



25 March 2025

Wood and Partners Consultants Limited  
PO Box 6752  
Wellesley Street  
Auckland 1141

Quote Ref: 9665

Attn: John Madden

Dear Sir,

#### LIGHTING DESIGN STATEMENT – MILLDALE STAGE 4C JOAL PRIVATE LIGHTING

With reference to the above and associated Resource Consent application drawings – 9665 Rev B dated 24-March-2025 for the **Jointly Owned Access Lots** covering the circulating roads, car parks, pedestrian crossings and designated disability parking bays of the overall development.


Ibex International Limited hereby confirms that the provision of lighting shall meet the following;

1. Designed to comply with current versions of E24 and E27 of the Auckland Unitary Plan and the designated Sub-Categories of AS/NZS1158.3.1:2020 in force at the time the design was undertaken.
2. An industry recognised Lighting Design software package has been utilised (AGI32) for the illuminance based calculations in order to demonstrate compliance as designated above.
3. The Concept Design Drawings for the development identify the following information as detailed in the Building Consent namely;
  - a) Lighting Column location.
  - b) Luminaire Type.
  - c) Road Classification and Lighting Sub-Category selected from AS/NZS1158.3.1:2020
  - d) Calculation Results
  - e) Isolux Plots of achieved Lighting Levels.
  - f) Spill Lighting Assessment.
  - g) Maximum Luminous Intensity





Yours Faithfully  
IBEX INTERNATIONAL LIMITED

Steven Sobey *GCertSciTech (Lighting), TechIES*  
PROJECT SOLUTIONS ENGINEER



PROJECT NUMBER		PROJECT	DRAWING INFORMATION		COMPANY	AS PREPARED FOR
9665		MILLDALE STAGE 4C JOAL WAINUI EAST	ROADWAY LIGHTING PLAN - ISOLUX PLOTS		IBEX LIGHTING L1 THE PRECINCT 40 ONEHUNGA MALL AUCKLAND 1061 NZ FREEPHONE 0800 63 65 67 www.ibexlighting.com	
DRAWING NO. :	REVISION:		Scale : 1 : 1500 @ A3	DESIGNED BY: SF		
1	B		Date:25-March-2025	CHECKED BY: /		



Luminaire Schedule					
Project: 10 - Luminaires - Proposed					
Symbol	Qty	Label	Mounting Height	Outreach Length	Lum. Tilt Angle
	4	CANTO	1 metre	N/A	0 degrees
	25	NOX W1 1000	5 metres	N/A	0 degrees
	4	NOX W1 1500	5 metres	N/A	0 degrees
	3	NOX S 1900	5 metres	N/A	0 degrees

Luminaire Details	"CANTO"	"NOX W1 1000"	"NOX W1 1500"	"NOX S 1900"
Manufacturer and Product Name	NSS-08-026-740-P1	NOX S Walkway LL062304PH	NOX S Walkway LL062304PH	NSS-08-019-730-P1
Lamp type and Rating	LED 18.6W	LED 8.6W	LED 12.9W	LED 14.0W
Luminous flux	2636 Lumens (3000K)	1000 Lumens (3000K)	1500 Lumens (3000K)	1910 Lumens (3000K)
Origin of Photometric Data	NSS-08-014-740-P1	LL062304PH scaled	LL062304PH scaled	N1-50-740-P1 scaled
Upward Waste Light Ratio	0.0% at 0 degree tilt	0.0% at 0 degree tilt	0.0% at 0 degree tilt	0.0% at 0 degree tilt
Maintenance factor used	0.80	0.80	0.80	0.80
Peak Luminous Intensity (Glare) : 60-80 degrees	1236 Candela	864 Candela	1297 Candela	895 Candela
Peak Luminous Intensity (Glare) : 80 degrees	342 Candela	291 Candela	437 Candela	248 Candela
Calculation of Maintenance Factor:				
* Lamp Lumen Maintenance Factor (LLMF) =		0.964	from TM21 / ISTMT / LM80 test data	
* Luminaire Electronic Failure (LEF) =		0.99	A.T. specified figure	
* Luminaire Optical Depreciation for Visor (LODV) =		1.00	A.T. figure for Toughened Glass Visor	
* Luminaire Optical Depreciation for Reflector (LODR) =		0.99	A.T. figure for Aluminium Reflector behind Glass Visor	
* Luminaire Optical Depreciation for Lens (LODL) =		0.99	A.T. figure for UVS-PMMA behind Glass Visor	
* Luminaire Maintenance Factor (LMF) =		0.92	A.T. figure for Visor equipped luminaire	
MF = LLMF x LEF x LODV x LODR x LODL x LMF = 0.860				
Maintenance Factor for calculations is capped at 0.80				

GENERAL NOTES

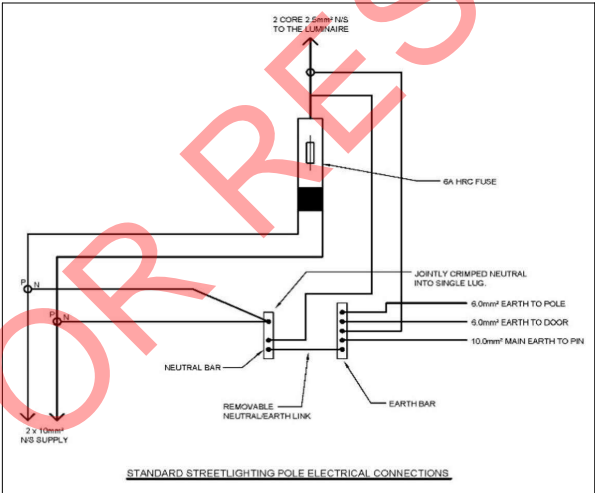
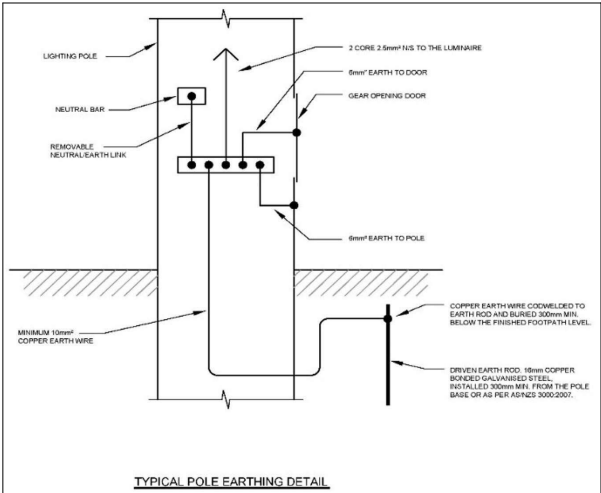
- Liaise with Vector with regard to extending the existing street lighting circuit to supply the new installation.
- All work shall conform to the requirements of Vector or Counties Power (as appropriate), Auckland Transport and the requirements of Electrical (Safety) Regulations 2010, AS/NZS 3008 and AS/NZS 1158.
- Liaise with Vector / Counties Power (as appropriate) to ensure all poles are well clear of underground services. If necessary, positions may be altered up to 1m while retaining general pole arrangement to avoid clashes with underground services. Confirm with engineer first.
- The contractor shall be a Auckland Transport accredited contractor and approved by Auckland Transport to install assets on the appropriate network.
- Ensure the RAMM and SLIM database is accurately updated for every new or modified streetlight location, and liaise with Auckland Transport to ensure records are appropriately completed.
- These works shall include the removal and disposal of old luminaires/mounting brackets and lamps. Remove all existing concrete columns and luminaires.
- All columns and luminaires specified in this design are listed on the Auckland Transport Approved product lists. Luminaires are to be labelled as per the requirements of setion 12.5.1 of version 11 of the AT-TDM.

DESIGN NOTES:


- These lighting calculations are based on the Initial Lamp Lumens as described in the product information tables(s) with the appropriate Maintenance Factor applied (in accordance with AS/NZS1158).
- The Isoplots shown are the representation of the Illuminance value at Ground Level.
- The Luminaire Mounting Height and Tilt Angle (Upcast) are indicated on the drawing.
- The typical luminaire Tilt Angle for this design is 0 (zero) degrees, i.e. horizontal.
- Final design locations will have been agreed to by the client and the appropriate local authority (council).

INSTALLATION NOTES

- The contractor shall be responsible for the fixing of outreaches taking into account work on or near existing services. The contractor shall liaise with the appropriate service provider in relation to working on or near services, giving appropriate notice period.
- The internal wiring between the terminal blocks and the luminaire shall be circular 2C 2.5sq.mm Neutral Screen cable.
- Wiring shall be in accordance with AS/NZS3000 and AS/NZS3008:1.2
- Minimum street lighting supply cable shall be 1C 10sq.mm Neutral Screen cable.
- Cable protection shall be implemented as per Vector / Counties Power requirements.
- Each column must be earthed by means of 10mm<sup>2</sup> copper insulated wire, exothermically welded to a driven earth electrode (16mm diameter copper-bonded steel earth rod) located 300mm from the column base. Sherlock Connectors are approved for burying. The connector must be buried 300mm below the pavement surface. AS/NZS 3000 applies. (See diagram on this page)  
Where it is not possible to install a driven earth electrode due to rock for example, the following horizontal earth electrode is acceptable:
  - a six metre (6m) length of 35mm<sup>2</sup> (19/16) bare (uninsulated) copper conductor buried to a depth of 600mm below the surface. The conductor must be embedded in Bentonite slurry or Ground Enhancement Material (GEM). The buried conductor should be placed with 3m either side of the lighting column. The horizontal earth electrode to column connection shall be the same as described above for the driven earth electrode.
- The contractor is responsible for all cable design, liaison with Vector / Counties Power, and updating of Vector / Counties Power and Auckland Transport records.
- Final pole locations are to be confirmed on site prior to installation.
- Mounting heights are to be measured with respect to the luminaires above the carriageway. Final location to be coordinated on site.
- Where a pole is within five metres of a tree, assess whether the tree requires trimming to minimise shadowing, and notify the engineer for further action if required.
- A minimum ten (10) year warranty from date of on site installation shall be provided for the luminaire and electronic control gear.
- In general, columns are to be installed 1.0m behind kerb (between kerb face and the face of the column). Variations to this may be required to meet the requirements of AT-TDM Volume 4 Chapter12 section 12.4.2 and/or AS/NZS 1158. Columns should also have at least 1.0m clearance to driveways to prevent damage by manoeuvring vehicles.
- The contractor shall be responsible for the final location of the lighting poles taking into account
  - Location of existing services. The contractor shall be responsible for locating all underground services and Land Information NZ markers before work commences. Any damage caused to underground services shall be repaired at the contractor's expense.
  - Work on or near existing services. The contractor shall liaise with the appropriate service provider in relation to working on or near services, giving appropriate notice period.
  - Permitted location tolerance
    - 0.5m parallel to the carriageway
    - 0.2m perpendicular to the carriageway
    - 0.2m verticallyIf the final pole location exceeds the permitted tolerance further lighting design may be required.
- Pole details shall be as per Auckland Transport Engineering Standards. Departing from the standard installation due to ground conditions shall be confirmed by a written approval prior to installation.
- Each luminaire must be fitted with either a 5 or 7 contact NEMA receptacle, compliant with ANSI C136.41:2013. The NEMA receptacle shall be fitted with blanking cap at the time of installation. The Light Point Controller will be installed at the time the streetlights are entered into RAMM by AT approved contractor.
- New LED luminaires shall be provided with electronic DALI dimmable control gear.
- As per AT requirements, columns are to be supplied with a 6 Amp Type C HRC Fuse link for connection of the luminaire to the incoming supply. (Wiring diagram on this page)



Design Revision Summary		
Rev.	Date	Comment
-	14/03/25	Original design
A	21/03/25	Update the design based on the suggested locations
B	25/03/25	Relocate SL#3,23 as requested

PROJECT NUMBER		PROJECT	DRAWING INFORMATION		COMPANY	AS PREPARED FOR
9665		MILLDALE STAGE 4C JOAL WAINUI EAST	ROADWAY LIGHTING PLAN - ISOLUX PLOTS		IBEX LIGHTING L1 THE PRECINCT 40 ONEHUNGA MALL AUCKLAND 1061 NZ FREEPHONE 0800 63 65 67 www.ibexlighting.com	
DRAWING NO. :	REVISION:		Scale: n / a                      DESIGNED BY: SF			
2	B		Date:25-March-2025                      CHECKED BY: /			

