTING EQUIPMENT 6
7.1 Outreach Brackets (Arms) for Overhead Installations 6
7.2 Lighting Equipment 6
8 PAINTING OF COLUMNS AND LUMINAIRES 7
9 SIGNS 7
10 ENVIRONMENTAL LIGHTING EFFECTS 8
10.1 Forms of Potential Adverse Lighting Effects 8
10.1.1 Spill Lighting 8
10.1.2 Glare 9
10.1.3 Sky Glow 9
11 CATEGORY P LIGHTING 10
11.1 General 10
11.2 Category P Lighting – Cycleway and Pathway Lighting 10
12 PERFORMANCE REQUIREMENTS 10
12.1 Minimum Spacing Requirement for Category P 11
12.2 Mounting Heights 12
13 ELECTRICAL RETICULATION 12
13.1 General 12
13.2 Underground Services, Construction, Backfill and Bedding 12

13.3 Points of Supply and Circuiting 13
13.4 Cable Type and Terminations 13
13.5 Qualified Personnel 13
13.6 Documentation 13
14 CONTROL AND INSPECTION OF THE WORK 14
14.1 General 14
14.2 Checking, Inspection, Testing and Recording 14
15 COMPLETION CERTIFICATE 14
PART 3 LUMINAIRE REQUIREMENTS 15
16 LED LUMINAIRE ATTRIBUTES 15
16.1 Reliability 15
16.2 Colour Temperature 15
16.3 Measurement Procedures 16
16.4 Maintenance Factors (MF) or Light Loss Factor (LLF) 16
16.5 Compatibility 17
16.6 Compliance 17
16.7 Labelling 17
16.8 Protection from Overvoltage 18
16.9 Power System and Power Quality 18
16.10 Luminaire Attributes 18
17 ACCEPTED LUMINAIRES 18
PART 4 CONSTRUCTION AND INSTALLATION 20
18 TEMPORARY LIGHTING 20
18.1 Construction Activity or Security Lighting 20
19 COLUMN LOCATIONS 20
19.1 Column Placement and Setback from Road or Path 21
19.2 Column Placement and Clearance from Overhead Aerial Conductors 21
20 COLUMN INSTALLATION AND FOUNDATIONS 22
21 INSTALLATION AND COMMISSIONING 22
21.1 Testing 23
21.2 CMS Testing and Commissioning 23
22 COMPLETION PROCEDURES AND CERTIFICATION 23
23 COMPETENT CONSTRUCTION PERSONNEL 24
Appendix I - Design and Construction Process Example (informative) ... 25

Appendix II – Lighting Design Report (normative)..... 27

Appendix III - Lighting Design Statement (LDS1) – Design (normative).. 29

Appendix III - Lighting Design Statement (LDS4) – Construction Review & Audit (normative) 31

Appendix IV - Drawing Layout and Format Requirements (normative).. 33

Appendix V - Sample Manufacturers Producer Statement (informative) 37

Appendix VI - Lighting Design Peer Review Certificate Template (normative) 39

Appendix VII - Completion Certificate (normative)..... 41

Appendix VIII - Road Lighting Central Management System (CMS) (informative) 42

Basis of Payment and Description of Items in Schedule of Prices 43

PART 1 GENERAL

1 SCOPE AND GENERAL

This Specification sets out requirements for the the technical performance, design, reviews, and luminaire selection and installation requirements for the lighting of pedestrian crossings under South Wairarapa District Council control.

It encourages the development of energy efficient designs, which minimise operating costs for the service life of the road and public space lighting asset resulting in less consumption of resources.

Any aspects relating to good urban design are in addition to the technical requirements detailed in this specification and are to be agreed separately with the asset owner. Reference www.nzta.govt.nz/resources/bridging-the-gap/docs/bridging-the-gap.pdf

The scope is not limited by the material type or the appearance or shape of the column, outreach arm or luminaire.

Minimum levels of luminaire performance are specified with respect to:

- Photometric performance
- Maintenance factor
- Durability
- Expected life
- Safety

This Specification covers the lighting scheme in respect to acceptable practices, installation and audit. It **DOES NOT** cover the following:

- Manufacture of columns
- Manufacture of luminaires
- Columns with provision for the attachment of flags and/or banners unless specifically allowed for by the respective manufacturer
- CCTV camera columns
- Electrical power distribution poles where the lighting is supplied via overhead aerial conductors
- Joint use columns for lighting and electricity distribution, telecommunications, traffic signals or tramway services
- Street or road signage columns
- Electrical supply network modifications required for the Lighting Installation

1.1 Application

This specification serves as a basis of compliance for lighting projects carried out by the South Wairarapa District Council as part of its works programmes.

It is consistent with and supports the South Wairarapa District Council strategic documents, e.g. Community Outcomes, LTP, Activity Management Plans, Asset Management Plans, Strategies and Policies, procurement plans etc.

Appendix I provides an overview flow diagram of the complete design and construction process.

1.2 Associated Documents

The documents listed below are relevant to road lighting design:

- AS/NZS 1158 Series - Lighting for Roads and Public Spaces
- AS 4282 - Control of Obtrusive Effects of Lighting
- AS/NZS 1100 Set - Technical Drawing
- AS/NZS 3000 - Electrical Installations (known as the Australian/New Zealand Wiring Rules)
- AS/NZS 3008 - Electrical Installations – selection of cables. Cables for alternating voltages up to and including 0.6/1kV
- AS/NZS 3439 Set - Low voltage switchgear and control gear assemblies
- AS/NZS 5000 Set - Electrical cables – Polymeric insulated
- AS/NZS 60598-1 Luminaires - General requirements and tests
- AS/NZS 60598.2.3 Luminaires for road and street lighting - particular requirements
- AS/NZS 60898 Electrical accessories - Circuit breakers for overcurrent protection for household and similar installations
- AS/NZS 3000 Electrical installations - Buildings, structures and premises
- BS 5489-11 - Code of Practice for the Design of Road Lighting
- BS 5489-2 - Lighting of Tunnels
- Crime Prevention Through Environmental Design (CPTED)
- Electrical Codes of Practice (ECP's)
- Electricity Act including all amendments
- Electricity Distribution Company Standards and Requirements
- Electricity Safety Regulations including all amendments
- EN 61547 - Equipment for general lighting purposes, EMC immunity requirements
- Health and Safety in Employment Act
- IESNA LM79-08, LM80-08 and TM21-11
- IPENZ Guideline on the Briefing and Engagement for Consulting Engineering Services
- IPENZ Practice Note 02 Peer Review - Reviewing the work of another engineer
- MfE Urban Design Protocol
- MSSLC Model Specification for LED Roadway Luminaires
- MSSLC Model Specification for Adaptive Control and Remote Monitoring of LED Roadway Luminaires
- National Asset Management Steering Group (NAMS) NZ Infrastructure Asset Valuation and Depreciation Guidelines
- NZ Building Act
- NZ Building Code
- NZ Building Regulations
- NZTA Specification M26 Lighting Columns
- Radio Interference Regulations
- Resource Management Act

Where a conflict exists between any reference documents indicated above and this Specification this Specification takes preference (at the discretion of the Transport Agency).

1.3 Definitions and Acronyms

Term/Acronym	Definition
AHC	Authorisation Holders Certificate

BCR	Benefit Cost Ratio (refer Transport Agency Economic Evaluation Manual)
CFL	Compact Fluorescent Lamp
CMS	Central Management Software (may also be referred to as a Tele-Management System or TMS)
Column	A dedicated support for a road lighting luminaire. It is usually owned by the Transport Agency or SOUTH WAIRARAPA DISTRICT COUNCIL and can be a free standing vertical structure of appropriate material, which is designed to support luminaires either directly or by the use of outreach arms or mounting frames and includes such elements as foundations, column, outreach arms, connections and accessories
Competent Person	A person, who has acquired, through training, qualification or experience or a combination of these, the knowledge and skill enabling that person to perform the required task correctly
CoPTTM	Code of Practice for Temporary Traffic Management
Driver	Is a collection of electrical and electronic components used to transform standard electrical voltage, current and frequency to that required providing suitable voltage, and/or current and/or frequency to run (in this case) an LED light source
Electricity Distribution Company	They are the 'person who supplies line function services'. A line owner is a person who owns 'works' that are used or intended for use for the conveyance of electricity. This may not necessarily be an electricity distributor
EWPV	Elevated Working Platform Vehicle
Gateway	An electronic programmable device that communicates between Lighting Point Controllers (LPC) and Central Management Software (CMS)
HPS	High Pressure Sodium
IDS	Infrastructure Design Standard
IDA	International Dark-Sky Association
IESANZ	Illumination Engineering Society Australia and New Zealand
IES-NA	Illumination Engineering Society North America
ILP	Institution of Lighting Professionals
IPC	Insulation Piercing Connection
LED	Light Emitting Diode
LED Light Source	Broadly covers an LED package, module and array of LED's
LPC	Lighting Point Controller or Luminaire Controller is the interface modal between the communication network and the power supply/controller
LTCCP	Long Term Council Community Plan
MH	Metal Halide
MSSLC	U.S. Department of Energy (DOE) Municipal Solid-State Street Lighting Consortium (an American Department of Energy based organisation)
MV	Mercury Vapour
NAMS	NZ National Asset Management Steering Group
NGMH	New Generation Metal Halide
OLN	Outdoor Lighting Network
Pole	A utility distribution pole suitable for attaching an outreach arm and road lighting luminaire. This is not usually owned by the Transport Agency and the condition of re-use shall be confirmed with the Electricity Distribution Company

SOUTH WAIRARAPA DISTRICT COUNCIL	Road Controlling Authority
TALQ	TALQ Consortium is a global initiative by several lighting companies from the industry with the aim of creating a globally accepted standard for management software for outdoor lighting applications
Whole of Life Cost	Is the term used to describe the cost analysis of a scheme including capital costs, operating and maintenance costs and end of life costs

The following definitions shall be as described in AS/NZS 1158.0

Term/Acronym	Definition
Luminaire Mounting Height	The luminaire mounting height is the vertical distance between the photometric centre of a luminaire and the surface which is to be illuminated, e.g. the road surface
Nominal Mounting Height	The nominal mounting height dimension shall be the distance between the centreline of luminaire mounting spigot, and the intended finished ground level for a ground planted column, or the bottom of the base plate for a column with base plate
Outreach Arm Length	The outreach arm length shall be the horizontal distance from the point of entry to the luminaire, to a vertical line passing through the centre of the column cross section at the finished ground level
Passively Safe or Frangible Column	A column designed to perform such that in a vehicular impact, the occupants are unlikely to suffer injuries. This involves either a breakaway support (e.g. slip base or couplings) or a yielding or progressive material collapse type that does not separate from the base
Rigid Column	A column designed to withstand vehicular impacts without undue deformation while remaining upright

2 GENERAL

The South Wairarapa District Council has a commitment to achieve quality environmental and social outcomes. This reflects the requirements of the Land Transport Management Act 2003 and the Resource Management Act 1991 as well as the commitments made in the Government Policy Statement

This specification gives effect to these statutory and policy obligations.

The South Wairarapa District Council wants to protect the night sky environment on behalf of all New Zealand citizens by ensuring that any public lighting is designed, installed and operated in a manner that avoids unnecessary light spill and light pollution.

Overall, any lighting provided must "maximise safety and energy efficiency while minimising the life cycle cost and impact on the environment".

Lighting schemes should blend in with adjacent road lighting, complement the neighbourhood character and, as far as is reasonably practicable, minimise the impact on the neighbouring properties and environment with regard to spill light, glare and aesthetics. The principles of the Ministry for the Environment's Urban Design Protocol shall be considered. This suggests that the lighting design shall be; strong in context, enhancing character, provide a choice, provide a link connection, encourage creativity

and be environmentally sustainable i.e. compliance with the AS/NZS 1158 road and public space lighting series of standards should not be the only consideration.

Where the new lighting meets or intersects with an existing scheme, new lighting shall be carefully integrated with the existing scheme.

The EECA Right Light road lighting resource (www.eecabusiness.govt.nz/content/road-lighting) has been developed to provide a complete online source of tools and information to achieve optimal standards, designs and technical solutions for cost-effective road lighting in New Zealand.

Developed in conjunction with councils, the Transport Agency, road lighting specialists, Local Government New Zealand and members of the AS/NZS 1158 Standards committee, the resource has been designed to assist with planning and implementing upgrades of existing road lighting and public space lighting while also ensuring efficient lighting solutions are considered for new installations.

The information and applications contained in this site has been designed to provide practical assistance to all those involved in road lighting in New Zealand.

3 OWNERSHIP OF ASSETS

Luminaires and columns installed, will be owned by South Wairarapa District Council.

Off/On control of lighting is via a dedicated street lighting network that has an unmetered energy calculated by an agreed formula or is separately metered.

DemaSouth Wairarapa District Councilting point of ownership between SOUTH WAIRARAPA DISTRICT COUNCIL and the Electricity Distribution Company is generally the fuse carrier on the column switchboard or the IPC in an overhead aerial situation. The SOUTH WAIRARAPA DISTRICT COUNCIL normally owns the fuse cartridge.

4 ELECTRICAL STANDARDS AND REQUIREMENTS

Ensure that all parts of the lighting scheme conform to the following:

- The Electricity Act, Electricity Regulations, AS/NZS 3000 and approved Codes of Practice issued by the Minister
- The Electricity Distribution Company requirements for connection, supply and installation of cables, and attachment of lighting equipment to their poles
- The Electricity Distribution Company conditions for connecting equipment to their network are fully complied with

5 HEALTH AND SAFETY AND ENVIRONMENTAL MANAGEMENT

All State Highway construction projects, network maintenance areas and bridge maintenance contracts are required to develop an Environmental and Social Management Plan. The plans establish the environmental management system between the contractors, consultants and the Transport Agency. They clarify accountability and how we will achieve compliance under our legal obligations. For further information please refer to http://www.nzta.govt.nz/network/operating/sustainably/plans.html

All work shall comply with the Transport Agency's health and safety and environmental management requirements in relation to construction, operation and maintenance. Our minimum standard for social and environmental management plans is Z/4 and health and safety compliance notice is Z/5. The documents are available from:
http://www.nzta.govt.nz/resources/state-highway-professional-services-contract-proforma-manual/standards/z-series.html

6 HEALTH AND SAFETY

The requirements of Health and Safety in Employment Act plus any amendments shall be met at all times. An onsite Safety Management Plan is to be implemented and a record sheet must be available on site at all times for all personnel to sign onto.

Any accidents, near miss and remedial actions are to be reported in writing to the Engineer's representative as soon as possible after the accident or near miss occurring. This **SHALL** occur within 48 hours of the incident occurring.

The Code of Practice for Temporary Traffic Management (CoPTTM) is to apply to all activities within the road reserve or adjacent to and affecting the road reserve users.

7 LIGHTING EQUIPMENT

7.1 Outreach Brackets (Arms) for Overhead Installations

All outreach brackets shall be designed to have a design life as noted below in Table 1, to meet loads imposed by AS/NZS 1170 and have corrosion protection to AS/NZS 4680.

The electrical connection to the overhead conductor via an IPC connection (demaSouth Wairarapa District Councilton point) must be to the Electricity Distribution Company requirements.

7.2 Lighting Equipment

The design life of equipment is shown in Table 1 below:

Component	Design life
Columns[1]	40 years[2]
Outreach arms[1]	40 years[2]
Luminaires[1]	20 years[2]
Lamps LED	85,000 hours[3]
HPS HO twin arc	16,000 hours[4]
Painted/powder coated surfaces (non-luminaire)	20 years

Notes:
1. Includes all bolts and fixings associated with the component.
2. The NAMS "NZ Infrastructure Asset Valuation and Depreciation Guidelines" lists 25 to 50 years for lighting columns and outreach arms and 10 to 25 years for luminaires.
3. Expected service life of 20 years for LEDs based on operating hours of approximately 4,250 hours per annum.

4. Expected service life based on manufacturers data and expected 5% failure rate. Note: lamp manufacturers may publish average rated life at 50% failure rate; this is too long if a periodic lamp replacement programme is implemented. Typical operating hours of road lighting networks within New Zealand is approximately 4,250 hours per annum.

Luminaires, columns and outreach brackets that are used in new projects or are extensions of existing stages should be compatible with adjacent lighting and, where practicable, visually match.

For efficient maintenance, the types of lighting equipment used are usually limited to those already in the lighting network. Introduction of new equipment requires approval from the SOUTH WAIRARAPA DISTRICT COUNCIL prior to use. Review of existing approved equipment will occur annually.

8 PAINTING OF COLUMNS AND LUMINAIRES

Painting of lighting columns for a minumum height of 3 metres above ground level they shall be painted black and white. South Wairarapa District Council would accept entire height of the pole painted black and white

Painting of ANY luminaires shall be carried out by the luminaire manufacturer during the assembly/construction of the luminaire in a controlled factory environment. The painting of any luminaire to an alternative colour will not exempt the manufacturer from any warranty or guarantee responsibilities nor have a reduced life expectancy of less than 20 years.

When using painted columns/luminaires in new developments the lighting designer should factor into the whole of life costing of comparison schemes to allow painting the column three times throughout the life of the column (based on 40 year expected life). The SOUTH WAIRARAPA DISTRICT COUNCIL will require an upfront contribution from the Developer based on current prices for the additional maintenance work.

Segmental steel road lighting columns complying with the Transport Agency Specification M26 do not generally require partial painting or hazard markers as detailed in the Traffic Control Devices Manual.

9 SIGNS

Identify any existing signs that need to be relocated onto lighting columns or onto their independent columns. If the signage is being transferred onto the lighting column ensure the column will support the added load and windage from the sign.

Comply with the South Wairarapa District Council requirements regarding location or size of signs.

Position all new lighting to minimise shadows from any new or existing signage.

If existing signs are being transferred onto slip based columns they shall not interfere with the flight/dynamic loading of the column when struck by an out of control vehicle.

from the edge of the carriageway) shall be lit to V3 illuminance requirements.

10 ENVIRONMENTAL LIGHTING EFFECTS

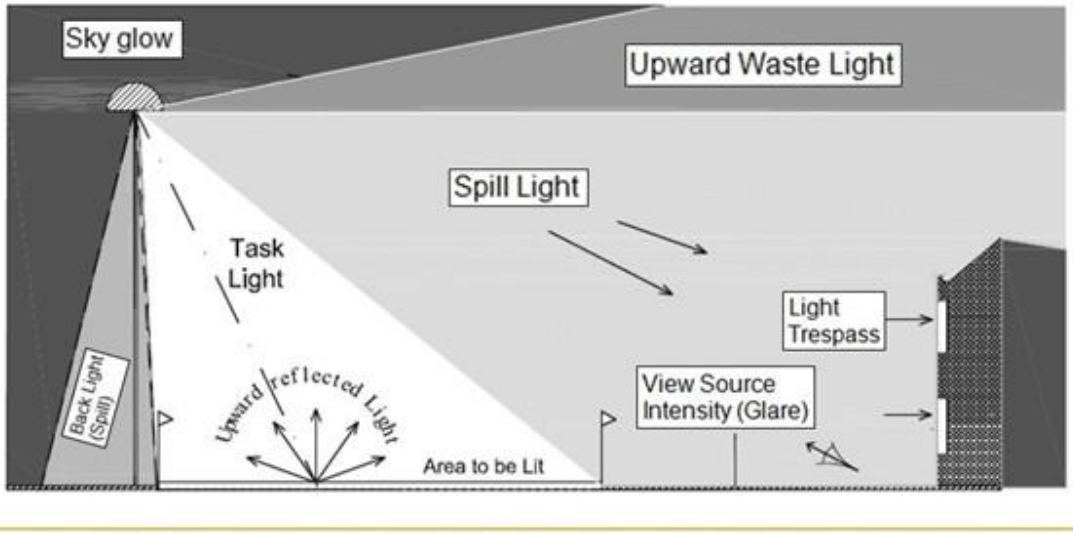
10.1 Forms of Potential Adverse Lighting Effects

There are three main types of lighting effects that have the potential for varying degrees of intrusiveness to both vehicles and residents living near lighting installations. They shall be considered when designing lighting schemes and are:

- Spill light, which can also be backlight
- Glare
- Sky glow (upward light)

These effects are illustrated in Figure 2:

Figure 2 – Types of Obtrusive Light



Source – ILP Guidance Notes for the Reduction of Obtrusive Light. GN01:2011

The AS/NZS 1158 series provides guidance on the spill lighting levels for Category P roads.

To help mitigate these adverse effects from new lighting schemes, luminaires **MUST** be installed at either tilt angles of no more than 5 degrees. Higher tilt angles, if required for special circumstances, will require specific approval by the SOUTH WAIRARAPA DISTRICT COUNCIL.

All luminaire applications must demonstrate adherence to the principles of the International Dark-Sky Association (IDA); refer to www.darksky.org.

For further information on achieving Greenroads credit refer: www.greenroads.org/1429/18/light-pollution

10.1.1 Spill Lighting

Spill lighting, Backlight or Light Trespass can be both obtrusive and beneficial and can be described as the effects of light or illuminance that strays from its intended purpose. On a roadway lighting system it is desirable to have most of the light directed onto the roadway and only a small amount directed onto the surrounding area, for example footpaths and kerbed areas. Lighting designs that allow excessive light to fall on areas away from the road and onto private land will not be acceptable for any project.

As a general guide the maximum level permitted for spill light is 10 lux either horizontal or vertical 3m inside the property boundary at 1.5m above the ground or at window height if the building is located closer than 3m from the boundary.

10.1.2 Glare

Glare is the brightness of a luminaire when compared with the brightness of the background against which they are seen.

Glare can also be described as unwanted source luminance, and is defined by the Illuminating Engineering Society (IES) as the sensation produced by luminance in the visual field that is sufficiently greater than the luminance to which the eye has adapted to cause annoyance, discomfort, or loss of visual performance and visibility.
Glare can be categorised as follows:

Disability glare - Disability glare results from the scattering of light within the eye so reducing contrasts of the retinal image (refer CIE 115:2010).

Discomfort glare - does not typically cause a dangerous situation in itself, though it is annoying and irritating at best. It can potentially cause fatigue if experienced over extended periods.

Threshold Increment (TI) - a measure of the loss of visibility caused by the disability glare from the road lighting luminaires (refer CIE 115:2010).

If the glare value can be kept below the 10% maximum of Threshold Increment (TI) then glare is considered to be controlled.

10.1.3 Sky Glow

Urban sky glow is the result of stray light being scattered in the atmosphere brightening the natural sky background level. This effect is extremely detrimental to astronomers as well as annoying to many people in the general public.

This effect is difficult to mitigate fully as some light will always be reflected upwards off the road surface. Sky glow will also be reduced by the specification of luminaires that are able to provide good optical control.

To minimise direct light spill into the upper hemisphere, it is recommended that only luminaires with an Upward Waste Light Ratio (UWLR) below 1% of the total light output are used.

11 CATEGORY P LIGHTING

11.1 General

Category P lighting provides a lit environment to help pedestrians orientate themselves and detect potential hazards, and discourage fear of crime and crime against the person.

Design the lighting to comply with AS/NZS 1158.3.1 *Road lighting - Pedestrian area (Category P) lighting.* The principles of "Crime Prevention through Environmental Design" (CPTED) shall be considered.

LED lighting is the preferred option for all Category P installations but that choice remains subject to any "whole of life" analysis of costs.

Calculations shall be undertaken during the design process to ensure the use of system wattages and technologies that maximise efficiency but also minimise the number of luminaires installed for the particular situation.

Important considerations in luminaire selection are system wattage, lumen depreciation, maintenance factors, reliability, performance, operating criteria, compatibility, compliance, effect on environment and whole of life cost.

11.2 Category P Lighting – Cycleway and Pathway Lighting

Design the lighting to comply with AS/NZS 1158.3.1 *Road Lighting - Pedestrian Area (Category P) Lighting*. The principles of "Crime Prevention through Environmental Design" (CPTED) should be considered.

The SOUTH WAIRARAPA DISTRICT COUNCIL prefers to illuminate only those paths and cycle ways that are designated safe routes.

The luminaires must meet the requirements for type 4 or 5 as detailed in AS/NZS 1158.3.1, to help control upward waste light, glare and spill light.

The minimum mounting height is 6.0 metres and the maximum is 8.0 metres.

Bollard lighting is not an acceptable method of lighting paths and cycle ways within reserve areas.

12 PERFORMANCE REQUIREMENTS

12.1 Minimum Spacing Requirement for Category P

Note that different energy performance metrics are used in this specification for Cat V (energy density basis) schemes and for Cat P (minimum spacing basis) schemes. This approach acknowledges that for Cat V schemes (luminance based calculations) the design width (and therefore area) is subject to many dimensional variables and the energy density method is most appropriate. For Cat P schemes the column spacing approach is already well established, as it was part of the 2010 RightLight programme.

To maximise efficiency and minimise the number of luminaires installed, apply Table 3 below.

Table 3 - Minimum Design Spacing for Local Roads

	Legal road width (m)	20	18	16	14	12	10
LED System Wattage	20W-29W	50	50	50	52	53	55
	30W-35W	50	50	52	54	55	58
	36W-45W	52	52	56	58	60	62
	46W-65W	54	58	58	64	-	-
	66W-80W	64	66	68	-	-	-
Existing HID lamps	P3 minimum spacing	42	45	50	50	50	60

The spacing in this table limits the types of luminaires that are acceptable by ensuring only high performing luminaires are used at appropriate mounting heights. The effects of trees causing shadowing shall also be taken into account, and specific design is required at curves and bends.

For walkways and cycle ways the minimum design spacing for straight sections is 30m for P3 and 50m for P4. Where walkways curve specific design is required.

12.2 Mounting Heights

	Minimum	Maximum	Preferred
Cat P	5	8	5.5 – 6.0

Note: higher mounting heights may be appropriate for Cat V but will need approval prior to detailed design

13 ELECTRICAL RETICULATION

13.1 General

Each column shall be a separate installation in accordance with AS/NZS 3000.

13.2 Underground Services, Construction, Backfill and Bedding

There are various methods of installing underground services. These include open trenching, directional drilling, pipe bursting, vacuum air suction, etc.
Factors that may affect the choice include ground conditions, disruption to traffic, the presence of trees, site safety and the availability of knowledge to location of existing or redundant services.

The Transport Agency National Classification refers to Strategic, Arterial and Collector Roads. The preferred method of trenching across these roads is via a method known as “trenchless” or “thrusting” or “directionally drilled”.

The SOUTH WAIRARAPA DISTRICT COUNCIL’s preferred method of trenching in grass or within new developments is via open trench.

When the intention is to lay a number of utilities in a common trench, ensure the minimum cover and separation distances for each utility in the trench cross-section is maintained.

Bedding materials should comply with the network utility operators' requirements.
Specify backfill materials individually. The material used must be capable of achieving the backfill compaction required. All surface restoration must be Asphaltic concrete with trench edge bandaging.

13.3 Points of Supply and Circuiting

Points of supply shall be determined in conjunction with the Electricity Distribution Companies requirements. This shall optimise an efficient, effective and reliable network minimising new works required to connect to the network.

If appropriate, a metered point of supply shall be organised with the Electricity Distribution Company and the preferred Electricity Retailer.

If a three-phase scheme is chosen then luminaires shall be circuited in such a way that the load is evenly balanced across all phases. All luminaires shall be circuited in such a way that adjacent luminaires are not on the same phase. Consideration must also be given to how a three-phase circuit is protected. If using three single pole MCB's, specific warning labelling must also be included, plus a triple pole main switch.

13.4 Cable Type and Terminations

Underground cables shall be single phase or three phase, single core, dual or three core copper conductors with Neutral Screen protection and PVC insulation. The cabling shall be selected by the designer to meet the requirements of AS/NZS 3000.

At every lighting column all conductors shall be terminated within the terminal contacts on a dedicated column switchboard within the base of each column.

To maintain the IP rating of all luminaires all internal cabling from the switchboard protection device to the luminaire shall be either a minimum of 1.5mm^2 circular 3 core TPS cable or a minimum of 1.5mm^2 2C neutral screen cable, continuous throughout the entire length.

If flat 1.5mm^2 2C+E TPS cable is used from the switchboard to the luminaire the termination to the luminaire shall occur within a suitable IP65 (or higher) connector within 300mm of entering the luminaire. The IP rating of the luminaire is not to be compromised in any way.

Flat TPS cable is **NOT** to be used for direct connection into an IP rated luminaire unless an IP66 gland suitable for flat TPS cable is used.

13.5 Qualified Personnel

All work undertaken on the Electricity Distribution Company's network shall be under the direct supervision of a holder of a current Authorisation Holders Certificate (AHC).

13.6 Documentation

The Contractor shall provide design and certification documentation in accordance with the Electricity Safety Regulations.

14 CONTROL AND INSPECTION OF THE WORK

14.1 General

Prior to accepting any newly commissioned lighting installation onto the SOUTH WAIRARAPA DISTRICT COUNCIL network, the installation shall be checked by the SOUTH WAIRARAPA DISTRICT COUNCIL Asset Manager or his appointed representative. Any remedial work or improvements required to comply with the approved design shall be carried out as identified. This includes any problems, failures or defects that may arise during the stipulated defects liability period, or the guarantee period for individual fittings or fixtures, whichever is greater.

Demonstrate that the following has been undertaken:

- Identify the SOUTH WAIRARAPA DISTRICT COUNCIL's key achievement criteria have been met
- Plan how defects will be realised
- Control the work in conformance with the project quality system
- Check, inspect or test the work and verify that it conforms to the specified requirements
- Record the results as documentary evidence of compliance

This section relates to both design and construction works and requires that all processes involved be properly managed.

14.2 Checking, Inspection, Testing and Recording

Check, inspect or test against all key achievement criteria to verify compliance during design and construction and on final completion.

Clearly indicate any "hold" or "witness points" in the Design Report, Specification and Engineer's Report or Contract Quality Plan, where the project requires checking, an inspection and/or approval to proceed (i.e. internally and/or from the SOUTH WAIRARAPA DISTRICT COUNCIL).

15 COMPLETION CERTIFICATE

The installation Contractor will be required to send a Completion Certificate to the Lighting Designer (or project manager) on practical completion. The Lighting Designer, after inspecting the work, shall also provide certification of practical completion by submitting a Completion Certificate (see Appendix VII) to the SOUTH WAIRARAPA DISTRICT COUNCIL. All other paperwork including audit records, "As-Built Drawings", etc. will be submitted with the Completion Certificate to the SOUTH WAIRARAPA DISTRICT COUNCIL.

PART 3 LUMINAIRE REQUIREMENTS

16 LED LUMINAIRE ATTRIBUTES

The following are important LED luminaire attributes and will be used as considerations when assessing new product to be used on any SOUTH WAIRARAPA DISTRICT COUNCIL network.

16.1 Reliability

For greater efficiency and less maintenance, the reliability of any LED luminaire is important. New luminaires will only be accepted provided they exhibit good characteristics with minimal predicted evidence of premature failure.

ALL components shall be selected to ensure the luminaire has a design life of more than 20 years. These typically include lenses, visor, gaskets, luminaire body, compatible materials, etc. Details on design life of LEDs and drivers and how these lives have been derived shall be provided.

Any supporting data, trial or case study may be helpful in confirming this fact.

16.2 Colour Temperature

All new LED luminaires shall have a nominal colour temperature near 3000°K such that the values shown in Table 4 for CCT tolerance and Duv and tolerance for a Nominal 4000°K CCT are achieved.

The SSL colour rendering index shall exceed Ra 70 in all cases.

Table 4 – Nominal Correlated Colour Temperature and Chromaticity Tolerances

Nominal correlated colour temperature (CCT)	CCT Tolerance (°K)	Duv and Tolerance
3000°K	3045 ± 175	0.0001 ± 0.006

Notes:

5. The preferred value of correlated colour temperature for road lighting is 3000°K
6. This table is based on ANSI/NEMA/ANSLG C78.377-2008

The approved method of measuring lumen depreciation and expected life shall comply with IESNA LM-80 and TM21.

Initial lumen output is known as L_{100}. Lumen depreciation after 85,000 hours operation must be ≥ L_{90}.

Lumen depreciation in LED luminaires is dependent on ambient operating temperature and driver current. Data for an LED luminaire shall be configured at 25°C ambient operating temperature. The supplier/manufacturer shall provide the following information with LED lumen depreciation data:

- Driver current
- Initial lumen output
- Chromaticity
- Projected life expectancy TM21
- ISTMT (in situ Temperature Measurement Test)

If additional average ambient operating temperature data is available this should also be provided for consideration.

16.3 Measurement Procedures

LED photometry and measurement procedures are required to be carried out as per IESNA LM79-08 and AS/NZS 1158.

This information includes:

- Total luminous flux
- Minimum power factor of 0.9
- Efficacy (lumens/watt)

Absolute photometry of a completely assembled LED luminaire must be used as opposed to Relative Photometry used via a reference lamp source for traditional HID.

16.4 Maintenance Factors (MF) or Light Loss Factor (LLF)

The basic goal of any lighting design is to meet the light technical parameters over the full life of the installation. One element of that goal is to produce the desired amount of light. However, unless otherwise adjusted, all lighting systems decline in lumen output over time due to reductions in lumen output and changing surface properties of the luminaire or of the environment. Using a LLF less than one typically means the initial light level will be above the recommended target value, but over time this level will decline to the minimum design level.

The Maintenance Factor of an LED luminaire is to be derived from the product of light source lumen depreciation (LLD), luminaire survival factor (LSF) and luminaire maintenance factor (LMF) i.e. MF = LLD x LSF x LMF.

LLD - lumen depreciation factor is information provided by the luminaire supplier (TM-21 report) and taking into account operating temperature, driver current, etc. Use the lumen depreciation value at 85,000 hours operation (20 years).

LSF – lamp survival factor (expected minimum life of 20 years for all componentry). This has been traditionally known as the time period at which 50% of HID lamps fail. Another description of this variable could be "Failure Rate" (F_x) or "Rated Life" (B_x). It is the expected amount of failures after 85,000 hours operation (includes electronic components, drivers, lenses, any premature failure or mechanical failures, etc.). This figure does not include any allowance for lumen depreciation and should be provided by the manufacturer with supporting data. A typical figure for LED is to be higher than 95% at 85,000 hours operation but if no figure (and supporting data) is provided 50% is to be used when calculating overall maintenance factor.

LMF - luminaire maintenance factor is dependent on the ingress protection of the luminaire, pollution category of the street and the cleaning interval of the luminaire. This information can be derived from Appendix within AS/NZS 1158.3.1 or other researched data such as that indicated within BS 5489-1. The SOUTH WAIRARAPA DISTRICT COUNCIL will provide the cleaning interval for luminaires within the Design Brief or Principal's Requirements.

Example MF calculation = 0.912 (LLD from TM-21 report) x 0.95 (LSF data in this example less than 5% failure rate) x 0.89 (from AS/NZS 1158) = 0.77

Maximum maintenance factors referenced in AS/NZS 1158 are to be adhered to. Note these are maximum values and are **NOT** default values for all luminaires.

16.5 Compatibility

It is important that LED luminaires can be installed onto existing columns and outreach brackets. The assessment process will consider:

- Range of spigot sizes
- Capability for both side entry mounting and pole top attachment
- If a spigot adaptor is required
- Tilt adjustment of the luminaire

Typically existing side entry mounts can vary from 32mm to 60mm outside diameter and an existing pole top attachment is typically 60mm or 76mm outside diameter. The preferred side entry mount for new columns and outreach arms is 42mm outside diameter and a new pole top attachment is 76mm outside diameter.

An adjustable tilt is an advantage to allow the luminaire to be used on a number of different situations. An adjustable tilt of +5° or -10° in incremental steps of 5° is desirable.

LED luminaires shall be a standard product that is capable for use via any independent variable lighting system (dimming) and or Central Management Software (CMS). The CMS could be used via radio frequency (RF) or power line carrier (PLC) and may utilise a mesh or star network. Refer to Appendix VIII for a diagrammatic description of a Road Lighting Tele Management System (TMS).

16.6 Compliance

All luminaires must comply with all sections and parts of AS/NZS 1158 series. Refer to the website www.standards.co.nz. Luminaire compliance with IEC 60958.2.3 is required.

All photometric data provided must be supported by an independent test report from a laboratory which is endorsed by IANZ, or carrying the endorsement of an accreditation body which is a signatory to the ILAC MRA for testing.

Every luminaire submitted for consideration must be electrically tested and be fully compliant with the current version of the Electricity (Safety) Regulations. A completed Supplier Declaration of Conformity (SDoC) form available from the Energy Safety website (www.energysafety.govt.nz) is to be provided.

In addition to the above, a Producer Statement (PS) from the luminaire manufacturer with reference to complying standards must be provided. Appendix V shows a sample producer statement.

The following support data must be provided for each specific luminaire:

a) an independent test report from a laboratory which is endorsed by IANZ, or carrying the endorsement of an accreditation body which is a signatory to the ILAC MRA for testing.
b) Declaration of Conformity
c) Producer Statement for Luminaire Manufacture
d) Where a luminaire is specified with a LPC (Light Point Controller), the component manufacturer must have EMC certification for the LPC device(s).

16.7 Labelling

Labelling of all luminaires shall be in accordance with AS/NZS 1158 Part 6, i.e. “L” for solid-state lighting followed by the system wattage e.g. “L58”.

16.8 Protection from Overvoltage

Protection from overvoltage events is necessary to ensure reliability and functionality of LED luminaires shall be in accordance with AS/NZS 1158 Part 6, i.e. surge protection shall protect **ALL** the electronic componentry of the luminaire. The device(s) shall be able to withstand a number of overvoltage events before needing to be replaced. It shall also have a means of indication that shows when it needs to be replaced.
Protection of overvoltage shall comply with EN 61547 and IEC 61643. The minimum requirement for surge protection in each LED luminaire shall be 10kV / 10kA.

16.9 Power System and Power Quality

The overall power installation of any lighting system measured at the point of connection (the electricity meter) must meet certain criteria to ensure the SOUTH WAIRARAPA DISTRICT COUNCIL is not charged by the Electricity Distribution Company for poor power quality, poor power factor or bad harmonic emissions. The minimum acceptable power factor is 0.9.

Harmonic distortion and flicker shall be "limited as required by the electricity distribution companies code, and where this does not exist, shall meet the 6100 series joint Australian/NZ EMC Standards".

16.10 Luminaire Attributes

The following luminaire attributes shall be considered when considering an LED luminaire:

a) Technical lighting performance
b) Energy consumption/efficiency
c) Whole of Life Cost
d) Expected life
e) Lumen depreciation
f) IP Rating
g) Warranty period
h) Ease of installation and maintenance
i) Environmental considerations (UWLR, glare and spill light, etc)
j) Recyclability
k) Aesthetics and appearance

New luminaires shall be better than or within 10% of the defined performance indicated in section 12 of this specification.

17 ACCEPTED LUMINAIRES

The use of 3000K (warm white) nominal CCT in areas of special environmental consideration (such as Dark Skies reserves) or high pedestrian use, preferably where vehicular movements and speeds have been managed to mitigate the potential conflicts between cars/trucks and pedestrians/cyclists.
For 3000K luminaire options, the following criteria must be met:

i. the correlated colour temperature must be 3045K ±175K (in accordance with SA/SNZ TS 1158.6) ii.
ii. the luminaire efficacy must be not more than 8% lower than the 4000K luminaire variant of the luminaire
iii. the colour rendition index (CRI) must be at least 70
iv. the luminaire must meet all other M30 acceptance criteria

PART 4 CONSTRUCTION AND INSTALLATION

18 TEMPORARY LIGHTING

If any existing roadway is to be diverted, modified or re-routed to allow the construction of any new works, existing lighting levels must be maintained or improved on during the construction over the diverted or modified route. If existing luminaires are disconnected or removed before adjacent new lighting has been commissioned, then temporary lighting shall be provided. Temporary lighting, including any new luminaires and columns shall be compliant with AS/NZS 1158 for temporary routes unless stated otherwise.

Temporary lighting shall be supplied via a stand-by generator that does not have a detrimental noise effect.

Mobile trailers with low height structures with high output asymmetric floodlights attached are unacceptable for temporary lighting on roads due to their production of high intensity light levels with risk of excessive glare and spill light.

If a Contractor is requesting temporary lighting as part of their construction methodology then it shall form part of their temporary traffic management plan and be approved by the Lighting Designer, Peer Reviewer and the SOUTH WAIRARAPA DISTRICT COUNCIL. Existing lighting must not be altered or disconnected until approval has been given and the installation of all temporary lighting is fully operational.

18.1 Construction Activity or Security Lighting

Temporary lighting for construction activities or security lighting for construction sites (excluding road lighting purposes) shall have glare and spill light control compliant with AS 4282. This lighting shall be fully compliant with the requirements of the District Plans for obtrusive light.

In temporary construction sites, spill lighting, glare and “headlight sweep” can cause a detrimental effect. Mitigation of these effects can be controlled with full cut-off luminaires, sunshade screening and buffer zones. Construction and security lighting is usually of a temporary nature and shall be minimised with careful location of site offices and equipment in relation to surrounding properties. It is recommended there be a minimum 10m buffer zone between any equipment or area requiring construction or security lighting and an adjoining property.

19 COLUMN LOCATIONS

Lighting columns shall be determined based on good traffic engineering practice and should be positioned in line with the common side boundary between properties, however these locations do not always coincide with the spacing requirements of the lighting design. If an adjacent property has not been developed and the column cannot be positioned in line with the common boundary, locate the column at least 8m from the boundary to allow for a future vehicle entrance.

Position columns at least one metre away from a vehicle entrance or kerb cut down. Keep columns clear of any tree canopies in the road or in adjacent properties to prevent shading of the luminaire. Tree trunks in a legal road or other legal road reserves shall be at least 8m away from lighting columns or 5m from the drip line of a mature tree and more clearance may be necessary for some tree species or if the tree is protected. Consider the SOUTH WAIRARAPA DISTRICT COUNCIL’s requirements for working near existing trees when locating lighting columns.

When installing a column against the building line, ensure that it is installed within the legal road or on SOUTH WAIRARAPA DISTRICT COUNCIL land, and not on private property. If the column or outreach bracket has a backward element, be aware of the possibility of aerial trespass.

Where possible, columns should be located (laterally) close to reserve entrances, bus stops and other open spaces to improve safety.

Consider traffic safety when placing lighting columns, especially when they are on or near bends, intersections, threshold treatments, road humps and roundabouts.

Where possible, reduce street hardware by combining traffic lighting and road lighting poles.

Column placement shall be considered by the designer in relation to access and future maintenance. Avoid placing columns in hard to access areas and avoid locating columns within storm water swales.

19.1 Column Placement and Setback from Road or Path

Column setback must be considered as part of the lighting design (refer AS/NZS 1158.1.2).

The preferred location for all passively safe columns is 3m behind kerb line or edge of seal. Alternatively, columns may be located adjacent to property boundary lines. Minimum column setback from the kerb face to front face of column is to be 1.0m for a passively safe column but this can be reduced to a minimum setback of 0.7m for straight sections of road away from intersections and roundabouts.

Columns shall be installed within +/- 100mm of the approved marked location both longitudinally and laterally. Height above finished ground level to +/- 50mm of the manufacturer's level. Columns shall also be within 1˚ of vertical.

If the road is at a different level to where the column is being located, specify columns that will achieve the correct mounting height above the road surface to ensure the installed lighting complies with the design requirements. For each light type the mounting height must be uniform and consistent. If a column is located within a swale the designed mounting height shall be maintained.

If the column is a rigid type (non-frangible) it shall be setback a minimum of 3m from edge of seal for roads with a speed limit not exceeding 70km/h or 6m for roads with a speed limit exceeding 70km/h.

Where columns are to be installed behind guardrails (crash barriers) a minimum clearance of 1.5m between the face of the guardrail and the face of the column is required. Where this clearance cannot be achieved the guardrail shall be strengthened by an accepted method. Acceptance by the SOUTH WAIRARAPA DISTRICT COUNCIL shall be confirmed in writing prior to any installation starting.

No columns shall be installed within 15m of any guardrail end terminal.

19.2 Column Placement and Clearance from Overhead Aerial Conductors

The Installation Contractor is responsible for ensuring all clearances are met and the approval of the Electricity Distribution Company is obtained. Clearance between lighting columns and any overhead distribution lines shall conform to the requirements of NZECP 34.

No installation of new equipment such as a new outreach bracket is permitted where it is required to be done under "live line" (no interruption of supply) conditions.
Electricity Distribution Companies have minimum clearance requirements from columns, poles, outreach arms and luminaires to any overhead electrical conductor that must be maintained at all times.
Clearances are measured from the closest part of the lighting installation to the nearest conductor.
Clearances shall include an allowance for conductor sway and sag plus the fall distance of a column, outreach arm and luminaire. Fall distance is to be taken in direction of traffic flow.

Minimum clearances also include minimum height clearance with an allowance for the installation of a replacement column.

20 COLUMN INSTALLATION AND FOUNDATIONS

The South wairarapa District Council preferred column types are indicated in Specification M26. The use of any other type of column must have the SOUTH WAIRARAPA DISTRICT COUNCIL's approval prior to ordering materials.

Columns shall be installed as per the manufacturer's recommendations.

Where the longitudinal grade may exceed 1 in 6 or the cross fall of a road may exceed 6%, it may not be possible to service the light from an EWPV. In these situations discuss alternative column types with the SOUTH WAIRARAPA DISTRICT COUNCIL (e.g. columns that have a ladder rung to allow the light to be serviced via a ladder **OR** a hinged arrangement).

When a special foundation is required provide a producer statement when applying for engineering approval. Include a hold point for construction to allow inspection of the foundation before concrete is poured.

When columns requiring special maintenance visits are specified (e.g. frangible – shear base columns), provide the SOUTH WAIRARAPA DISTRICT COUNCIL with a maintenance plan detailing maintenance intervals and work/inspections that need to be carried out.

21 INSTALLATION AND COMMISSIONING

Carry out installation and commissioning in accordance with the SOUTH WAIRARAPA DISTRICT COUNCIL's contract requirements.
The Contractor/Designer must have a procedure to ensure that construction work that does not conform to the specified requirements is either:

a) Reworked to meet the specified requirements
b) Accepted with or without repair by concession from the SOUTH WAIRARAPA DISTRICT COUNCIL
c) Rejected and replaced

Record all non-conforming work on the relevant construction check sheet. The Contractor shall produce a Non-Conformance Report and send it to the Designer if the construction non-conformance is significant in that it either:

a) Results in the need for written concession
b) Results in delay or interference to the work or to other parties
c) Indicates that the fault has occurred due to the use of incorrect work practices and/or failure of materials and could have been prevented
d) Occurs sufficiently frequently as to indicate a problem in training or procedures

e) Is a safety issue

The report and supporting documentation must clearly indicate the action to be taken to rectify the fault, the timeframe and responsibilities. It must be authorised by the Designer and forwarded to the SOUTH WAIRARAPA DISTRICT COUNCIL.

In cases involving concessions, the Designer and the SOUTH WAIRARAPA DISTRICT COUNCIL must accept the proposed rectification (the corrective action) of the non-conforming work in writing prior to implementation.

21.1 Testing

Any work required to be tested by the contractor in the presence of the Designer must be pre-tested and proved satisfactory before test witnessing by the Designer and or the SOUTH WAIRARAPA DISTRICT COUNCIL is requested.

21.2 CMS Testing and Commissioning

Testing and commissioning shall be completed for the entire installation. Testing following initial installation of hardware and software on site, including commissioning of links with the RAMM database. The CMS and or Gateway Supplier'(s) shall be on site for the duration of this commissioning.

All specified CMS systems must include 'system redundancy' and 'default operations' for CMS failure i.e. all luminaires should still operate from memory of previous nights on/off cycle and collect and store data from the LPC that may have been missed due to failure of communication to the CMS when fault repaired and CMS restored. "System redundancy" safeguards the speed of communication between Gateways, LPC's and the CMS.

Commissioning shall be deemed to be complete upon the SOUTH WAIRARAPA DISTRICT COUNCIL's acceptance of user documentation, the completion of commissioning and any initial training.

22 COMPLETION PROCEDURES AND CERTIFICATION

At the completion of the physical works, the Lighting Designer shall check and then certify that:

a) The project has met all the requirements of the project brief, the standards and specifications
b) All the documentation detailed below has been completed, is correct and has been forwarded to the SOUTH WAIRARAPA DISTRICT COUNCIL

At the end of the defects liability period, the Lighting Designer shall carry out an audit and certify that lighting columns are vertical and luminaires have been installed and operate correctly and are at the correct mounting height and at the correct tilt. Illuminance readings are to be taken to verify the installation is achieving within 10% of the design.

The following documentation shall be provided:

a) Electrical Test Certificates for each lighting column
b) Electrical Certificate of Compliance for the complete scheme
c) As-built information in a format suitable to be loaded into the SOUTH WAIRARAPA DISTRICT COUNCIL's Road Lighting Asset System
d) Completion Certificate (see Appendix VII)
e) Contractor documentation required by the construction specifications (e.g. construction completion certificate)
f) Any special maintenance requirements (e.g. shear base columns or high mast columns)

Delivery of **ALL** the above documentation **SHALL** occur within one month of livening the installation. If the livening of luminaires is being staged to match other construction works or part of the final installation is being used as temporary lighting for construction works to continue, the above documentation **SHALL** also be staged.

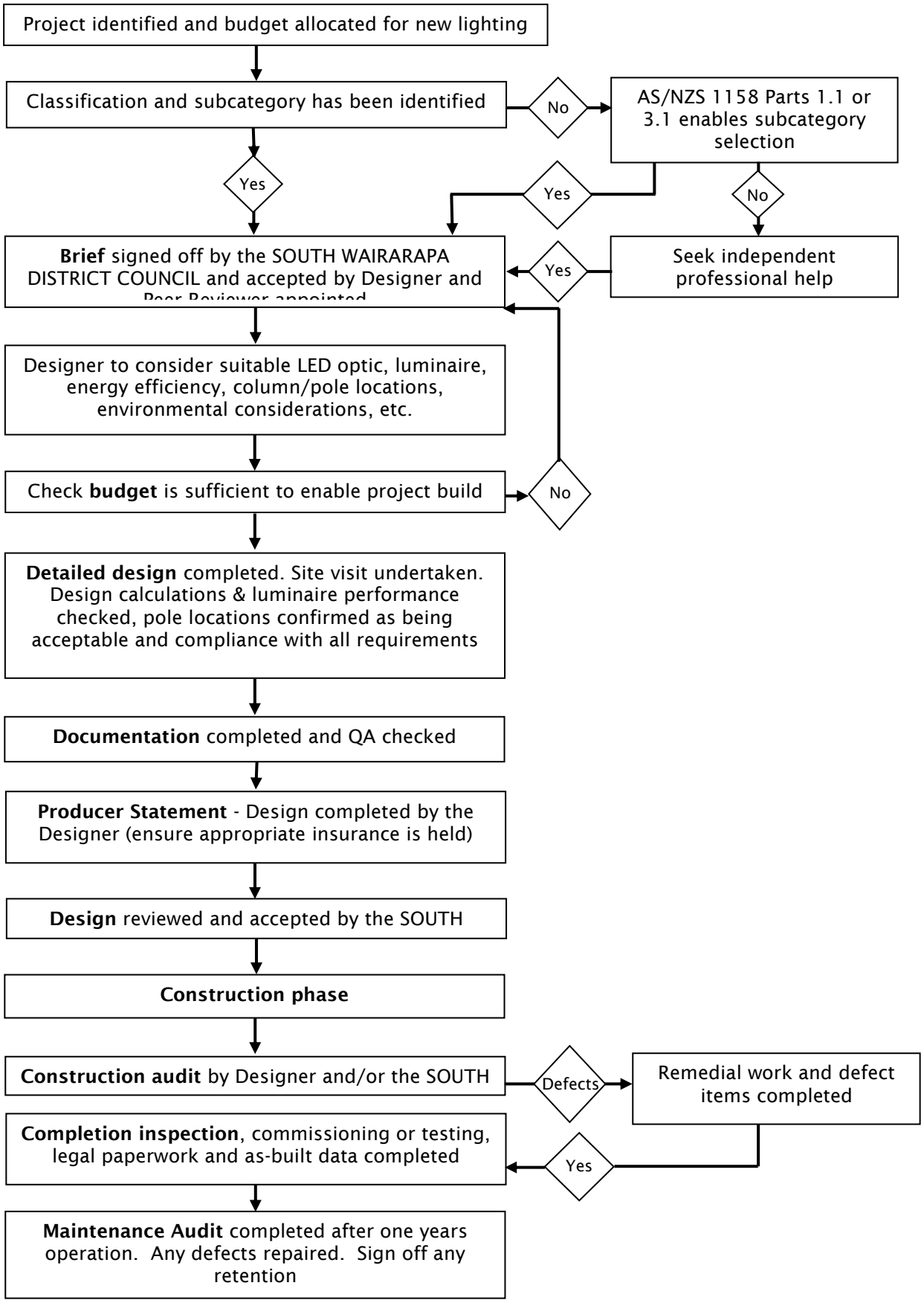
23 COMPETENT CONSTRUCTION PERSONNEL

All construction work is to be undertaken by competent/approved contractors. Any and all Subcontractors, including supervised apprentices employed, must work under the supervision of a competent (approved) person.

Works on or near any Electricity Distribution Company asset can only be carried out by or under the direct supervision of approved personnel.

The contractor is responsible for **ALL** safety procedures throughout the work site(s) and shall use and maintain appropriate safety barriers, warning signs, etc. to protect all workers and the public from all hazards and hazardous situations.

Appendix I - Design and Construction Process Example (informative)



Appendix II – Lighting Design Report (normative)

_____ *(project name)*

_____ *(project number)*

Drawing Revision: _____ Date of Issue: _____

Project Personnel

Designer:		
Title:	Address:	
Telephone:	Mobile:	Email:

Road Controlling Authority:		
Title:	Address:	
Telephone:	Mobile:	Email:

Design Peer Reviewer:		
Title:	Address:	
Telephone:	Mobile:	Email:

Project Manager:		
Title:	Address:	
Telephone:	Mobile:	Email:

Full Description of Work

Full description of proposed works

Concessions

Identify any work, which does not conform to the specified requirements, which will require a concession from the SOUTH WAIRARAPA DISTRICT COUNCIL. The concession(s) proposed will be discussed and must be accepted by the SOUTH WAIRARAPA DISTRICT COUNCIL in writing prior to execution.

Design Records

The following design records were produced for this design and are appended where noted: *(e.g. engineering design drawings, specifications, calculations, and material specifications where not detailed elsewhere, column details, photos, etc.)*

Project Management

Detail how construction of the project will be managed to ensure the design will be successfully implemented.

Communication with Stakeholders and Other Parties

Describe how communication with stakeholders and other parties will be managed.

Lighting Design Statement is attached

This Design Report has been:

Prepared by: (Designer)	_____	(Name/Signature/Date)
Reviewed by: (Peer Reviewer)	_____	(Name/Signature/Date)
Approved by: (Principal Designer)	_____	(Name/Signature/Date)

Appendix III - Lighting Design Statement (LDS1) – Design (normative)

Issued by: _____ *(Designer's name)*

To: **SOUTH WAIRARAPA DISTRICT COUNCIL**

In respect of: _____ *(Description of design)*

At: _____ *(Location)*

_____ *(Address)*

Lot: _____ **DP:** _____

_____ *(Design Company)* has been engaged by

_____ *(Client)* to provide design services for

_____ in respect of the project requirements

Described above for All ☐ Part only as specified ☐

The design has been prepared in accordance with Transport Agency M30 and AS/NZS 1158 _____ *(category)* and the work is described on _____ drawing(s) titled _____ and numbered sheet _____ of and the specification plus other documents according to which the construction is proposed to be constructed.

I _____ *(name)* have the necessary qualifications and experience as an independent lighting design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of $ and **I BELIEVE ON REASONABLE GROUNDS** that subject to:

(i) The verification of the following design assumptions: _____

_____

_____

and (ii) all proprietary products meeting the performance specification requirements, the drawings, specifications, and other documents according to which the development is proposed to be constructed will result in a compliant design.

_____ Date: _____

(Signature suitably qualified Design Professional on behalf of Design Company)

Qualifications and experience: _____

Appendix III - Lighting Design Statement (LDS4) – Construction Review & Audit (normative)

Issued by:	_____	*(Designer's name)*
To:	**SOUTH WAIRARAPA DISTRICT COUNCIL**	
In respect of:	_____	*(Description of design)*
At:	_____	*(Location)*
	_____	*(Address)*

_____*(Contractor)* has been contracted to the SOUTH WAIRARAPA DISTRICT COUNCIL to carry out and complete certain building works in accordance with contract, titled _____(*known as the Contract*).

_____*(Lighting Design Company*) has been engaged by _____ in accordance with the Contract.

I, ...(*Principal Designer*) a suitably qualified design professional and duly authorised agent of the Contractor's Head Designer confirm that reviews of the Contractor's construction have been carried out with due skill, care and diligence as it relates to:

and I believe on reasonable grounds that these works have been carried out and completed in accordance with the Contract Documents.
I agree that the terms used herein have the same meaning as assigned to them in the Contract.

……..
(Signature of suitably qualified design professional on behalf of Design Company)

..... Date: .....
(Professional Qualifications)

Appendix IV - Drawing Layout and Format Requirements (normative)

Provide drawings to a minimum standard that complies with AS/NZS 1100.

Where road lighting will be altered, label all affected poles/columns and luminaires as detailed in table below:

- Label poles to be removed with "R"
- Number each affected road luminaire with the related number from the lighting schedule on the drawing. For example L1, L2, L3, etc.
- Label existing poles/columns/luminaires that won't be affected as "E". Show the lighting wattage of all proposed and remaining luminaires
- Refer to section 22.6

Symbols

Symbol	Use	Numbering System
Pxxx	Every pole/column upon which work is to be carried out shall be identified. Existing poles/columns shall have construction material and manufacturer's pole code shown on the drawing	Prefix to be followed with unique identifier either Electricity Distribution Company's pole number or sequential column number for the project
Lxxx	Any alteration to the existing lighting or proposed new installation. Provide separate codes for replacement, new and differing luminaire, lamp, column or outreach arm details	Prefix to be followed with unique identifier
Rxxx	Any lighting equipment to be removed that is not covered by an "L" reference	Prefix to be followed with unique identifier
E	Existing luminaire to remain	Not applicable

Title Blocks

The title block must include the following information:

- A project title, including street names
- A unique number or identifier, preferably the consent or project number
- The designer's name, signature and contact details
- The peer reviewer's name and signature
- The stage of work e.g. "acceptance", "tender", "construction", "as-built"
- The date of preparation and of approval
- The scale or scales used
- The original sheet size
- Sheet numbers, including the number in the set
- An amendment box, including brief description of amendment and sign off by designer/peer reviewer

Format

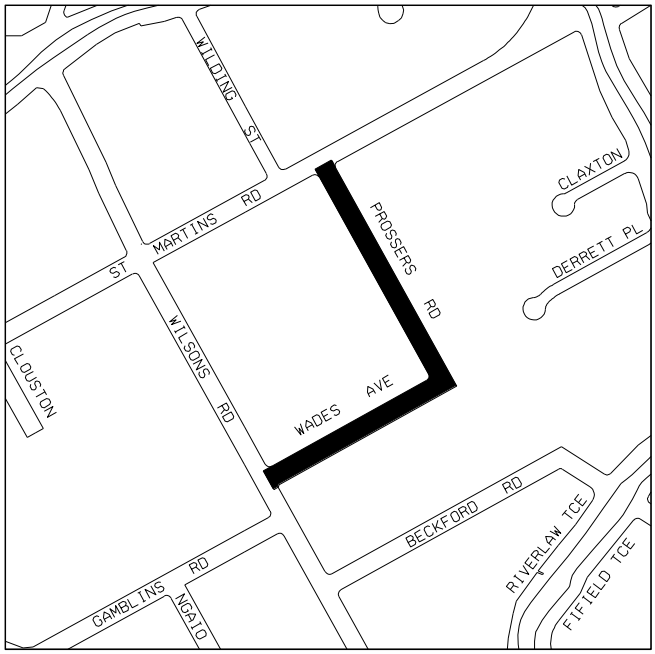
Drawings must be legible at A3 size and can be drawn to a scale of 1:500 or 1:1000.

Prepare electronic drawings in an industry standard format suitable for later addition of as-built information and inclusion in the SOUTH WAIRARAPA DISTRICT COUNCIL's asset system. Drawings can be supplied in electronic format as dwg, dxf, pdf or tif files.

Locality Diagram

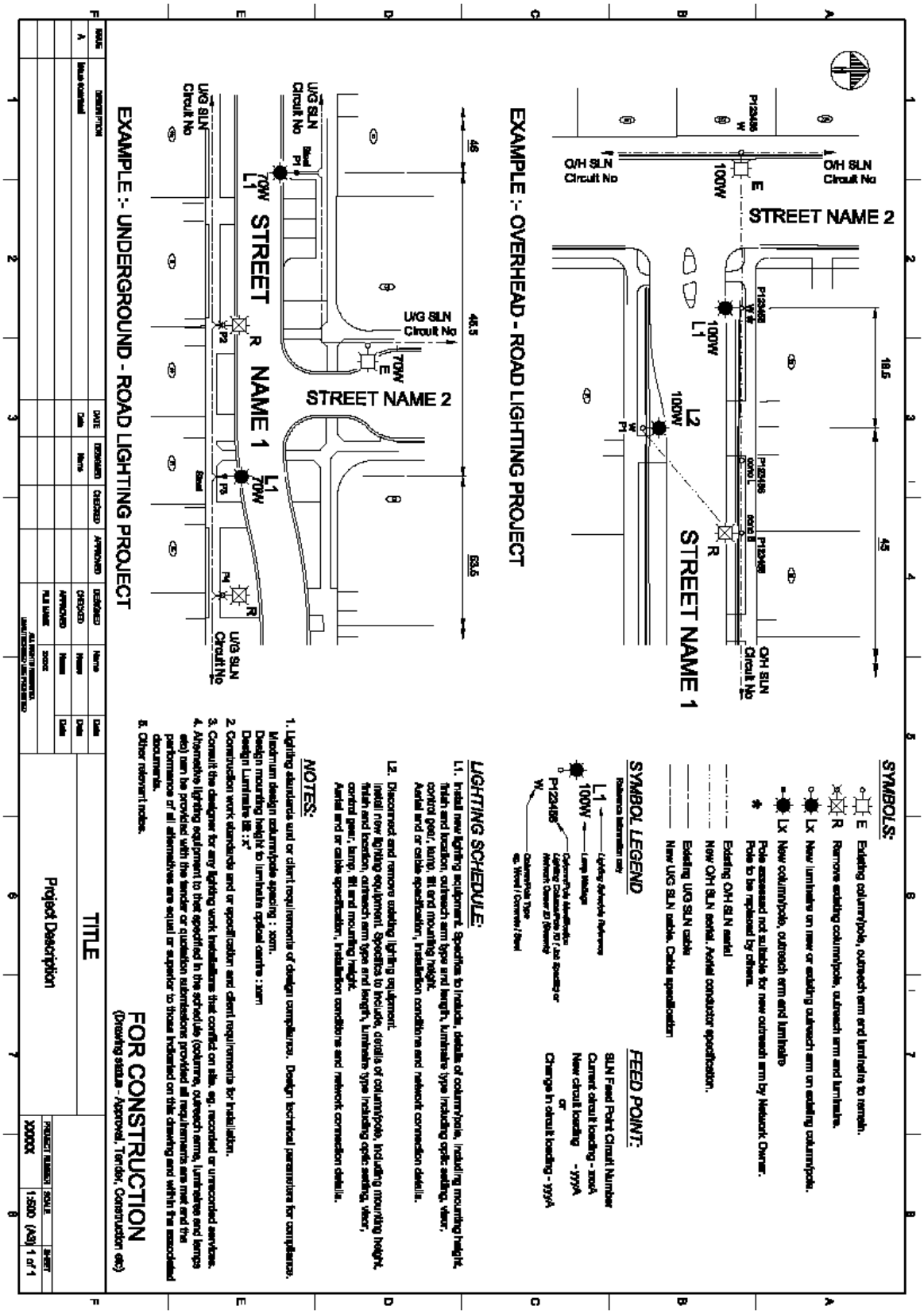
Show the road boundaries and street names where considered necessary. Show the limit of the development. Draw the locality diagram true to the map orientation or at the same orientation as the engineering drawing.

Example Locality Diagram:



LOCALITY DIAGRAM

Example Road Lighting Design Drawing:



Appendix V - Sample Manufacturers Producer Statement (informative)

Company Logo, Letterhead,
Name and Address

Sample: Producer Statement for Luminaire Manufacture

Date:

Luminaire Model Reference:

General

Confirmation that the complete luminaire is **FULLY** compliant with AS/NZS 1158.6. Copies of relevant test reports are available on request and include:

- IP Testing
- Wind Testing
- Impact Testing
- Copper content

Quality Control

Documentation to show that the luminaire has been manufactured within a manufacturing environment that conforms to the requirements of AS/NZS/ISO 9001 shall be provided from TELARC SAI (or equivalent organisation).

Luminaire

Confirmation that the LED luminaires performance is documented in accordance with IESNA LM79 and TM21. Appropriate reports shall be provided to confirm that all the following characteristics have been addressed:

- Power Management
  - protection from electrical transients
  - driver current control
- Thermal Management
  - maximize performance, reliability and life expectancy
  - ensure all other component temperatures do not exceed limits
- Optical Management
  - light output is correctly shaped and directed towards the desired area
- Assembly Integrity
  - overall housing provides protection from dust, moisture, vibration and other environmental effects

Optics

Photometric performance (in absolute format) is supported by an independent IANZ or NATA laboratory report. I-Tables are provided in both CIE and IESNA formats.

Materials and components

Identify key material components and applicable standards.

Component	Standard	Manufacturer
Main body - steel		
Main body - aluminium		
LEDs		
LED assembly		
LED lens		
Driver		
Glass visor		
Acrylic visor		
Gasket		
Terminations		
Screw fixings		
Mounting adapter		
Surface finish		
Other		

Quality Assurance

Production factory has the following recognised plant and procedures that are fully utilized during manufacture e.g. ISO 9001.

Electrical Safety

Electrical Safety of the luminaire is compliant with the Electricity (Safety) Regulations 2010 and is supported with a Supplier Declaration of Conformity (SDoC).

Signature:
Name:
Title:

Appendix VI - Lighting Design Peer Review Certificate Template (normative)

Project Description: _____

Client: _____

Asset Owner: _____

Drawing Ref Number: _____ **Drawing Issue:** _____

Review Date: _____

A review of the lighting design information provided has been completed with reference to the following criteria:

1.	AS/NZS 1158 sub category _____ This has been confirmed by the asset owner as the design criteria for this application	Yes ☐ No ☐
2.	Specific asset owner requirements as identified within the brief or consent application have been met	Yes ☐ No ☐
3.	Lighting calculation data provided confirms compliance with AS/NZS 1158 category _____	Yes ☐ No ☐
4.	Photometric data provided originated from a certified laboratory and the calculations have been produced from an industry-accepted source	Yes ☐ No ☐
5.	Proposed lighting columns, utility poles, outreach brackets (arms) and luminaires, etc. are acceptable for use by the asset owner *Equipment not used previously needs the prior acceptance of the asset owner*	Yes ☐ No ☐
6.	Lighting Design Statements (LDS 1) for design, luminaire and column manufacture with reference to complying standards have been provided	Yes ☐ No ☐
7.	Landscaping, kerb build-outs and/or traffic management devices that are included in the project area are indicated on the drawings and are to be illuminated to the required level	Yes ☐ No ☐
8.	Environment and maintenance issues such as water ingress, column/pole attachments, replacement parts, lamp access, glare and upward waste light, etc. have been considered	Yes ☐ No ☐
9.	Effect of the new lighting on adjacent residents, adjoining roads, construction methodology and surrounding area has been considered as part of the overall design	Yes ☐ No ☐

10. Cable design has been reviewed by the Designer ☐ or by Electricity Distribution Company ☐ *Note the lighting designer may not always be responsible for the Network Cable Design*	Yes ☐ No ☐

The following non-compliance issues require action

Comments

A copy of the information reviewed is attached. **Yes** ☐ **No** ☐

After reviewing this lighting design I believe it is acceptable and it **meets / does not meet** (*delete one*) the lighting design requirements of the asset owner referred to above.

Design reviewed by:

Signed: _____ **Date:** _____

Name: _____ **Position:** _____

Company: _____

Appendix VII - Completion Certificate (normative)

To: _____ *(Asset Manager)*

SOUTH WAIRARAPA DISTRICT COUNCIL

From: _____ *(Designer's Name)*

_____ *(Designer's Address)*

Lighting installation works at: _____ *(Location)*

The above project has been completed by _____ *(Contractor's Name)*

All work has been carried out in accordance with the contract documentation and approved variations plus any additional requirements specific to this project.

All the tests were successfully completed and the luminaires were livened on _____ *(Date)*

and the maintenance period can commence from this date.

The following documentation is enclosed:

- ☐ Test Certificate for each Lighting Standard
- ☐ Electrical Certificate of Compliance
- ☐ As-Built Information
- ☐ Removed Lighting Equipment List
- ☐ Cable Recording Information

(Signature)

_____

(Print Name)

_____

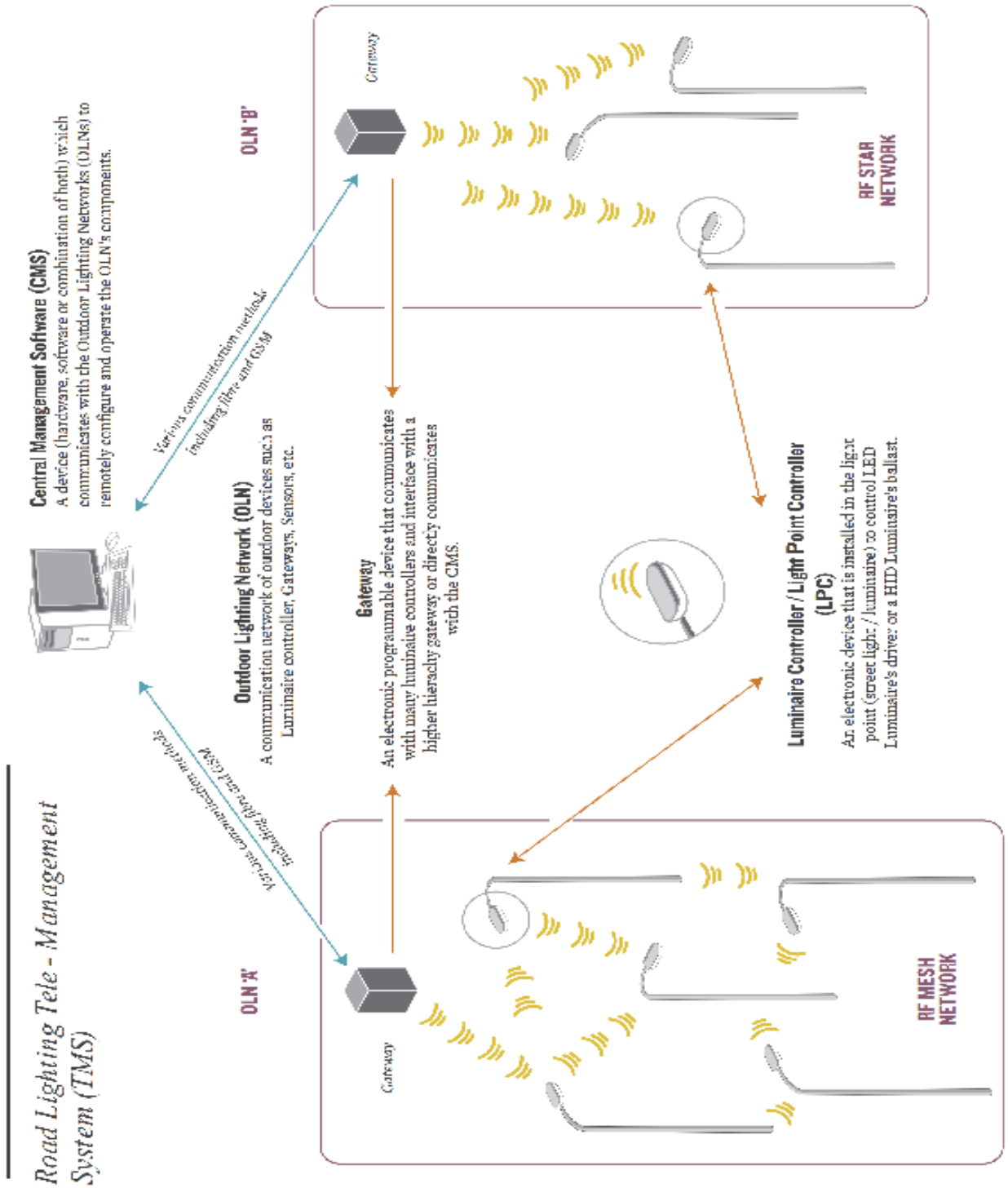
(Date)

_____

Note:

A completion certificate similar to this can be used by the Contractor to submit to the Designer when construction is completed. This certificate can then be forwarded to the SOUTH WAIRARAPA DISTRICT COUNCIL by the Designer with ALL the other completion documentation.

Appendix VIII - Road Lighting Central Management System (CMS) (informative)



Basis of Payment and Description of Items in Schedule of Prices

PREAMBLE

1. REFERENCE TO OTHER CONTRACT DOCUMENTS

For full information as to directions and descriptions of work and materials, the Contract Documents, being the Tender, Schedule of Prices (the Schedule), Drawings, General Conditions, Special Conditions and Specifications, must be read in conjunction with each other. This basis of payment and description does not necessarily cover information given elsewhere in the documents.

2. QUANTITIES

The quantities set out in the Schedule are the estimated quantities of the work, but they are not to be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfilment of the obligations under the Contract, or for the payment of work completed. The quantities for payment shall be determined by measurement of the work completed, in accordance with Clause 2.3 of the General Conditions for a Measure and Value Contract.

3. STOCKPILING

Where payment for excavated or stripped material is to be based on the quantity stockpiled, the Contractor shall ensure that any such stockpile is of regular shape and height to facilitate measurement of its volume.

4. PRICES AND RATES

The prices and rates to be inserted in the Schedule of Prices are to be the full prices to the Principal for the work described under the several items, exclusive of any GST. Such prices shall cover all costs and expenses that may be required in and for the construction of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

Unless expressly stated otherwise rates shall be deemed to include the following:

- labour and all costs in connection therewith;
- the supply, delivery, off-loading, handling and storage of all materials including all costs in connection therewith;
- plant, operators, fuel, lubricants and all costs in connection therewith;
- fixing, erecting and installing or placing of materials and goods in position including cutting and waste;
- all temporary works, signs and barriers;
- all general obligations, liabilities, risk and preliminary items which are not separately itemised in the Schedule of Prices, involved in the execution of the Works set forth or reasonably implied in the Contract;
- overheads and profits;
- the effect on the phasing of the Works and of alterations and additions to existing services;
- working outside normal working hours in accordance with the terms of the Contract;
- the cost of carrying out all quality control tests on materials and workmanship.
- the disposal of all surplus materials;
- all costs in connection with the phased execution of the Works owing to the non-availability of certain portions of the site to the Contractor as a result of traffic conditions, works by other Contractors, occupation by others and other reasons etc; and
- all necessary temporary traffic diversions and provisions for execution, protection or curing of the Works as required to maintain traffic flow as directed by the Engineer.

5. ALL ITEMS TO BE PRICED

Tenderers shall tender for all the sections contained in the Schedule of Prices.

A price, rate or the word "NIL" is to be entered against each item in the Schedule of Prices, whether the quantities are stated or not. An item against which no price or rate is entered will be considered to be covered by the other prices or rates in the Schedules; the rate will nevertheless be taken as "NIL" and no claim will be considered if the quantity of such item should increase or decrease.

6. TOTAL TENDERED PRICE

Except where rates only are required, the Tenderer shall insert all amounts to be included in its total tendered price in the "Amount" column and show the corresponding total tendered price.

100 DESCRIPTIONS FOR PRELIMINARY & GENERAL SCHEDULE

101 The Contractor shall allow in the Schedule a Lump Sum covering establishment on the site of plant, equipment, storage facilities, accommodation, etc. The establishment includes transport of plant to and from the site, and overheads associated with the provision, maintenance and removal of all working areas, administrative centres, and facilities for workers, temporary services and signs that may be necessary or required. Payment of 50% of the lump sum will be made on substantial commencement of works and the balance thereafter on a pro-rata basis on substantial commencement of the subsequent aspects of the Contract.

102 The Contractor shall allow in the Schedule a Lump Sum for all survey or setting out work required by the Contract or found to be necessary to complete the works under the Contract. Payment shall be made on a pro-rata basis of work completed.

103 The Contractor shall allow in the Schedule a Lump Sum to cover all insurances required by the terms of the Contract and by law. The Contractor shall submit certificates for insurances prior to commencing work, and payment shall only be made for this Item on production of satisfactory evidence as to insurance cover.

104 The Contractor shall allow in the Schedule a Lump Sum to cover maintenance of the works until the end of the Defects Notification Period, which shall be twelve-months from the date of the Practical Completion Certificate. Payment shall be made on satisfactory completion of any necessary maintenance works and remediation of defects.

105 This item in the Schedule is a Provisional Sum to cover all permits and fees required to complete the work in the Contract. This shall include an allowance for liaising with POWERCO to determine the location of connecting to the existing power infrastructure, for any standovers required when working in proximity of the existing services. Payment shall be made on production of satisfactory evidence as to permits taken out and fees paid and shall be based on actual cost plus any margins.

106 The Contractor shall allow in the Schedule a Lump Sum to cover preparation of all Construction Management Plans including a Site-Specific Health and Safety Plan, Quality Assurance Plans, Programmes required by the Contract Documents, etc. Payment of 50% of the Lump Sum shall be made on approval of the initial plans by the Engineer at the commencement of the Contract, and then on a pro-rata basis over the Contract period, provided the Contractor maintains and updates the Plans and Programmes to the Engineer's satisfaction.

107 The Contractor shall allow for Quality Assurance Testing and compliance for all Contract works and imported materials where not included in the relevant sections of Tender Schedule. Payment shall be made on satisfactory completion of any necessary Quality Assurance Testing and provision of test results for supplied materials.

108 The Contractor shall allow for all Contract management and administration including but not limited to: attendance at two-weekly updates, general site discussions with the Engineer to the Contractor or his authorised Representative, preparation of progress claims, requests for information, etc., all as required to ensure the effective running of the Contract.

109 This rate shall allow for traffic control for the duration of the Contract Period in accordance with the Code of Practice for Temporary Traffic Management (COPTTM).

200 **STREET LIGHT INSTALLATION**

201

The rate shall include the supply, delivery installation and erection of the poles in agreed locations. The rate shall include all plant labour and materials, excavation of base hole and removal of surplus materials and all works to make the area surrounding the pole base good.

202

The rate shall include the supply, delivery installation and erection of the luminaires. The rate shall include all plant labour and materials, to install the luminaires and testing.

203

The rate shall include the removal of the luminaires and outreach arm form existing poles and making good all electrical connections. Attaching the existing luminaires to the new poles and testing. The rate shall include all plant labour and materials.

204

The rate shall include the exaction to a 600mm depth and removal of the material, supply and placement of electrical cable and approved bedding material, the supply, placement and compaction of crushed AP40 backfill material and compaction testing, supply and placement of 30mm Asphaltic Concrete and the installation of edge bandaging.

205

The rate shall include the exaction to a 600mm depth and removal of the material, supply and placement of electrical cable and approved bedding material, the supply, placement and compaction of crushed AP40 backfill material and compaction testing, supply and placement of 50mm Asphaltic Concrete and the installation of edge bandaging.

206

The rate shall include the exaction to a 600mm depth and removal of the material, supply and placement of electrical cable and approved bedding material, the supply, placement and compaction of crushed AP40 backfill material and compaction testing, supply and placement of 30mm topsoil and grass seed.

207

The rate shall include all materials and labour to connect, test the new cabling to the existing power supply network.

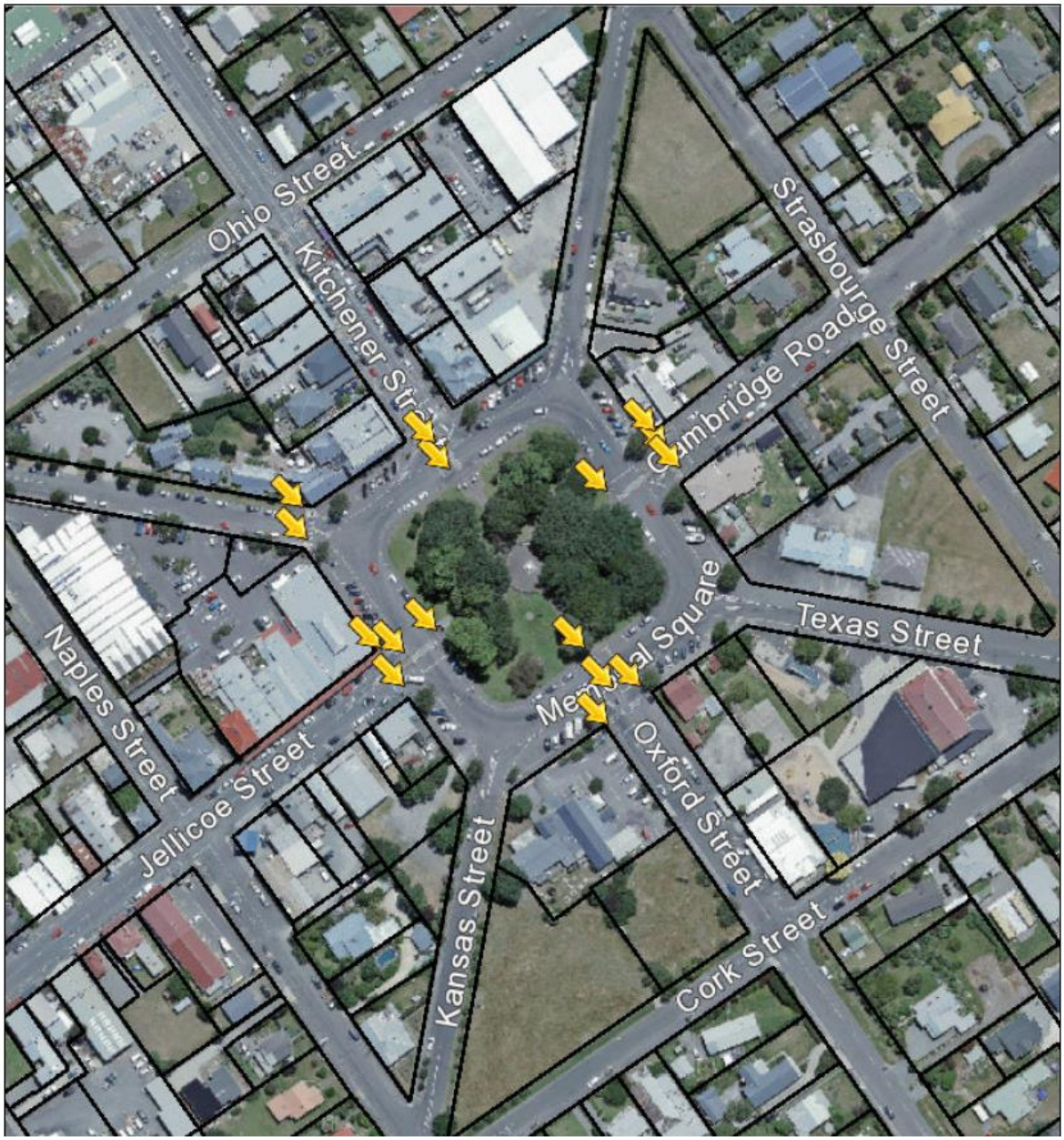
208

The rate shall include the exaction to a 600mm depth and removal of the material, supply and placement of electrical cable and approved bedding material, the supply, placement and compaction of crushed AP40 backfill material and compaction testing, supply and placement of 150mm 25Mpa Concrete inclusive of 665 reinforcing mesh

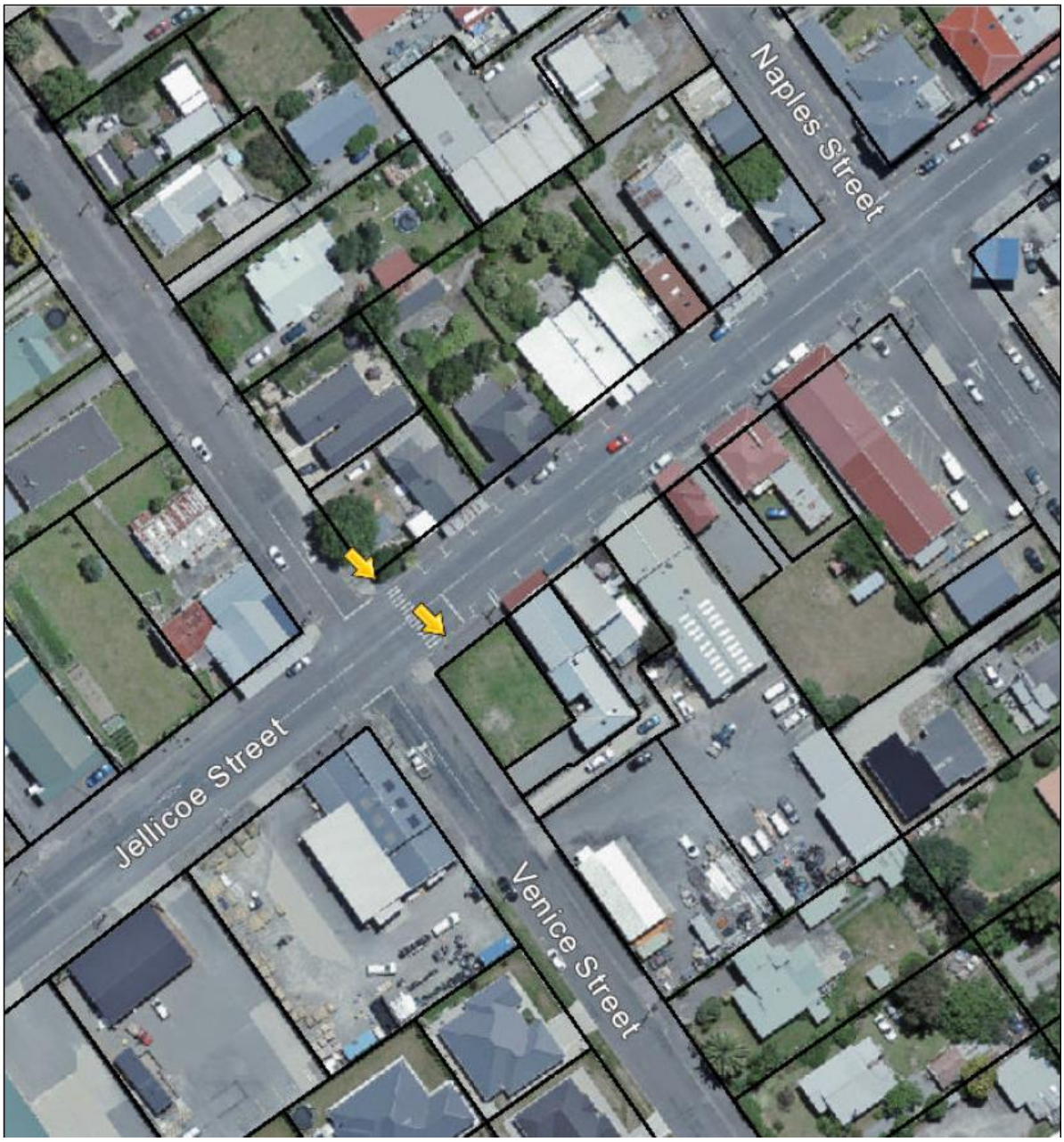
APPENDIX 1

Location Maps

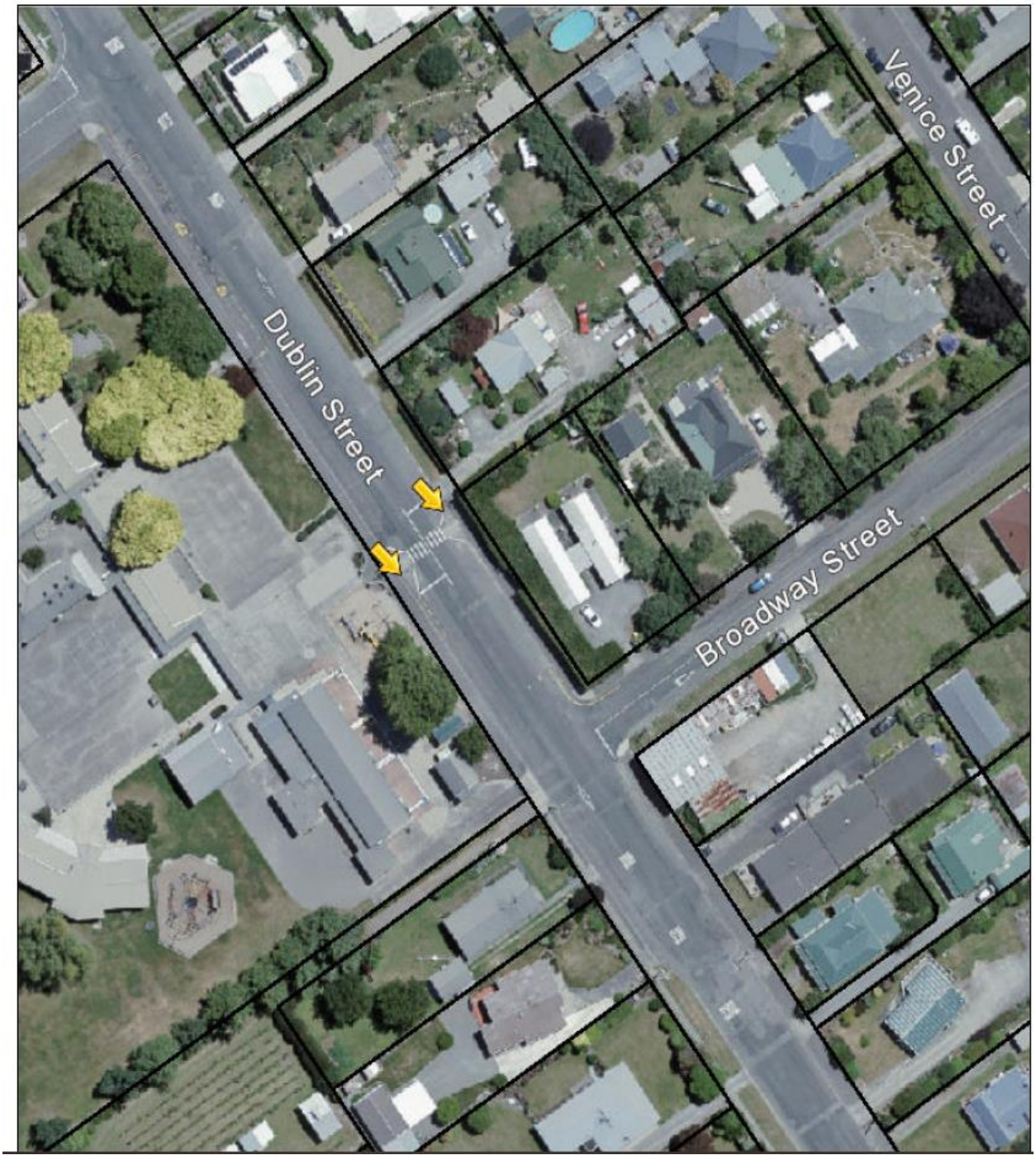
Martinborough Square



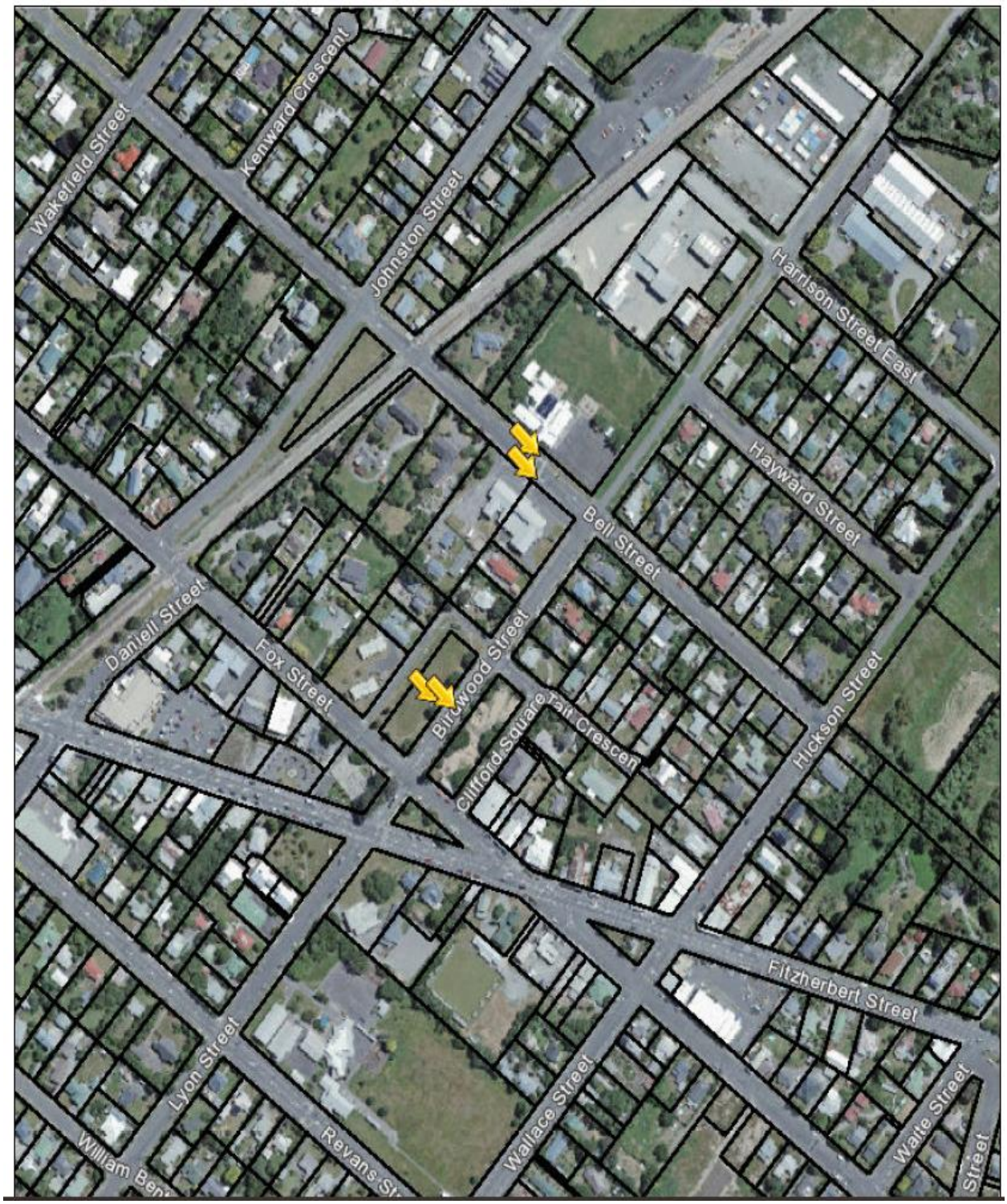
Jellicoe Venice Street



Dublin Street School



Featherston Crossings



Greytown School crossings