Road Lighting

Aldi, Preston Street, Whitehaven
Section 278

SPECIFICATION OF WORKS

SCOPE

The scope of work for this commission should include all aspects of work given within the tender documentation.

1 Location of Works

[Enter location of works]

2 Objective

Successfully undertake and install all lighting equipment highlighted for these lighting schemes.

3 Responsibility

All those involved in managing and providing the service shall have appropriate experience, skills, training and equipment to perform the task. The Council will, through accredited organisations, authorise and certify the level of competency.

Regulation 16 of the Electricity at Work regulations states that “No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or where appropriate, injury, unless he possesses such knowledge or experience, or is under such a degree of supervision as may be appropriate having regard to the nature of the work”.

Only a competent person, duly authorised, and trained to the required level of competence and able to recognise electrical hazards, must carry out the work.

The Council requires that organisations delivering the service shall have Quality Management systems in place and have BS EN ISO 9001 accreditation. In addition, the Quality Management systems should comply with the requirements of the National Highway Sector Schemes 8, The Overseeing and/or Installation and/or Maintenance of Highway Electrical equipment and supporting works.

Specification for Highway Works:
Schedule of Pages and Relevant Publication Dates.

Series/Appendix	Page Number	Publication Date
000	1 to 3	May 2014
000	4 to 8F	December 2014
100	1 to 2, 4 to 9, 12 to 29F, WF1, N2 to N11F	May 2014
100	3, 10 to 11, N1	December 2014
200	1, 3F	May 2001
200	2	May 2004
300	1	May 2001
300	4	November 2002
300	2 to 3, 5 to 6F	May 2008
400	1 to 6, 8, 10 to 13F	November 2007
400	7, 9	November 2008
500	23 to 24, 26	November 2004
500	28F	May 2005
500	3, 22, N1F	May2006
500	2, 5, 27	November 2006
500	6, 25	November 2007
500	1, 4, 7 to 21	November 2009
600	33	November 2003
600	2, 27 to 28, 30 to 32, 34 to 36, N1	November 2005
600	25 to 26	November 2006
600	42 to 49, 51 to 68F	November 2007
600	37, 50	November 2008
600	1, 3 to 24, 29, 38 to 41, S1 to S3F, N2 to N4F	November 2009
700	2 to 3, 5 to 6, N1, N3 to N5F	November 2006
700	33 to 34F	November 2007
700	4, N2	August 2008
700	1, 7 to 32F	November 2009
800	1 to 25F	November 2006
900	2 to 5, 9 to 22, 24 to 26, 28 to 67F	August 2008
900	1, 6 to 8, S1F	November 2008 May 2009
900	23, 27	
1000	3, 5 to 6	November 2004
1000	1 to 2, 4, 7 to 15, 19 to 33F	May 2006
1000	16 to 18	November 2004
1100	1, 4F	November 2004
1100	2, N1F	November 2006
1100	3	August 2008
1200	5	May 2001
1200	2 to 3, W1F	August 2008
1200	1, 14 to 16F	May 2004
1200	4, 9 to 11, 13	May 2005
1200	12	November 2006
1200	6 to 7, N1 to N4F	November 2007
1200	8	May 2008
1300	N2F	November 2003
1300	3 to 4	November 2004
1300	1, 5 to 10, 12F	November 2005
1300	2, 11 and N1	May 2006

Series/Appendix	Page Number	Publication Date
1400	2, N1F	May 2001
1400	1, 3 to 9F	May 2006
1500	7	May 2001
1500	2	February 2003
1500	3 to 4, 8 to 11, 13	November 2004
1500	1, 5 to 6, 12, 14 to 17F	November 2006
1600	1, 4 to 5, 9, 15, 17 to 18, 24 to 26, 29 to 31, 35, 38, 49F	March 1998
1600	2, 6 to 8, 10 to 14, 16, 19, 27 to 28, 32 to 34, 36 to 37, 39 to 42, 44 to 48	November 2003
1600	3, 20 to 23, 43	November 2005
1700	1 to 27F	December 2014
1800	1 to 35F	August 2014
1900	1 to 35F, S1 to S2F	August 2014
2000	1, 3 to 4F	May 2001
2000	2	November 2004
2100	1, 4F	March 1998
2100	2	November 2003
2100	3	November 2005
2300	1	March 1998
2300	2 to 3F	May 2001
2400	1, 4, 7F	May 2005
2400	2	May 2006
2400	3, 5 to 6	May 2008
2500	1	May 2001
2500	2, 8, 11F	November 2003
2500	10	November 2004
2500	6 to 7, 9	May 2005
2500	5	May 2006
2500	3 to 4	November 2006
2600	1	March 1998
2600	2 to 4	November 2003
2600	5	November 2004
2600	6	May 2005
2600	7F	November 2006
3000	4 to 7, 10, 12 to 17, 19, 22 to 27F	May 2001
3000	20	November 2004
3000	2 to 3	May 2006
3000	8 to 9, 11, 18, 21	May 2008
5000	1, 4 to 19F, S1F	May 2005
5000	2 to 3	November 2008
Appendix A	1 to 4F	May 2014
Appendix B	1 to 3F	May 2014
Appendix C	1 to 2F	May 2014
#Appendix D	1F	May 2014
Appendix D (NI)	N1F	May 2014
Appendix E	1F	May 2014
Appendix F	1 to 52F	December 2014
Appendix G	Not used	May 2014

Series/Appendix	Page Number	Publication Date
Appendix H	1	May 2014
Appendix H	2	November 2005
Appendix H	3	November 2006
Appendix H	4 to 9F	November 2008

TABLE 0/2 Abbreviations

Abbreviation	Meaning
SHTO	American Association of State Highway and Transportation Officials
AAV	Aggregate Abrasion Value
ACEC	Aggressive Chemical Environment for Concrete (Class)
AISI	American Iron and Steel Institute
AMD	Amendment to British Standard
ASR	Alkali Silica Reaction
ASTM	American Society for Testing and Materials
BBA	British Board of Agreement
BRE	Building Research Establishment Ltd
BS	British Standard
BSI	British Standards Institution
CAC	Calcium Aluminate Cement
CBM	Cement Bound Material
CBR	California Bearing Ratio
CHS	Circular Hollow Section
CIRIA	Construction Industry Research and Information Association
CP	British Standard Code of Practice
CPD	Construction Products Directive
CPF	Controlled Permeability Formwork
CPR	Construction Products Regulation
DC	Design Chemical (Class)
EEA	European Economic Area
EN	European Standard
ETA	European Technical Assessment
FTD	Flat Traffic Delineator
EU	European Union
HAC	High Alumina Cement
HAPAS	Highway Authorities' Product Approval Scheme
HCD	Highway Construction Details
HMSO/TSO	Her Majesty's Stationery Office/The Stationery Office
HSE	Health and Safety Executive
ISO	International Organization for Standardization
MCV	Moisture Condition Value
MDPE	Medium Density Polyethylene
NA	National Annex
NG	Notes for Guidance on the Specification for Highway Works
NHSS	National Highway Sector Scheme
NR	No Requirement
PC	Portland Cement
PD	Published Document – British Standards Institution
PRD	Percentage Refusal Density
PSV	Polished Stone Value
PVC	Polyvinyl Chloride
RA	Recycled Aggregate
RCA	Recycled Concrete Aggregate
RHS	Rectangular Hollow Section
SHW	Specification for Highway Works
SCC	Self Compacting Concrete
SI	Statutory Instrument
SMC	Saturation Moisture Content
SRPC	

Abbreviation	Meaning
TG	Sulfate Resisting Portland Cement
TR	Technical Guide
TRL	Technical Report
TSA	(formerly TRRL) Transport Research Laboratory
TSRGD	Thaumasite Sulfate Attack
TSS	Traffic Signs Regulations and General Directions
UKAS	(Highways Agency) Traffic Systems and Signs
PVC-U	United Kingdom Accreditation Service
XLPE	Unplasticised Polyvinyl Chloride
DC	Cross-linked Polyethylene
dft	direct current
ggbs	dry film thickness
mc	ground granulated blast furnace slag
mdft	moisture content
omc	minimum dry film thickness (of paint)
pfa	optimum moisture content
	pulverised-fuel ash (also known as fly ash)

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

PART A: VOLUME 1 SPECIFICATION

List of Additional Clauses, Tables and Figures

Clause No.	Title
170AR	Precautions against Dust, Mud, Dirt and Other Debris
171AR	Protection of Works from Weather
172AR	Not Used
173AR	Not Used
174AR	Mobile elevating work platforms

List of Substitute Clauses, Tables and Figures

Clause No. (etc)	Title	Written on Page No. following
None		-

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

PART A: VOLUME 1 SPECIFICATION

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

Additional Clauses and Tables

Clause No.	Title and written text
170AR	**PRECAUTIONS AGAINST DUST, MUD, DIRT AND OTHER DEBRIS** 1. The Contractor shall take all reasonable steps to minimise nuisance caused by dust, mud, dirt and other debris during construction of the Works. 2. The Contractor shall adopt measures to minimise airborne dust nuisance from dry and fine materials during construction of the Works. Such measures shall include: a) Dampening of surfaces of the source of such nuisance to prevent dusting when required or as instructed by the Engineer. b) Soiling and seeding areas as nearly concurrent with earthworks and filling operations as possible, and also keeping these surfaces dampened as necessary. c) Protection of fill material embankment surface where necessary for longer periods by the placing of a protective layer of surface dressing or bituminous spray or dampened suitable cohesive material. Such protective layer to be removed only immediately prior to the re-commencement of further filling operations. d) Ceasing work in areas at times when climatic conditions prevail such that the previous three measures prove to be unsatisfactory in the opinion of the Engineer. 3. All existing highways used by vehicles of the Contractor or any of his Sub-Contractors or suppliers of materials or plant and similarly any new or diversion ways which are part of the Works or in the vicinity of the Works shall be kept clean of all dust, mud, dirt and other debris. Any such matter spreading onto these areas shall be immediately cleared by the Contractor by manual sweeping or shovelling or by the use of mechanical sweeping and clearing equipment. Additionally if so directed by the Engineer such areas shall be thoroughly cleaned by hosing or watering. 4. Access within, and to and from the Site across any public highway, diversion road or any other way used by public traffic shall be strictly limited as approved by the Engineer. Vehicles and plant shall enter onto such public traffic ways only after thorough cleaning. 5. Where described in the Contract the Contractor shall provide vehicle washing plants as part of the temporary accommodation for himself. Such washing plants shall be utilised for thoroughly cleaning all

Clause No.	Title and written text
	vehicles and plant prior to its entrance onto any public highway, diversion road or any other way used by public traffic. 6. Each washing plant shall include hard standings and adequate drainage facilities and an approved mechanical wheelwasher. The wheelwashers shall be connected to a mains water supply and discharge into a new or existing drainage system shall be through traps and filters approved by the Engineer to prevent the entry of silt, clay, or any other contaminating material into the drainage system. 7. The vehicle washing plants shall be sufficient in number and capacity at all times, in the opinion of the Engineer. Unless otherwise permitted by the Engineer, they shall be installed immediately on occupation of the Site by the Contractor and utilised at all times. 8. The Contractor shall keep the Site clean and tidy by removing all rubbish from the Site as work proceeds or as necessary and when required to do so by the Project Manager. 9. Compliance with the foregoing shall not relieve the Contractor of any responsibility for complying with the requirements of the Highway Authority in respect of keeping roads clean.
171AR	**PROTECTION OF WORKS FROM WEATHER** 1. The Contractor shall carefully protect from injury by weather all work and materials which may be affected thereby. The protecting media when necessary shall include heaters and heating equipment and fuel, pumps and pumping equipment and power, waterproof sheets, casings, drains, water sprays, evaporation barriers and all necessary labour and attendance. The Contractor shall make good or replace at his expense any work or material which shall have been injured because of his failure to carefully protect them in accordance with the requirements of this clause. 2. The Contractor shall ensure that during the execution of his earthworks operations the sub-formation shall be covered as soon as practicable after its initial exposure with capping and sub-base material. The contractors' works shall be organised and programmed to reflect this requirement.
174AR	**MOBILE ELEVATING WORK PLATFORMS** 1. Where the contractor utilises mobile elevating work platforms (MEWPS) to provide access to the works for any purpose, he shall comply with the requirements of this clause. 2. MEWPS shall comply with the requirements of BS EN 280 2001 and with the codes of practice and other requirements listed in Appendix 1/17. Further, when required to be used on or adjacent to the highway, each MEWP shall comply with the requirements of Appendix 1/17.

Clause No.	Title and written text
	3. Operators of MEWPS shall wear protective clothing and equipment in accordance with Appendix 1/17.

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

Substitute Clauses, Tables and Figures

Clause No.	Title and written text
None	

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

PART A: VOLUME 1 SPECIFICATION

Clause No. etc	Alteration to be made
None	

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

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

List 'A' is a list of the contract specific Numbered Appendices referred to in the Specification for Highway Works and used in the Contract. Those identified by the letters T or C shall be completed by the Tenderer or Contractor respectively.

Guide to types of Numbered Appendices - who compiles/completes

Symbol	
(T)	Tenderer completes and returns with Tender
(Co/C)	Compiler partially completes and Contractor completes and returns to Employer
(Co/T)	Compiler partially completes and Tenderer completes and returns with Tender
(C)	Contractor completes and returns to Employer
(P)	This indicates the Appendix is a national proforma and format must not be altered

List B gives the list of Contract-specific Numbered Appendices devised for the Contract

List 'A' – contract specific Numbered Appendices

Completed by	Appendix No.	Title
		INTRODUCTION
Co	0/1	Contract-specific Additional, Substitute and Cancelled Clauses, Tables and Figures Included in the Contract.
Co	0/2	Contract-specific minor alterations to existing Clauses, Tables and Figures Included in the Contract
Co	0/3	List of Numbered Appendices referred to in the Specification and included in the Contract.
Co	0/4	List of Drawings included in the Contract.
	0/5	Not Used
		PRELIMINARIES
Co	1/1	Not Used
	1/2	Not Used
	1/3	Not Used
Co	1/4	Not Used
Co	1/5	Not Used
	1/6	Not Used
Co	1/7	Site Extent and Limitations on Use
	1/8	Not Used
Co	1/9	Not Used
	1/10	Not Used
	1/11	Not Used

Completed by	Appendix No.	Title
Co	1/12	Not Used
Co	1/13	Not Used
Co	1/14	Not Used
	1/15	Not Used
Co	1/16	Not Used
Co	1/17	Not Used
	1/18	Not Used
Co	1/19	Not Used
Co	1/20	Not Used
Co	1/21	Not Used
	1/22	Not Used
Co	1/23	Not Used
Co	1/24	Not Used
	1/25	Not Used
	1/26	Not Used
	1/27	Not Used
		SITE CLEARANCE
	2/1	Not Used
	2/2	Not Used
Co	2/3	Not Used
	2/4	Not Used
	2/5	Not Used
		FENCING
		Not Used
		ROAD RESTRAINT SYSTEM (VEHICLES AND PEDESTRAINS)
		Not Used
		DRAINAGE AND SERVICE DUCTS
	5/1	Not Used
	5/2	Not Used
	5/3	Not Used
	5/4	Not Used
	5/5	Not Used
	5/6	Not Used
	5/7	Not Used
		EARTHWORKS
		Not Used
		ROAD PAVEMENTS – GENERAL
		Not Used
		ROAD PAVEMENTS - CONCRETE AND CEMENT BOUND MATERIALS
		Not used
		KERBS, FOOTWAYS AND PAVED AREAS

Completed by	Appendix No.	Title
		Not Used
		TRAFFIC SIGNS
	12/1	Not Used
	12/2	Not Used
	12/3	Not Used
	12/4	Not Used
Co	12/5	Not Used
	12/6	Not Used
		ROAD LIGHTING COLUMNS & BRACKETS CCTV MASTS & CANTILEVER MASTS
	13/1	Not Used
C/P	13/2	(Specification for Highway Works) Typical Lighting Column and Bracket Data Sheets
P	13/3	Instructions for Completion of Lighting Column and Bracket Data Sheets
	13/4	Not Used
	13/5	Not Used
	13/6	Not Used
	13/7	Not Used
	13/8	Not Used
	13/9	Not Used
		ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS
Co	14/1	Site Records
Co	14/2	Location of Lighting Units & Feeder Pillars
Co	14/3	Not Used
Co/C	14/4	Electrical Equipment for Road Lighting
	14/5	Not Used
		MOTORWAY COMMUNICATIONS
		Not Used
		PILING AND EMBEDDED RETAINING WALLS - Not Used
		Not Used
		STRUCTURAL CONCRETE
		Not Used
		STRUCTURAL STEELWORK
		Not Used
		PROTECTION OF STEELWORK AGAINST CORROSION
		Not Used
		WATERPROOFING FOR STRUCTURES
		Not Used
		BRIDGE BEARINGS
		Not Used
		BRIDGE EXPANSION JOINTS & SEALING OF GAPS
		Not Used
		BRICKWORK, BLOCKWORK AND STONEWORK

Completed by	Appendix No.	Title
		Not Used
		SPECIAL STRUCTURES
		Not Used
		MISCELLANEOUS
		Not Used
		LANDSCAPE AND ECOLOGY - Not Used
		Not Used
		MAINTENANCE PAINTING OF STEELWORK - Not Used
		Not Used

LIST ‘B’: List of Contract-specific Numbered Appendices devised for the Contract

Volume No.	Appendix No.	Appendix Title
None		

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

1 Contract Specific Drawings Supplied to Each Tenderer

Drawing No	Title
SLDS-4560-0201	Aldi, Preston Street, Whitehaven S278 Proposed Site Clearance
SLDS-4560-1301	Aldi, Preston Street, Whitehaven S278 Proposed Lighting Layout
SLDS-4560-1401	Aldi, Preston Street, Whitehaven S278 Standard Details

2 Standard Drawings

Supplied to Each Tenderer

Drawing No	Title
None	

Inspected by Tenderers.

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

Drawing No	Title
None	

Brought Into the Contract by Reference.

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

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

Drawing No.	Title	Date	Aspect/Alternative(s) required if not whole Drawing

3 General Drawings and Information

The following information is supplied to each Tenderer:

Drawing No	Title

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

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 1300					
1305	Anchorages for use in drilled holes	Tensile load (Manufacturer's tests)		Required	
1306	Anchorages in drilled holes to columns and masts with flange plates	Loading test on site	*[As required]*		
1313	GFRP laminates	Loss on ignition	1 per 50 production columns		*[See sub-Clauses 1313.10-17]*
		Colour fastness	1 per batch		
		Electric strength			
		Water absorption			
		Impact strength			
1314	Brackets for laminated GFRP lighting columns			Required	
	Polyurethane foam	Bulk density	1 per batch		
		Surface hardness			
		Impact strength	2 per batch		
		Flexural stress			
		Flexural stress			
Series 1400					
1421	Cable				Product certification scheme or equivalent applies
1424	Lighting Units	Test specified in Clause 1424	Each Unit	Required	Product certification scheme or equivalent applies. Certification that the installation complies with BS 7671 (the IET Wiring Regulations) is required
	Networks	Test specified in Clause 1424	Each Network	Required	Certification that the installation complies with BS 7671 (the IET Wiring Regulations) is required

Key

(N) indicates that a UKAS or equivalent accredited laboratory sampling and test report or certificate is required. See Clause NG 104 for a definition of 'UKAS or equivalent'.

APPENDIX 1/17: TRAFFIC SAFETY AND MANAGEMENT

Mobile Elevated Working Platforms (MEWP)

Shall be suitable for the task and site conditions and shall comply with the following requirements:

- **i.** Euro 6 Compliance
- **ii.** Chapter 8 Compliance
- **iii.** On-board Weighing System
- **iv.** Manual Emergency Stop Button
- **v.** Emergency Ground Control
- **vi.** Emergency Lowering Valves
- **vii.** Minimum Slew rotation 360º
- **viii.** Telescopic High Tensile Strength Boom
- **ix.** Load Moment Control (LMC) Outreach System
- **x.** Minimum Payload (After Crew (2) and Fuel) 275kg

Contractor shall have an Emergency Recovery Plan to retrieve occupants in the event of a malfunction or emergency which shall include the following:

- **i.** Consideration of lone workers
- **ii.** Details of personnel nominated to perform the recovery
- **iii.** Communication of the plan

APPENDIX 13/1: INFORMATION TO BE PROVIDED WHEN SPECIFYING LIGHTING COLUMNS AND BRACKETS

1. The position of lighting columns is shown on Drawing No. SLDS-4560-1301
   This Appendix to be read in conjunction with Drawing SLDS-4560-1401

2. **Type: 10.0 metre Mounting Height – Stepped Tubular – Post Top**

(i)	Number of Columns:	4
(ii)	Nominal Height of Column:	10.0 metres
(iii)	Bracket Projection:	Post Top
(iv)	Luminaire Weight:	9.56kg
	Luminaire Windage (Scx):	0.05m^2
(v)	Luminaire Fixing:	Post Top 60mm Diameter 100mm Length Zero Degree Tilt
(vi)	Administrative Area:	Cumberland (Cumbria)
	Rationalised Wind Loading Region:	Extra Heavy
	Rationalised Wind Loading Factor Rwf (N/m^2):	576
	Terrain Category:	I
	Exposure Coefficient (Ce):	2.78
	Topography Factor (f):	1
	Reference Wind Velocity Speed ($V_{ref,\,o}$):	24.5m/sec
(vii)	Height of installation above ground level:	10.00 metres
(viii)	Type of Column Base:	Planted Each column shall have a permanent mark at ground level. The mark shall be 25mm wide and extend round the full circumference of the column.
	Planting Depth:	1500mm
(ix)	List of Columns with flange plates:	Not Required
(x)	Soil Type:	Poor
(xi)	Requirements for backfilling:	SLDS-4338-1401
(xii)	Number of Door Openings:	1
	Door Opening (Width x Height):	115mm x 600mm
(xiii)	Base Compartment (Width x Height x Depth):	Base compartment shall be fitted with a non-hydroscopic material baseboard not less than 90mm wide and 15mm thick securely fixed internally. Base compartment shall have sufficient capacity to accommodate 1 x DNO service cut out unit (W70 x L160 x D70) and 1 x The Council cut out unit (W90 x L160 x D100).

APPENDIX 13/1: INFORMATION TO BE PROVIDED WHEN SPECIFYING LIGHTING COLUMNS AND BRACKETS

(xiv)	Acceptable Column Material	Cold Formed hollow section Steel grade S235 series of EN 10219-1
(xv)	Additional Column Protective Coating	As required in Appendix 19/1
(xvi)	Requirements for Aesthetic Approval	Not required
(xvii)	Number of Door Keys Required	One for every Five (or part of) columns
(xviii)	Identification and Location Markings	SLDS-4338-1401
(xix)	Requirements for wall Mountings	Not Required
(xx)	Requirements for Earthing	Columns shall be provided with either brass or stainless steel earth terminals on the column and column door and shall be fitted with a distinct and durable metal label marked: "SAFETY ELECTRICAL CONNECTION – DO NOT REMOVE".
(xxi)	Requirements for Columns Mounted on Structures	Not Required
(xxii)	Requirements for Cable Entry Slot	Minimum 150mm x 50mm
	Requirements for Attachments	PD 6547:2004 + A1:2009 Table 3 Class A 0.3m^2 or Spring Loaded Banner 1.54m^2 (740mm x 2030mm) mounted 2.7m to bottom edge of banner (Wind Loading 0.4m^2) or Festive Decoration 2.0m^2 (2000mm x 1000mm), weight 20kg, 30% solidity, 1.2 shape coefficient mounted minimum 2.5m to bottom edge. or Flower Basket 0.6m^2, weight 60kg concentrically mounted at 3.0m (Clamp on), 1.0 shape coefficient mounted 2.5m to bottom edge.
(xxiii)	Requirements of Electricity Supplier	400D4. Ducting to be 38mm diameter RED PVC and display the words "ELECTRIC CABLE DUCT" and provided with a draw rope

APPENDIX 13/1: INFORMATION TO BE PROVIDED WHEN SPECIFYING LIGHTING COLUMNS AND BRACKETS

3.	Latest date by which completed Data Sheets shall be provided:	With Tender Documents

Stainton Lighting Design Services Limited

APPENDIX 13/2: TYPICAL LIGHTING COLUMN AND BRACKET DATA – SHEET 1

Name of Manufacturer:	Column Reference No.	
	Revision No.	
	Date	

NAME OF CONTRACT

Part A General

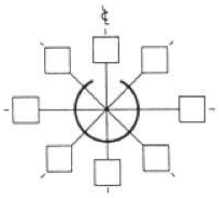
Column nominal height		(m)
Column material		
Material design strength		(N/mm^2)
Door opening size	Height	(mm)
	Width	(mm)

Cross-section of base compartment

Height (mm)	Width (mm)	Depth (mm)

Acceptable positions of bracket Arms relative to door position

Door Opening



Any	

Manufacturer's drawing ref. no.

(11/03) Corrosion protection (steel columns only) – basic system type (sub-Clauses 1911.9 and 1911.10)

(11/04) Reference Wind Velocity $V_{ref,o}$ as defined in BS EN 40-3-1 m/s

Details of signs and attachments allowed for in the design Area (mm^2), Eccentricity (mm), Height

-additional sacrificial steel thickness, above that needed in the design from the bottom of the column to at least 250mm above the anticipated ground level

Part B Foundation Data

Planted base

Planting depth (m)

	Standard Soil Type Factor G		
	630	390	230
Diameter of concrete surround (if any)			

Flange plate

Bolt hole centres	Bolt hole diameter	Design load/bolt
(mm)	(mm)	(N)

Relevant forces and moments at ground level

Line of action of max. moment relating to door opening

NOTE: For flange plates with slotted holes a diagram shall be included with this Data Sheet

Stainton Lighting Design Services Limited

APPENDIX 13/2: TYPICAL LIGHTING COLUMN AND BRACKET DATA – SHEET 2

(11/03) Part C Acceptable Luminaires

Luminaire: Maximum Characteristics

Post Top Column

			(11/04) Terrain Categories as defined in BS EN 40-3-1				
			I	II	III	IV	
Luminaire Connection		Luminaire Max Wt (kg)	(11/04) Maximum Windage Area (m^2) For Terrain Categories as defined in BS EN 40-3-1				
Diameter	Length						

Single Arm Bracket Column

Luminaire Lever Arm (mm)	
Due to Wt of luminaire	Due to windage of luminaire

Bracket Projection (m)	Ref No.	Drawing No.	Material		Luminaire Fixing Angle	Luminaire Connection		Luminaire Maximum Wt (kg)	911/04) Maximum Windage Area (m^2) for Terrain Categories as Defined in BS EN 40-3-1				
			Grade	Design Strength (N/mm^2)		Diameter (mm)	Length (mm)						

Double Arm Bracket Column

Luminaire Lever Arm (mm)	
Due to Wt of luminaire	Due to windage of luminaire

Bracket Projection (m)	Ref No.	Drawing No.	Material		Luminaire Fixing Angle	Luminaire Connection		Luminaire Maximum Wt (kg)	911/04) Maximum Windage Area (m^2) for Terrain Categories as Defined in BS EN 40-3-1				
			Grade	Design Strength (N/mm^2)		Diameter (mm)	Length (mm)						

Part D Certification

It is certified that the information given in this Data Sheet has been obtained in accordance with Departmental Standard BD 26 (DMRB 2.2.1) and the Specification

Signed on behalf of the Contractor ..... Date .....

APPENDIX 13/3: INSTRUCTIONS FOR COMPLETION OF LIGHTING COLUMN AND BRACKET DATA SHEETS

General

When information is not required a dash shall be inserted in the appropriate boxes.

Where a data Sheet is amended it shall be given a new revision number with a date.

The revision number shall be consecutive letters of the alphabet, commencing with “A”.

The date of the revision shall agree with the date of the Contractor’s signature.

The column, or bracket material, shall be steel, aluminium, reinforced or prestressed concrete, glass fibre reinforced plastic or any other suitable material.

The material strength shall be the minimum specified in the design. Where more than one material is used values for all materials shall be given.

All relevant entries shall be made on the Data Sheet before the document is certified by the contractor.

Column Data

(11/04) The column nominal height shall be selected from clause 2 or 3 of BS 5649-2 : 1978 as appropriate.

The number of door openings shall agree with the manufacturer’s drawing.

The cross-section of the base compartment shall be indicated by a dimensioned diagram/sketch.

The acceptable positions of bracket arms relative to the door position shall be indicated on the diagram. Where all positions are acceptable the box noted “ANY” shall be ticked.

Where concrete is necessary around the planted base in accordance with sub-Clause 1305.3 and 1305.4 the minimum diameter shall be entered.

For flange bases all forces and moments used in the design of the foundations, anchorages and attachment systems shall be given.

The corrosion protection system used on the column when new shall be recorded. Where additional steel is provided for sacrificial purposes the amount shall be recorded.

(05/01) The signs and attachments surface area, eccentricity from centre line of column to the centre of area of the sign and height above ground level to the centre of area of the sign shall be stated.

Bracket Data

(05/01) The luminaire lever arm, weight and maximum windage area quoted shall be based on the most adverse loading on the bracket when it is attached to any of the columns quoted in the compatible column sections.

(Note: The luminaire lever arms are where the horizontal distance from the centre of gravity of the luminaire and, if applicable, the centroid of the windage surface area to the end of the bracket joint).

APPENDIX 14/1: SITE RECORDS

General

As built drawings shall be produced by the Contractor. Copies of the Contract drawings will be provided by the Project manager in AutoCAD (.dwg) format. The record drawings produced by the Contractor shall be produced in AutoCAD (.dwg) format and provided electronically to the Project Manager.

Information to be Provided

The information shall include:

- Maintenance and operating manuals for installed equipment.
- Charge Codes and/or Switch Regime Codes shall be provided for all items of electrical equipment.
- Cable records shall be determined from kerb lines or fence lines.
- A schematic distribution layout drawing indicating the distribution arrangement of each private cable network.
- Test Certificates in accordance with BS7671.
- A schedule of abandoned cables.
- Cable offsets taken at 20 metre intervals where cables maintain a steady line, and at five metre intervals where the line of the cable varies.

Electrical Inspection and Testing

The Contractor shall test the whole of the new or modified installation in accordance with the recommendations of BS7671: Requirements for Electrical Installations. Existing installations not directly forming part of the works may also be tested at the discretion of the Employer.

The Employer shall be given the opportunity to be in attendance during testing. The accuracy of all tests shall be to the satisfaction of the Employer whose decisions shall be final. The Contractor shall supply all necessary attendance, assistance, materials and instruments, and shall demonstrate, if required, the accuracy of any instrument used.

If tests prove unsatisfactory on any portion of the installation provided by the Contractor they shall rectify all faults to provide full compliance with the requirements of BS7671: Requirements for Electrical Installations, and shall repeat all tests on that part of the installation.

Whenever work requiring inspection or testing is subsequently to be concealed, due notice shall be given to the Employer so that inspection may be made or tests witnessed before concealment. Failure to give due notice may necessitate the Contractor uncovering the work and reinstating.

Testing shall form an integral part of the Contractor's program of works

All documentation associated with testing shall be submitted to Employer in advance of contract practical completion to enable the contract supervising engineer to ascertain the accuracy of submitted results. The contractor shall retain full responsibility for all results recorded by him on the test sheets. Documentation shall include the following.

Signed test and completion certificate complying with the requirements of the Appendix 6 of BS7671: Requirements for Electrical Installations as NICEIC pattern certificate or similar.

Stainton Lighting Design Services Limited

Certificate shall be marked with the NICEIC registration number of the organisation carrying out the tests.

Schedule of each circuit giving details of cable type and CSA, protective device type and rating, and all test results as detailed in Appendix 6 of BS7671: Requirements for Electrical Installations as NICEIC pattern certificate or similar.

APPENDIX 14/2: LOCATION OF LIGHTING UNITS AND FEEDER PILLARS

General

All information relating to the existing installations possessed by the Project manager regarding the position of existing underground cabling, feeder pillars and lighting unit positions will be made available to the Contractor without any guarantee as to its accuracy.

It is recommended that the Contractor undertake a site survey prior to commencement of works to verify the accuracy and fullness of any information provided.

Location of Lighting Units and Feeder Pillars

The location of all lighting units and feeder pillars shall be as detailed on the Contract drawings.

The minimum lighting requirements for the works are detailed in Table 14/2.1.

Alternative Luminaires

Should the Contractor wish to propose alternative luminaires the following information shall be provided to the Project manager for approval prior to the commencement of Works to demonstrate compliance with Table 14/2.1 and specification laid out in 14/4.

The information shall include:

- Road and/or Area lighting design calculations
- Luminaire Manufacturer
- Luminaire Model
- IP Rating
- Luminaire Optic Setting
- Number of LEDs
- LED Colour Temperature (CCT)
- LED Colour Rendering Index (Ra)
- LED Drive Current
- Charge Code (Elexon)

Table 14/2.1

Location	BS5489-1 Lighting Class	Maintenance Factor	Road Surface Category	Contractor Proposed Luminaire
Aldi, Preston Street	M4	0.87	C2 – 0.07	

APPENDIX 14/4: ELECTRICAL EQUIPMENT FOR ROAD LIGHTING

1. Cut-Out units, Fuse Holders, Fuses and Miniature Circuit Breakers (MCB's)

Cut out units shall be purpose made for road lighting applications and shall have a moulded housing with minimum protection of IP2X.

In addition cut out units shall comply with the following

- be fitted with a DIN rail mounted double pole isolator to BS EN 60947-3 having positive contact indication 32A rating.
- be fitted with a DIN rail mounted BS88 fuse carrier or protective device as specified in drawing SLDS-4338-1401.
- have a lockable transparent cover which may only be removed by use of a tool.

Maximum incoming cable CSA for termination in double pole isolator shall be 6mm2. Cables shall not be looped in and out of isolator terminals.

Where looped services from cut out units are required those units shall be fitted with extension boxes and terminal blocks of the same manufacture as the cut out unit.

Fuse links shall be of the ferrule cap pattern complying with BS88. They shall be of high breaking capacity type and be of a value suitable for the circuit to be protected.

Each lamp circuit shall be protected by a fuse to BS 88 and shall be fitted without removal of the fixing screw and be an appropriate rating.

Miniature Circuit Breakers shall

- be manufactured and tested to BS EN 60898
- be Type C
- operating voltage 230/415V a.c. 50Hz
- have minimum short circuit breaking capacity 6KA
- let through energy classification of 3
- have positive contact indication (on/off indication)
- have trip free mechanism operating even when toggle is locked
- be lockable in the ON or OFF position
- have part number clearly painted on the front face for ease of identification
- have a terminal capacity of 25mm for rating up to 25A and 35mm capacity for rating 32A and above
- have IP rating, front face IP4X and screw terminals IP2X

All electrical equipment installed within the base compartment of columns or posts shall be fixed in accordance with manufacturer's instructions with corrosion resistant fixing screws and laid out in accordance with SLDS-4338-1401.

Termination Reference	Cut-out Manufacturer and Model	Cut-out Catalogue or Reference Number
D1		

2. Internal Wiring

General requirements

The cables used for wiring shall be certified, as applicable, in accordance with (as a minimum):

BASEC	The British Approvals Service for Cables (BASEC)
BS 6004:2012+A1:2020	Electric cables. PVC insulated and PVC sheathed cables for voltages up to and including 300/500 V, for electric power and lighting
BS 6231:2006	Electric cables. Single core PVC insulated flexible cables of rated voltage 600/1000 V for switchgear and controlgear wiring
BS 7655-4.2:2000	Specification for insulating and sheathing materials for cables. PVC sheathing compounds – General application
BS EN 50363-3:2005+A1:2011	Insulating, sheathing and covering materials for low voltage energy cables – PVC insulating compounds
BS EN 60228:2005	Conductors for insulated cables

The wiring between the terminal block in the luminaire and the cut out termination in the base of the column shall be PVC insulated and sheathed multi-core cable to BS 6004:2012. Phase and neutral copper conductors shall be 1.5mm^2 in cross-sectional area.

The final connection between the cut out unit and DNO/IDNO supply cut out shall be PVC insulated and sheathed single core cable of minimum cross-sectional area of 2.5mm^2.

All wiring shall be neatly bunched together with cable ties.

Specific Requirements

Cable Reference	Arctic Grade
Voltage Rating Uo/U	300/500V
Temperature Rating	-40/+60^{o}C
Conductors	Class 5 Plain Annealed Flexible Stranded Copper Conductor
Insulation Material	PVC (Polyvinyl Chloride)
Sheath Material	PVC (Polyvinyl Chloride)
Core Identification	Three Core: Blue – Brown – Green/Yellow Five Core: Blue – Brown – Green/Yellow – Black - Grey
Minimum Bending Radius	6 x Overall Diameter
Sheath Colour	Blue

Cable Reference	Single Core – Double Insulated (6181Y)
Voltage Rating Uo/U	300/500V
Temperature Rating	-15/+70°C
Conductors	1mm² to 2.5mm²: Class 1 Solid Copper Conductor 4mm² to 25mm²: Class 2 Stranded Copper Conductor
Insulation Material	PVC (Polyvinyl Chloride)
Sheath Material	PVC (Polyvinyl Chloride)
Core Identification	Blue or Brown
Minimum Bending Radius	Up to 6mm² – Fixed: 3 x overall diameter 10mm² to 25mm² – Fixed: 4 x overall diameter
Sheath Colour	Grey

Cable Reference	Tri-Rated
Voltage Rating Uo/U	600/1000V
Temperature Rating	-15/+90°C
Conductors	Class 5 Plain Annealed Flexible Stranded Copper Conductor
Insulation Material	N/A
Sheath Material	PVC (Polyvinyl Chloride)
Core Identification	N/A
Minimum Bending Radius	6 x Overall Diameter
Sheath Colour	Green/Yellow

Cable Type	Cable Manufacturer	Cable Reference Number
Arctic Grade		
6181Y		
Tri-Rated		

3. Earthing

All earth connections shall be made by means of a crimped lug type termination.

Earth labels, in accordance with IEC 60417, shall be fitted to all main earthing terminals.

A circuit protective conductor shall connect the earth terminal on each luminaire to the main earth terminal associated with the service cut-out unit.

A separate circuit protective conductor of not less than 2.5mm2 cross-sectional area shall connect all metal enclosures of all electrical components to the main earth terminal.

All extraneous conductive parts as described in BS 7671, and including doors to feeder pillars, lighting columns and lit sign units, shall be bonded to the main earthing terminal using a Tri-rated equipotential bonding conductor of 6.0mm2 cross-sectional are where the lighting unit is directly services by a TN-C-S (PME) supply.

Earth blocks shall

- be manufactured from brass
- have provision to terminate eight number, conductors
- be fitted securely to the backboard by two number, stainless steel screws.